

# Remedial Design Work Plan

**7700 Earhart Boulevard Facility  
New Orleans, Louisiana**

**Agency Interest No. 1275**

**Volume 2 of 2  
Appendix F**



**Shaw**® Shaw Environmental & Infrastructure, Inc.

*Prepared by:*

**Shaw Environmental & Infrastructure, Inc.**



Shaw Environmental & Infrastructure, Inc. P3 31

Shaw Environmental & Infrastructure, Inc.

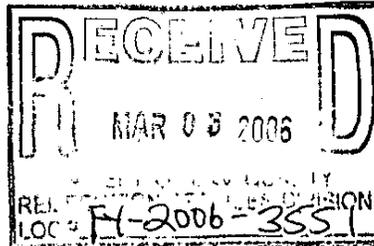
LDEQ RECEIPT

4171 Essen Lane  
Baton Rouge, LA  
225 932-2500  
FAX: 225-987-7300

March 2, 2006

Project No.: 118267  
HAND DELIVERED

Mr. Keith Casanova, Administrator  
Remediation Services Division  
Department of Environmental Quality  
P. O. Box 82178  
Baton Rouge, LA 70884-2282



Department of Agriculture and Forestry  
Mr. Larry LeJuene, Assistant Director  
Pesticides and Environmental Programs  
P. O. Box 3596  
Baton Rouge, LA 70821-3596

RE: Remedial Design Work Plan  
7700 Earhart Boulevard Facility  
New Orleans, Louisiana  
Agency Interest Number 1275

Remediation Services Division	
Manager:	<u>Busquet</u>
Team Leader:	<u>Aljola</u>
AI #:	<u>1275</u>
TEMPO Task #:	
<input type="checkbox"/> Desk Copy	File Room: <u>JAS</u>

Dear Mr. Casanova and LeJune:

On behalf of T H Agriculture and Nutrition, L.L.C. (THAN) and Elementis Chemicals, Inc (Elementis - formerly Harcros Chemicals, Inc.), Shaw Environmental & Infrastructure, Inc. is providing copies of the above referenced work plan. In accordance the Cooperative Agreement between the State of Louisiana and THAN/Harcros, copies of the report are being submitted in quintuplicate to the Louisiana Department of Environmental Quality (LDEQ) and duplicate to the Louisiana Department of Agriculture and Forestry.

Should you have any question please contact me at (225) 987-7326.

Sincerely,  
Shaw Environmental & Infrastructure, Inc.

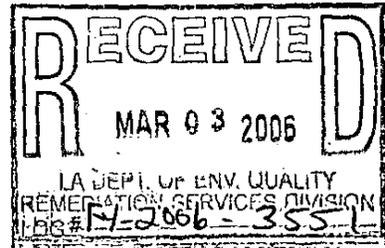
Kenneth P. Romero, PG  
Project Manager

cc: Mr. Jack Cleary - THAN (1 copies)  
Mr. Glen Cavanaugh - Elementis (1 copies)  
Mr. Dwayne Johnson - Kean, Miller, et al. (1 copy)  
Project Files - (2 copies)



MAR - 2 2006

LDEQ



Remediation Services Division	
Manager:	<u>Buduet</u>
Team Leader:	<u>A. Kufali</u>
AI #:	<u>1215</u>
TEMPO Task #:	_____
<input type="checkbox"/> Desk Copy	File Room: <u>IAS</u>

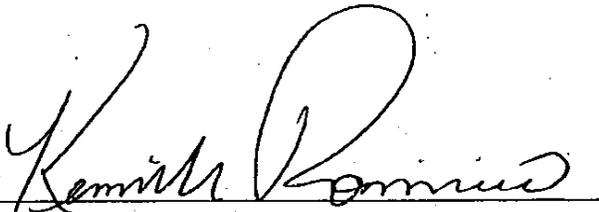
## APPENDIX G

# SITE SPECIFIC HEALTH AND SAFETY PLAN

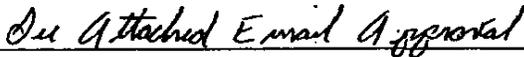
HEALTH AND SAFETY PLAN  
PREPARED FOR

THAN/HARCROS  
7700 Earhart Boulevard  
New Orleans, Louisiana

July 6, 2005



Kenneth Romero, P.G.  
Project Manager



Clifford Florczak  
Health and Safety Representative

The information in this HASP has been designed for the methods presently contemplated by Shaw Environmental & Infrastructure, Inc. (Shaw) for 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 Shaw. In addition, as the work is performed, conditions different from those anticipated may be encountered and the HASP may have to be modified. Therefore, Shaw only makes representations or warranties as to the adequacy of the HASP for currently anticipated activities and conditions.

**Oubre, Mike**

---

**From:** Florczak, Clifford  
**Sent:** Thursday, July 07, 2005 3:26 PM  
**To:** Oubre, Mike  
**Subject:** RE: THAN HASP

Mike:

Looks good. Send me a number.

Thanx

Cliff

---

**From:** Oubre, Mike  
**Sent:** Thursday, July 07, 2005 9:47 AM  
**To:** Florczak, Clifford  
**Cc:** Romero, Kenneth  
**Subject:** RE: THAN HASP

Cliff attached is the HASP for what should be a final review. I've made the requested changes including tweaking the PPE requirements for remedial activities (Table 9), and updating the JSA to reflect confined space entry requirements for cleaning out the manholes. I have not attached the appropriate confined space forms since they are in a PDF format and the document is in Word, but they will be included in both the attached policies section and in Appendix B.

Michael T. Oubre  
Shaw Environmental & Infrastructure, Inc.  
4171 Essen Lane, 6th Floor  
Baton Rouge, LA 70809  
Phone (225) 987-7341  
Fax (225) 987-3316  
Cell (225) 252-2618

---

**From:** Florczak, Clifford  
**Sent:** Wednesday, July 06, 2005 5:04 PM  
**To:** Oubre, Mike  
**Subject:** RE: THAN HASP.

Mike:

Generally fine job. A couple of comments though:

Hazard determination should be "low"

Manhole sampling is likely a confined space situation. Best give me a call.

Table 3 list STEL I believe you mean PEL.  
Table 9 when sampling sump likely need higher level of protection.

Appendix C get rid of HS 401, 820, and 830.

Thanx

Cliff

7/15/2005

---

**From:** Oubre, Mike  
**Sent:** Wednesday, July 06, 2005 1:23 PM  
**To:** Florczak, Clifford  
**Cc:** Romero, Kenneth  
**Subject:** THAN HASP

Cliff I've attached a HASP for the upcoming work at THAN in New Orleans. Can you please review and make comments?  
The areas highlighted yellow are of special concern.

Michael T. Oubre  
Shaw Environmental & Infrastructure, Inc.  
4171 Essen Lane, 6th Floor  
Baton Rouge, LA 70809  
Phone (225) 987-7341  
Fax (225) 987-3316  
Cell (225) 252-2618

7/15/2005

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- A Agreement and Acknowledgement Form  
HASP Amendment Sheet
- B H&S Site Logs and Forms
- C Required Shaw H&S Procedures
- D Supplemental Chemical Hazard Information
- E Site Maps
- F Job Safety Analyses (JSA)

**SITE EMERGENCY FORM**

Contaminants of Concern: Aldrin, Benzene, Chlordane, Chlorobenzene, 1,1-Dichloroethane, 1,2-Dichloroethane, Dieldrin, Heptachlor, Naphthalene, Tetrachloroethene, Toluene, 1,1,2-Trichloroethane, Trichloroethene, and Xylene

Minimum Level of Protection: Level D

Hazard Determination: Serious \_\_\_\_\_ Moderate \_\_\_\_\_ Low X

SEE SECTION 7.0 FOR SITE EMERGENCY CONTINGENCY PROCEDURES

*Do not endanger your own life. Survey the situation before taking any action.*

Office Telephone	(225) 932-2500
Site Location Address	7700 Earhart Boulevard, New Orleans, LA

**EMERGENCY PHONE NUMBERS IN THE EVENT OF ANY EMERGENCY CONTACT PROJECT MANAGER (PM) OR THE HEALTH AND SAFETY REPRESENTATIVES**

Ambulance	911
Fire	911
Police	911
Poison Control	(800) 222-1222
Local Shaw Medical Provider	TBD
Shaw Medical Case Manager	Dr. Jerry H. Becke, MD, MPH, Health Resource (781) 935-8581 (direct dial) (800) 350-4511 (toll free)
Hospital Name	MEMORIAL MEDICAL CENTER
Hospital Phone Number	(504) 899-9311
Project Manager (PM)	Kenneth Romero (225) 987-7326 or (225) 241-2428
Site Safety and Health Officer (SSHO)	Michael T. Oubre (225) 987-7341 or (225) 252-2618
Health and Safety Representative (HSR)	Clifford Florczak (630) 771-9205
Client Contact	Jack Cleary (913) 888-2922
State Agency	LDEQ (888) 763-5424

**UTILITY MARKER EMERGENCY TELEPHONE NUMBERS**

Utility	Color Code	Telephone Number
Water	Blue	Please refer to the Dig safe number.
Gas	Yellow	
Electric	Red	
Telephone/Cable	Orange	
Sewer	Green	
Utility 800 number here: (800) 584-4274		

### HOSPITAL LOCATION MAP

**Full Route:**

**Your Directions**

1. Start at **7700 EARHART BLVD, NEW ORLEANS** going towards **PINE ST** - go **1.0 mi**
2. Turn **L** on **S BROAD ST** - go **0.3 mi**
3. Take the **POYDRAS** exit - go **0.2 mi**
4. Continue on **POYDRAS ST** - go **0.2 mi**
5. Turn **L** on **S GALVEZ ST** - go **0.1 mi**
6. Turn **R** on **PERDIDO ST** - go **0.1 mi**



Destination Route: © 2004 Yahoo! Inc

©2004 NAVTEQ

#### HOSPITAL INFORMATION:

**Name:** Memorial Medical Center  
**Address:** 2700 Napoleon Avenue  
**City, State:** New Orleans, LA  
**Phone:** Emergency: (504) 899-9311  
General: (504) 899-9311

**EMERGENCY FIRST AID PROCEDURES**

**RESPONDER MUST HAVE A CURRENT CERTIFICATE TO ADMINISTER FIRST AID OR CPR**

1. Survey the situation. Do not endanger your own life. **DO NOT ENTER A CONFINED SPACE TO RESCUE SOMEONE WHO HAS BEEN OVERCOME UNLESS PROPERLY EQUIPPED AND TRAINED. ENSURE ALL PROTOCOLS ARE FOLLOWED INCLUDING THAT A STANDBY PERSON IS PRESENT. IF APPLICABLE, REVIEW MSDSs TO EVALUATE RESPONSE ACTIONS FOR CHEMICAL EXPOSURES.**
2. Call 911 (if available) or the fire department **IMMEDIATELY**. Explain the physical injury, chemical exposure, fire, or release.
3. Decontaminate the victim without delaying life-saving procedures.
4. If the victim's condition appears to be non-critical, but seems to be more severe than minor cuts, he/she should be transported to the nearest hospital by trained Emergency Medical Services (EMS) personnel: let the doctor assume the responsibility for determining the severity of the injury. If the condition is obviously serious, EMS must transport the victim.

Notify the PM, SS, SM, and the SHSO. Complete the appropriate incident investigation reports.

<b>STOP BLEEDING AND CPR GUIDELINES</b>	
<b>Stop Bleeding</b>	<b>CPR</b>
<ol style="list-style-type: none"> <li>1. Give medical statement.</li> <li>2. Assure airway, breathing, circulation.</li> <li>3. Use <b>DIRECT PRESSURE</b> over the wound with clean dressing or your hand (use non-permeable gloves). Direct pressure will control most bleeding.</li> <li>4. Bleeding from an artery or several injury sites may require <b>DIRECT PRESSURE</b> on a <b>PRESSURE POINT</b>. Use pressure points for 30 60 seconds to help control severe bleeding.</li> <li>5. Continue primary care and seek medical aid as needed.</li> </ol>	<ol style="list-style-type: none"> <li>1. Give medical statement.</li> <li>2. Arousal: Check for consciousness.</li> <li>3. Open airway with chin-lift.</li> <li>4. Look, listen, and feel for breathing.</li> <li>5. If breathing is absent, give 2 slow, full rescue breaths.</li> <li>6. Check the pulse for 5 to 10 seconds.</li> <li>7. If pulse is present, continue rescue breathing: <b>1 breath every 5 seconds</b>.</li> <li>8. If pulse is absent, initiate CPR; 15 compressions for each two breaths.</li> </ol>

## 1.0 INTRODUCTION

The policy of Shaw Environmental & Infrastructure, Inc. (Shaw) is to provide a safe and healthful work environment for all employees. Shaw considers no phase of operations or administration to be of greater importance than injury and illness prevention. Safety takes precedence over expediency and shortcuts. At Shaw, it is believed all accidents and injuries are preventable. Shaw will take every reasonable step to reduce the possibility of injury, illness, or accident.

The objective of this plan, therefore, is to provide a mechanism for establishing safe working conditions at the site. The safety organization, procedures, and protective equipment have been established based upon an analysis of potential hazards. Specific hazard control methodologies have been evaluated and selected to minimize the potential of accident or injury.

This HASP prescribes the procedures that must be followed during referenced site activities. Operational changes that could affect the health and safety of personnel, the community, or the environment will not be made without the prior approval of the Project Manager and the Health and Safety Manager.

The provisions of this plan are mandatory for all personnel and subcontractors assigned to the project. All visitors to the work site must abide by the requirements of the plan. All project participants will attend a pre-job briefing where the contents of this HASP will be discussed. Accordingly, project staff assigned to this project must sign the Agreement and Acknowledgement Sheet (Appendix A) to confirm that they understand and agree to abide by the provisions of the plan.

All work will comply with the Occupational Safety and Health Act (OSHA) standard, "Hazardous Waste Operations and Emergency Response" (29 CFR 1910.120), Shaw Environmental & Infrastructure, Inc. Company Health and Safety Procedures, and other federal, state, and local procedures that require the development and implementation of a HASP. Generation of this document certifies that the workplace has been evaluated for the hazards as described. A hazard assessment has been performed and the adequacy of the personal protective equipment (PPE) selected was evaluated as required by 29 CFR 1910.132(d), 1910.134, 1926.25, and 1926.55, and is duly noted by the signature(s) and date appearing on the cover page of this document.

### **1.1 Site Description/Background Information**

The Facility is situated on an approximately 2.7 acre tract of land located in New Orleans, Louisiana. The facility lies within a residential and light industrial district in the city and is bounded by Earhart Boulevard, Burdette, Pine, and Colapissa Streets. The facility is currently not occupied and is situated on land squares 461 and 462. An approximately 40,000 square foot cinder block warehouse building is located on square 461. A temporary asphalt cover is located over the remainder of the property.

Available records indicate Thompson-Hayward Chemical Company (THCC) first occupied the Facility as early as 1931. Operations in 1931 appeared to be restricted to the property identified by the present-day warehouse, land square 461. THCC purchased squares 461 and 462 from Gaylord Container Company in February of 1941. The property previously identified as the mixing plant (land square 462), was leased to Diamond Mop Company through the 1930's and 1940's.

Small-scale dry formulation of pesticides commenced during the 1940's. THCC expanded into square 462 and established the liquid formulation process after termination of Diamond Mop Company's lease in August of 1950. Available records indicate the 1950's were a time of growth and expansion for the Facility. This time period is denoted by the first appearance of storage vessels and mixing kettles in the rear storage yards, indicating that liquid formulated agricultural pesticides were added to the production activities line. Activities continued to increase throughout the 1960's, with production activities declining dramatically by the mid 1970's.

Liquid formulation was discontinued in early 1975, while dry formulation ceased in 1977. Through 1988, activities at the facility consisted of warehousing and distribution of industrial chemicals, Pest Control Operation (PCO) products and dry cleaning chemicals, and bagging of soda ash. The site was purchased by Harcros Chemicals, Inc. in 1981 from THAN and has been commercially inactive since 1988.

### **1.2 Scope of Work**

Based on the results of the Risk Assessment (RA) (IT Corporation, October 2001), Addendum to RA (IT Corporation, April 2002), Feasibility Study (FS) (Shaw, January 2003), and FS Addendum No. 2 (Shaw, December 2004) media requiring remedial action includes the following:

- Debris;
- Liquids;
- Storm drain sediments;
- On-site surface soil.

### 1.2.1 Debris

Debris consists of the asphalt and crushed limestone forming the temporary cover, the original concrete cover and two underground storage tanks (Tanks 1 and 2), concrete sumps (Sumps 4 and 6), subsurface concrete drains, and abandoned monitoring well material. While off-site land disposal of the excavated debris is administratively and technically implementable, the debris classified with RCRA listed waste codes will require treatment for each "contaminant subject to treatment" as defined by paragraph (b) of 40 CFR 268.45 using the technology or technologies identified in Table 1 of 40 CFR 268.45. Since some of the debris at this Site will carry the listed RCRA hazardous waste code U210 for perchloroethylene, an immobilization technology – encapsulation – as specified in Table 1 of 40 CFR 268.45 is selected for this particular media.

- **Debris Requiring Encapsulation** - includes concrete sumps and drain lines, concrete cover over the impacted soil, two underground storage tanks, and abandoned well materials.
- **Construction/Demolition Debris** – includes asphalt/crushed limestone sub base which will be disposed of as non-hazardous material at an industrial landfill.

### 1.2.2 Liquids

Liquids include the contents of two underground storage tanks, liquids in concrete drain lines, and the water that will be utilized to flush the storm drain pipes and manholes as well as any contact water collected in the open excavations due to groundwater infiltration or surface water runoff. Stormwater includes all precipitation and/or surface water which may be on-site but which do not come in contact with potentially hazardous constituents.

- **Contact-** liquids will be disposed by either deep well injection or treatment and discharge to the S&WBNP Storm Drain System.
- **Stormwater** – will be diverted from coming in contact with potentially hazardous constituents and directed to the nearby S&WBNO drainage system.
- **NAPL** – phase liquids located in Sump No.6 will be disposed of via incineration.

### 1.2.3 Storm Drain Sediments

The storm drain sediment data was collected during the Street Sampling Program (IT Corporation, November 1997) and includes samples collected from drain pipes and manholes along the storm drain system beneath Burdette, Lowerline and Pine Streets. Two sediment samples from Burdette Street and one sample from Lowerline Street contained selected OCL

pesticides at concentrations that exceed the RALs. Therefore, storm drain lines and manholes will be cleaned and flushed between sample locations DM-1 and DM-32 on Burdette Street and between sample location STA-1 and STA-3 on Lowerline Street as presented on Figure 3-1.

Additional samples from storm drain sediments maybe collected for further characterization of the waste. Sediments recovered from flushing of the storm drain lines in Burdette and Lowerline Streets will be disposed of according to the sample analysis results. Sediments characterized as hazardous waste will be disposed of either at a hazardous waste landfill or via incineration depending on the constituent concentrations.

#### **1.2.4 On-Site Surface Soil**

On-site surface soil is defined as the soil located on the property (e.g., street curb to street curb) with a depth range from just below the original concrete cover to an approximate depth of 4.5 feet below ground surface (bgs). This depth coincides with the approximate elevation of the top of the water table aquifer. Based on the current land-use, there are no potential exposures for sub-surface soil at the site. Surface soils were identified as a medium of concern because exposure of future on-site industrial workers results in a cumulative carcinogenic risk of  $5 \times 10^{-4}$ .

At the time of the 1989 remedial activities, there were no commercial hazardous waste treatment or disposal facilities in the United States permitted to accept F027 waste materials for treatment or disposal. Thus, areas containing, or potentially containing, F027 waste constituents were left in place surrounded by a buffer zone. As mentioned in Section 2.0 of this addendum, evaluation of the RCRA listed hazardous waste classification resulted in retention of five (5) RCRA waste codes and did not include the F027 listed code; hence all on-site surface soils will be addressed collectively for treatment and disposal purposes.

#### **1.25 Off-Site Monitoring Wells Plug and Abandonment**

In addition to the above described remedial activities that are scheduled to take place on and off-site, there are also twenty (20) off-site monitoring wells that must be plugged and abandoned. These wells range in depth from 8 to 63 feet below ground surface and are located either in a median area or on a sidewalk area surrounding the site. The surface completion of each well will first be removed. Each well will then be grouted in place using the tremie pump-down method.

### **1.3 Key Safety Personnel**

Shaw will implement, oversee, and act accordingly during all phases of the project. The following management structure will be instituted for the purpose of successfully and safely completing this project.

**Technical Advisor**

**John Pierdomenico, CIH**

**Shaw Environmental & Infrastructure, Inc.**

**West Chester, PA**

**(610) 241-5000**

The specific duties of the technical advisors include:

- Providing technical input into the design and implementation of the site HASP; and
- Advising on potential for worker exposure to project hazards along with appropriate methods and/or controls to eliminate site hazards.

The following individuals share responsibility for health and safety at the site. The role and responsibility for each is outlined in Table 1:

Project Manager (PM)	Kenneth Romero (office) (225) 987-7326 (cell) (225) 241-2428
Site Health and Safety Officer (SHSO)	Michael T. Oubre (office) (225) 987-7341 (cell) (225) 252-2618
Client Representative	Jack Cleary (office) (913) 888-2922
Health and Safety Manager (HSM)	Clifford Florczak, CIH (office) (630) 771-9205 (cell) (708) 308-6200
Vice President, Health & Safety	Troy Allen, CIH (office) (225) 932-2579

**Table 1 Responsibilities of On-Site Personnel**

Title	General Description	Responsibilities
Project Manager (PM)	Has authority to direct response operations. Assume total control over site activities.	<ul style="list-style-type: none"> <li>• Prepares and organizes background review of the project, the work plan, and the field team.</li> <li>• Obtains permission for site access and coordinates activities with appropriate officials.</li> <li>• Sees that the work plan is properly carried out and on schedule.</li> <li>• Briefs the Site Supervisor (SS), SHSO, and field personnel on specific assignments.</li> <li>• Together with the Site Supervisor (SS) and SHSO, sees that health and safety requirements are met.</li> <li>• Consults with the HSR regarding unsafe conditions, incidents; or changes in site conditions or the scope of work.</li> <li>• Ensures Company Accident/Incident report procedures are followed (Appendix B).</li> </ul>
Site Supervisor (SS)	Reports to PM. Has authority to direct response operations. Assumes control over on-site activities.	<ul style="list-style-type: none"> <li>• Conducts daily safety meetings.</li> <li>• Executes the work plan and schedule.</li> <li>• Manages the construction operations.</li> <li>• In conjunction with the SHSO, conducts periodic field health and safety inspections to ensure compliance with this HASP.</li> <li>• Enforces safety procedures.</li> <li>• Coordinates with the SHSO in enforcing worker protection levels.</li> <li>• Enforces site control.</li> <li>• Notifies when necessary, local public emergency officials.</li> <li>• In conjunction with the SHSO, responsible for follow-up of incident reports to the PM.</li> </ul>
SHSO	Advises the PM on all aspects of health and safety on site. Stops work if site operations threaten worker or public health and safety. Informs the HSR of any changes in site conditions or project status.	<ul style="list-style-type: none"> <li>• Conducts periodic inspections to assess whether the HASP is being followed.</li> <li>• Periodically inspects protective clothing and equipment.</li> <li>• Sees that protective clothing and equipment are properly stored and maintained.</li> <li>• Controls entry and exit at the access control points.</li> <li>• Performs air monitoring in accordance with this HASP. Maintains and oversees operation of monitoring equipment and interpretation of data from the monitoring equipment.</li> <li>• Monitors workers for signs of stress, including heat stress, cold exposure, and fatigue.</li> <li>• Enforces the "buddy" system.</li> <li>• Informed of emergency procedures, evacuation routes, and telephone number of local hospital, poison control center, fire department, and police department.</li> <li>• Notifies, when necessary, local public emergency officials.</li> <li>• Communicates incidents promptly to SS and PM.</li> <li>• Maintains communication with HSR on site activities.</li> <li>• If applicable, ensures decon and disposal procedures are followed.</li> <li>• Maintains the availability of required equipment.</li> <li>• Advises appropriate health services and medical personnel of potential exposures.</li> <li>• Notifies emergency response personnel in the event of an emergency. Coordinates emergency medical care</li> </ul>

Title	General Description	Responsibilities
Work Team	Reports to the SS for on-site activities. Work parties must comprise at least two people for trench entry.	<ul style="list-style-type: none"><li>• Safely completes on-site tasks required to fulfill the work plan.</li><li>• Complies with the HASP.</li><li>• Attends and participates in daily safety meetings.</li><li>• Notifies the SS and SHSO of suspected unsafe conditions.</li><li>• Reports all incidents to the SS and SHSO.</li></ul>

**1.4 Health and Safety Training Programs**

Table 2 provides a description of the health and safety training programs to be complied with by site personnel working on this project.

**Table 2 Health and Safety Training Programs**

Activity	Description	Action
Medical Surveillance	The program tracks the physical condition of the Company's employees in compliance with Department of Transportation (DOT) regulations and OSHA standards, and other customer requirements.	<ul style="list-style-type: none"> <li>• Medical examinations and consultations are completed for all employees prior to assignment, annually, upon termination, and in the event of injury and/or illness resulting from exposure at the work site.</li> <li>• Dr. Jerry H. Becke (MD, MPH), of Health Resources will review all medical examinations and will be available for medical consultation on an "as-needed" basis.</li> </ul>
Training	Training requirements and programs comply with the OSHA Hazardous Waste Operations and Emergency Response regulation, 29 CFR 1910.120.	<ul style="list-style-type: none"> <li>• Field personnel must complete a minimum of 40 hours of hazardous waste activity instruction.</li> <li>• Field personnel must complete a minimum of three days of supervised field instruction.</li> <li>• Field personnel assigned to the site will also receive 8 hours of refresher training each year.</li> <li>• On-site managers and supervisors directly responsible for employees engaged in hazardous waste operations receive an additional 8 hours of supervisory training.</li> <li>• Field personnel assigned to site also receive first aid/CPR and bloodborne pathogen training.</li> <li>• Other training may be required depending on the task to be performed (e.g., confined space, excavation/trenching, underground storage tank removal, fall protection, respiratory protection, and hazard communication). See JSAs.</li> </ul>
Initial Orientation	Hazardous Waste Operations Initial Health and Safety Orientation	<ul style="list-style-type: none"> <li>• All project participants engaged in site operations will attend an initial site orientation where this HASP will be discussed and followed. Personnel will acknowledge having been given the orientation by signing the agreement and acknowledgement form in Appendix A.</li> </ul>

## 2.0 HAZARD ANALYSIS

The chemical hazards from contaminated soils are addressed in section 2.1 (Table 3). Section 2.2 (Table 4) presents chemical handling procedures to be followed when handling corrosive materials. Based on the scope of work for this project, Job Safety Analyses (JSAs) for the specific work tasks have been developed and are included in Appendix F. Table 5, provides general guidelines that are common to most projects.

Any change in the scope of work will require an amendment to this HASP. Any task that will be conducted beyond the scope of work identified in this HASP must be evaluated using the Job Safety Analysis (JSA) process. The Project Manager and Site Manager will be responsible for identifying conditions that are beyond the scope of work and communicating to the health and safety representatives. The HSR will work with the PM and SM to develop JSAs or provide guidance in the development of JSA's. JSAs will be reviewed and approved by the HSR and PM via the HASP amendment prior to initiation of the task. The JSA format is included in Appendix B. The completed JSAs must accompany the HASP.

### 2.1 Contaminants of Concern Profile

Based on recent site history and site characterization, Table 3 presents a summary profile of the hazards and control measures to follow for the contaminants of concern. For more detailed and specific information, always refer to the Material Safety Data Sheet (MSDS) or equivalent information for the compound located in Appendix D.

**Table 3 Contaminants of Concern Profile**

CHEMICAL	EXPOSURE ROUTES	OSHA PEL	HEALTH HAZARDS/ PHYSICAL HAZARDS
Aldrin	Inhalation, Absorption, Ingestion, Contact	0.25 mg/m <sup>3</sup> skin	<ul style="list-style-type: none"> <li>Headache, dizziness; nausea, vomiting, malaise, myoclonic jerks of limbs; clonic, tonic convulsions; coma; hematopoietic, azotemia [carcinogen]</li> </ul>
Benzene	Inhalation, Absorption, Ingestion, Contact	1 ppm [5 ppm]	<ul style="list-style-type: none"> <li>Irritating to eyes, nose, and respiratory system. giddiness; headache, nausea, staggered gait, fatigue, anorexia, lassitude, dermatitis, bone marrow depressant [carcinogen]</li> </ul>
Chlordane	Inhalation, Absorption, Ingestion, Contact	0.5 mg/m <sup>3</sup> skin	<ul style="list-style-type: none"> <li>Irritating to eyes, nose, and respiratory system. giddiness; headache, nausea, staggered gait, fatigue, anorexia, lassitude, dermatitis, bone marrow depressant [carcinogen]</li> </ul>

CHEMICAL	EXPOSURE ROUTES	OSHA (PEL)	HEALTH HAZARDS/ PHYSICAL HAZARDS
Chlorobenzene	Inhalation, Ingestion, Contact	75 ppm	<ul style="list-style-type: none"> <li>Irritation to the skin, eyes, nose; drowsiness; incoordination; in animals: liver, lung, kidney damage</li> </ul>
1,1-Dichloroethane	Inhalation, Ingestion, Contact	100 ppm	<ul style="list-style-type: none"> <li>Central Nervous System depressant; skin irritant; liver, kidney damage</li> </ul>
1,2-Dichloroethane	Inhalation, Ingestion, Contact	50 ppm 200 ppm	<ul style="list-style-type: none"> <li>Irritation to the eyes and respiratory system; Central Nervous System depressant</li> </ul>
Dieldrin	Inhalation, Absorption, Ingestion, Contact	0.25 mg/m <sup>3</sup> skin	<ul style="list-style-type: none"> <li>Headache, dizziness, nausea, vomiting, malaise, sweat, myoclonic limb jerks, clonic, tonic convulsions, coma, [carcinogen]; in animals: liver, kidney damage</li> </ul>
Heptachlor	Inhalation, Absorption, Ingestion, Contact	0.5 mg/m <sup>3</sup> skin	<ul style="list-style-type: none"> <li>In animals: tremors, convulsions, liver damage [carcinogen]</li> </ul>
Naphthalene	Inhalation, Absorption, Ingestion, Contact	10 ppm	<ul style="list-style-type: none"> <li>Eye irritant; headache; confusion, excitement, malaise; nausea, vomiting abdominal pain; irritation to bladder; profuse sweating; jaundice; hemoglobinuria, renal shutdown, dermatitis</li> </ul>
Tetrachloroethene	Inhalation, Ingestion, Contact	100 ppm	<ul style="list-style-type: none"> <li>Irritation to the eyes, nose, and throat; nausea; flush face and neck; vertigo, dizziness, incoordination; headache, somnolence; skin erythema; liver damage [carcinogen]</li> </ul>
Toluene	Inhalation, Absorption, Ingestion, Contact	200 ppm (300 ppm) [150 ppm]	<ul style="list-style-type: none"> <li>Fatigue, weakness; confusion, euphoria, headache, dizziness; dilated pupils, lacrimation, nervousness, muscle fatigue, insomnia; paresthesia, dermatitis</li> </ul>
1,1,2 - Trichloroethane	Inhalation, Absorption, Ingestion, Contact	10 ppm skin	<ul style="list-style-type: none"> <li>Irritation to eyes and nose; Central Nervous System depressant; liver and kidney damage [carcinogen]</li> </ul>
Trichloroethene	Inhalation, Ingestion, Contact	100ppm	<ul style="list-style-type: none"> <li>Headache, vertigo; visual disturbance, tremors, somnolence, nausea, vomiting; irritation to eyes, dermatitis; cardiac arrhythmias, paresthesia; [carcinogen]</li> </ul>
Xylene	Inhalation, Absorption, Ingestion, Contact	100 ppm	<ul style="list-style-type: none"> <li>Dizziness, excitement, drowsiness, incoordination, staggering gait; irritation to eyes, nose, and throat; corneal vacuolization; anorexia, nausea, vomiting, abdominal pain; dermatitis</li> </ul>

## 2.2 Hazard Communication Procedures

The purpose of hazard communication (Employee Right-to-Know) is to ensure that the hazards of all chemicals located at this field project site are transmitted (communicated) according to 29 CFR 1926.59 to all Shaw personnel and Shaw subcontractors. Personnel must follow the hazard communication procedures below, as well as Table 4, specifically for handling corrosive materials.

### 2.2.1 Hazard Communication Program

#### Container Labeling

Shaw personnel will ensure that all drums and containers are labeled according to contents. These drums and containers will include those from manufacturers and those produced on site by operations. All incoming and outgoing labels shall be checked for identity, hazard warning, and name and address of responsible party.

#### Material Safety Data Sheets (MSDSs)

There will be an MSDS located on site for each hazardous chemical known to be used on site. All hazardous chemical MSDSs will be located in Appendix A of the SHSP. The site safety plan can be found in the project office trailer.

#### Employee Information and Training

Training employees on chemical hazards is accomplished through an ongoing corporate training program. Additionally, chemical hazards are communicated to employees through daily safety meetings held at Shaw field projects and by an initial site orientation program.

At a minimum, Shaw and related subcontractor employees will be instructed on the following:

- Chemicals and their hazards in the work area,
- How to prevent exposure to these hazardous chemicals,
- What the company has done to prevent workers' exposure to these chemicals,
- Procedures to follow if they are exposed to these chemicals,
- How to read and interpret labels and MSDSs for hazardous substances found on Shaw sites,
- Emergency spill procedures, and
- Proper storage and labeling.

Before any new hazardous chemical is introduced on site, each Shaw and related subcontractor employee will be given information in the same manner as during the safety class. The site

supervisor will be responsible for seeing that the MSDS on the new chemical is available for review by on site personnel. The information pertinent to the chemical hazards will be communicated to project personnel.

Morning safety meetings will be held and the hazardous materials used on site will be discussed. Attendance is mandatory for all on site employees.

Refer to Appendix D of the site safety plan to find a list of hazardous chemicals anticipated to be brought to the site and the corresponding MSDSs for these chemicals.

**Table 4 Corrosive Material Handling Procedures**

Chemical	Description	Procedures
<p>Acids and Bases</p> <p>Acids: including hydrochloric, nitric, and sulfuric acids</p> <p>Bases: including sodium hydroxide</p>	<p>Extremely corrosive materials with a variety of uses.</p>	<ul style="list-style-type: none"> <li>• Wear gloves and eye-splash protection while using acid dispensed from a small dropper bottle during water sampling.</li> <li>• Wear a full-face, air-purifying respirator equipped with combination cartridges (organic vapor/acid gas) as well as Tyvek coveralls and nitrile gloves for large volume applications.</li> <li>• Have an eye wash bottle and/or portable eye wash station on-site.</li> <li>• Cap all drums after dispensing chemicals.</li> <li>• Do not add anything into a virgin chemical drum, including unused product.</li> <li>• Avoid mixing strong acids and bases. Consult HSR for task-specific evaluation. If mixing is absolutely necessary, do it slowly. Avoid vapors or fumes that are generated.</li> <li>• When diluting acids, add the acid to water in small quantities and mix cautiously.</li> <li>• When diluting bases, add water to the base in small quantities and mix cautiously.</li> </ul>

### 3.0 HAZARD IDENTIFICATION AND CONTROL

In addition to the Task-Specific Job Safety Analyses, Table 5 lists the general procedures and practices that common to most projects. For additional information, refer to Shaw Environmental & Infrastructure, Inc. Health and Safety Procedures (required list is included in Appendix C), or consult with your health and safety professional. Applicable Shaw Environmental & Infrastructure, Inc. Health and Safety Procedures shall be followed at all times.

**Table 5 General Hazards and Controls**

General Hazard or Program	General Controls
General	<ol style="list-style-type: none"> <li>1. Legible and understandable precautionary labels shall be affixed prominently to containers of potentially contaminated soil, water, and clothing.</li> <li>2. No food or beverages shall be present or consumed in a CRZ or EZ. These are only allowed in designated areas of the support zone.</li> <li>3. No tobacco products shall be present or used, and cosmetics shall not be applied in a CRZ or EZ. These are only allowed in designated areas of the support zone, if areas have been designated.</li> <li>4. Beards, facial hair, or other facial obstructions that interfere with respirator fit will preclude admission to the EZ when respirators are required.</li> <li>5. An emergency eyewash unit shall be located immediately adjacent to employees who handle hazardous or corrosive materials, including decontamination fluids. All operations involving the potential for eye injury, splash, etc., must have approved eye wash units locally available capable of delivering at least 0.4 gallons per minute for at least 15 minutes.</li> <li>6. All on-site activities will be conducted during daylight hours. If work after dusk becomes necessary due to an emergency, adequate lighting must be provided and notification of such activity made to the location contact.</li> <li>7. Hazardous work, such as handling hazardous materials and heavy loads, and equipment operation, etc., should not be conducted during severe storms.</li> <li>8. All temporary electrical power must have a ground fault circuit interrupter (GFCI) as part of it's circuit if the circuit is not part of permanent wiring. All equipment must be suitable and approved for the class of hazard present.</li> </ol>
Incident Reporting	<ol style="list-style-type: none"> <li>1. All occupational injuries/illnesses, vehicle accidents, and near miss incidents must be reported promptly to the PM and HSR and investigated (See Appendix B for incident forms).</li> <li>2. Immediately notify the PM and HSR when an incident occurs.</li> <li>3. All occupational Safety and Health Administration (OSHA) recordable injuries/illnesses and chargeable vehicle accidents must be reviewed by an Accident Review Board report.</li> </ol>
Daily Safety Meetings	<ol style="list-style-type: none"> <li>1. Daily safety meetings will be held each morning prior to site activities (The purpose of these meetings is to place accident prevention foremost in the mind of each individual and to acquaint you and others with the necessary overall preventive action).</li> <li>2. Direct Shaw Environmental &amp; Infrastructure, Inc. subcontractors are required to attend all tail gate meetings.</li> <li>3. The tailgate meeting form in Appendix B will be used to document the meeting.</li> </ol>

General Hazard Or Program	General Controls
Safety Inspections	<ol style="list-style-type: none"> <li>1. The Site Supervisor, with assistance from the SHSO will inspect the site as appropriate and interview one or two site workers regarding areas of safety concerns or ideas for safety improvement.</li> <li>2. The Site Supervisor and SHSO will conduct site walkthroughs to assess site conditions and activities daily to identify changing conditions or potential hazards, and to identify any deficiencies in the effectiveness of this HASP.</li> <li>3. Any personnel who identifies safety and occupational health deficiencies and suggested corrective measures will bring them to the attention of the Site Supervisor and SHSO.</li> <li>4. Formal Safety review inspections will be conducted twice monthly and recorded and filed for reference by project management (See Appendix B for Inspection Checklist). These inspections will be shared by the PM, Site Supervisor, and SHSO. Subcontractor supervisory personnel will be asked to participate in inspections.</li> <li>5. Any deficiencies in the effectiveness of this HASP will be immediately brought to the attention of the PM and HSR and corrected.</li> </ol>
Safety Councils	<ol style="list-style-type: none"> <li>1. Frequency will be 2 X / Mo. (<math>\geq 20</math> personnel; <math>&gt; 60</math> days).</li> <li>2. Chairperson(s): Primary-Project Manager; Alternate-Site Supervisor.</li> <li>3. Members will be Field Technical, Field Laborers, Foremen, Equipment Operators, Safety Personnel, and Subcontractor Personnel.</li> <li>4. Reports are submitted to Project Manager, Project Director, Business Line Leads, and Area Manager.</li> <li>5. Discussion Topics will include Safety Incidents, Unsafe Practices / Conditions, Corrective Actions, Safety Recognition, and Safety Procedures.</li> </ol>
Safety Incentive Award Program  For Projects lasting one month or greater	<ol style="list-style-type: none"> <li>1. An essential element of the company accident prevention program is to commend and reward exemplary team safety performance in accordance with Health and Safety Procedure HS023 – "Accident Prevention Program: Safety Incentive Award Program (SIAP).</li> <li>2. Approval must be given by the project director, project manager, and Health and Safety Manager.</li> <li>3. To be eligible for an award, individuals must be physically present at the site for five days or more during an eligibility period.</li> <li>4. The minimum criteria is zero OSHA recordables, zero lost/restricted work days, and zero chargeable motor vehicle accidents.</li> </ol>
Slip/Trip/Fall	<ol style="list-style-type: none"> <li>1. Inspect each work area for slip/trip/fall potential prior to each work task.</li> <li>2. Slip/trip/fall hazards identified must be communicated to all personnel. Hazards identified shall be corrected or labeled with warning signs to be avoided.</li> <li>3. All personnel must be aware of their surroundings and maintain constant communication with each other at all times.</li> </ol>
Underground/ Utility Line Contact  See Appendix B	<ol style="list-style-type: none"> <li>1. Contact client or facility owner to have utility lines marked prior to excavation/trenching or drilling.</li> <li>2. Refer to site drawings or customer interviews if on private property for utility locations.</li> <li>3. Hand dig to 5 feet down and 5 feet each side of utility marker to avoid breaking utility lines.</li> <li>4. Refer to Appendix B for Underground Utility Contact Prevention Management Plan.</li> </ol>

General Hazard or Program	General Control
Overhead Utility Line Contact	<ol style="list-style-type: none"> <li>1. Maintain appropriate distance from overhead utilities:</li> <li>2. Maintain at least 10 feet from overhead power lines, up to 50 kV</li> <li>3. For voltages over 50 kV, add 0.4 inches per kV to obtain the safe distance between equipment and power lines.</li> <li>4. If voltage is unknown, remain at least 20 feet from overhead power lines.</li> <li>5. Conduct a site inspection on a daily basis to determine where activities will take place and location of overhead utilities and overhead obstructions. Once identified, place warning tape on poles and/or guy wires and attempt to plan the work so that no contact will be made with the overhead utilities or obstructions. Share the information with the all site personnel.</li> <li>6. As a precaution, a spotter will be used at all times during the construction phase when near the overhead utilities or overhead obstructions. If contact is deemed unavoidable, consult with the plant manager and HSR to evaluate the area to determine if the particular overhead utility or obstruction can be removed prior to engaging in the activity.</li> </ol>
General Falls/Ladders  Shaw Procedure HS302	<ol style="list-style-type: none"> <li>1. Assess work areas for fall hazards. A fall protection system is required if work is conducted 6 feet or over.</li> <li>2. Use Type 1A rated ladders.</li> <li>3. Make sure ladder rungs are sturdy and free of cracks.</li> <li>4. Use ladders with secure safety feet.</li> <li>5. Pitch ladders at a 4:1 ratio.</li> <li>6. Secure ladders at the top or have another person at the bottom to help stabilize it.</li> <li>7. Ladders used to access an upper landing surface shall extend at least three (3) feet above the upper landing surface.</li> <li>8. Do not use ladders for access to air stripper towers above six feet – use aerial lift.</li> <li>9. Use non-conductive ladders near electrical wires.</li> <li>10. The top step of a stepladder should not be used as a step.</li> <li>11. Do not carry any object or load that could cause a loss of balance or a fall.</li> </ol>

General Hazard Or Program	General Controls
<p><b>Heavy Equipment Operations</b></p>	<ol style="list-style-type: none"> <li>1. Wear leather gloves while attaching support members to protect against pinching injuries.</li> <li>2. While working from elevated levels greater than 6 feet, ensure that all employees have 100% fall protection with full body harnesses and guardrails.</li> <li>3. Do not stand under loads that are being raised or lowered with cranes or aerial lifts.</li> <li>4. The subcontractor or Shaw Operator must conduct pre-operational inspections of all equipment. In addition, daily inspections will be conducted on the equipment prior to site activities.</li> <li>5. Maintain appropriate distance from overhead utilities:</li> <li>6. Maintain at least 10 feet from overhead power lines, up to 50 kV</li> <li>7. For voltages over 50 kV, add 0.4 inches per kV to obtain the safe distance between equipment and power lines.</li> <li>8. If voltage is unknown, remain at least 20 feet from overhead power lines.</li> <li>9. Always stay out of the swing radius of all heavy equipment. Always use a spotter during movement of equipment. The spotter and others, as appropriate, shall maintain constant communication with the operator.</li> <li>10. All operators must have adequate training and be qualified to operate the particular heavy equipment unit.</li> <li>11. Conduct site evaluation to determine proper positioning for the unit. Make sure surface is level. Cordon off holes, drop-offs, bumps or weak ground surfaces.</li> <li>12. When using a crane, do not use hands when the load is being lifted or lowered. Use non-conductive tag line to help direct and position the load.</li> <li>13. Never climb a raised platform or stand on the mid-rail or top-rail.</li> <li>14. Tools should always be hung or put into a belt whenever possible.</li> </ol>
<p><b>Excavation &amp; Trenching</b></p> <p><b>Shaw Procedure HS307</b></p>	<ol style="list-style-type: none"> <li>1. Ensure a competent person is assigned.</li> <li>2. Competent person inspects excavations and documents, at least daily and when needed (Follow Shaw Procedure HS307).</li> <li>3. Check for utilities – see Underground Utility Line Contact.</li> <li>4. Have a PE evaluate all excavations deeper than 20 feet.</li> <li>5. Use protective systems (sloping, shoring, shielding) for entry in trenches over 5 feet in depth</li> <li>6. Provide for rescue for cave-ins.</li> <li>7. Place spoils a minimum of 2 feet from edge.</li> <li>8. Monitor excavations over 4 feet deep for hazardous atmospheres and LEL/oxygen.</li> <li>9. Ladders within 25 feet of lateral travel if over 4 feet deep.</li> <li>10. Barriers around excavations near pedestrian access.</li> <li>11. Follow work zone security procedures in Table 11.</li> </ol>

General Hazard or Program	General Controls
Erecting Temporary Structure or Working From Aerial Lift	<ol style="list-style-type: none"> <li>1. Wear leather gloves while attaching support members to protect against pinching injuries.</li> <li>2. While working from elevated levels greater than 6 feet, ensure that all employees have 100% fall protection with full body harnesses and guardrails.</li> <li>3. Do not stand under loads that are being raised or lowered with cranes or aerial lifts.</li> <li>4. Conduct pre-operational inspection of aerial lifts to include: tire air pressure, hydraulic fuel level and pressure check, make sure pivot pins are secured, check hoses for worn areas, check for cracks or deviations in welded parts, the safety limit switch should work freely, security of the guardrail system on the platform, check both ground and platform control functions, raise and lower each boom system separately, listen for any unusual noises, vibrations, or uneven operations.</li> <li>5. Maintain appropriate distance from overhead utilities:</li> <li>6. Maintain at least 10 feet from overhead power lines, up to 50 kV</li> <li>7. For voltages over 50 kV, add 0.4 inches per kV to obtain the safe distance between equipment and power lines.</li> <li>8. If voltage is unknown, remain at least 20 feet from overhead power lines.</li> <li>9. Conduct site evaluation to determine proper positioning for the unit. Make sure surface is level. Cordon off holes, drop-offs, bumps or weak ground surfaces.</li> <li>10. Never climb a raised platform or stand on the mid-rail or top-rail.</li> <li>11. Tools should always be hung or put into a belt whenever possible.</li> <li>12. Specific training must be obtained on the aerial lift to be used.</li> </ol>
Confined Spaces  Shaw Procedure HS300	<ol style="list-style-type: none"> <li>1. Follow Shaw Procedure HS300.</li> <li>2. Ensure employees are trained in hazards of confined spaces.</li> <li>3. Post Confined Space Entry Permits at the entrance to the space.</li> <li>4. Have a copy of the confined space entry procedure available.</li> <li>5. Establish a rescue plan. Evaluate to ensure rescuers are qualified.</li> <li>6. Ensure an entry supervisor is present at each permit-required entry.</li> <li>7. Ensure the required extraction/fall protection devices are being used properly.</li> </ol>
Electric Shock  Shaw Procedure HS315	<ol style="list-style-type: none"> <li>1. Maintain appropriate distance from overhead utilities:</li> <li>2. Maintain at least 10 feet from overhead power lines, up to 50 kV</li> <li>3. For voltages over 50 kV, add 0.4 inches per kV to obtain the safe distance between equipment and power lines.</li> <li>4. If voltage is unknown, remain at least 20 feet from overhead power lines.</li> <li>5. Use ground-fault circuit interrupters as required.</li> <li>6. Perform LO/TO procedures in accordance with Shaw Procedure HS315.</li> <li>7. Use three-pronged plugs and extension cords.</li> <li>8. Contact your local underground utility-locating service.</li> <li>9. Follow code requirements for electrical installations in hazardous locations.</li> <li>10. Always use qualified electricians to install electrical equipment and when conducting troubleshooting activities within 10 feet of exposed live wires.</li> </ol>

General Hazard Of Program	General Controls
Hand and Power Tools	<ol style="list-style-type: none"> <li>1. Keep hand tools sharp, clean, oiled, dressed, and not abused.</li> <li>2. Worn tools are dangerous e.g., the "teeth" in a pipe wrench can slip if worn smooth; an adjustable wrench will slip if the jaws are sprung; hammer heads can fly off loose handles.</li> <li>3. Tools subject to impact (chisels, star drills, and caulking irons) tend to "mushroom". Keep them dressed to avoid flying spalls. Use tool holders.</li> <li>4. Don't force tools beyond their capacity. DO NOT USE "cheaters".</li> <li>5. Don't use tools for pry bars.</li> <li>6. Flying objects can result from operating almost any power tool, so you must always warn people around you and use proper eye protection.</li> <li>7. Each power tool should be examined before use, for damaged parts, loose fittings, and frayed or cut electric cords. Tag and return defective tools for repairs. Inspect also for adequate lighting, proper lubrication, and abandoned tools or material that could "vibrate into trouble".</li> <li>8. Air must be shut off or the electric cord unplugged before making tool adjustments. Air must be "bled down" before replacement or disconnection.</li> <li>9. Proper guards or shields must be installed on all power tools before issue. Do not use improper tools or tools without guards in place. No "homemade" handles or extensions (cheaters) are permitted!</li> <li>10. Replace all guards before start-up. Remove cranks, key, or wrenches used in service work.</li> </ol>
Physical Injury	<ol style="list-style-type: none"> <li>1. Wear hard hats and safety glasses when on site.</li> <li>2. Maintain visual contact with the equipment operator and wear an orange safety vest when heavy equipment is used on-site or when adjacent to or in roadways.</li> <li>3. Avoid loose-fitting clothing (driller and driller's helper).</li> <li>4. Prevent slips, trips and falls; keep work area uncluttered.</li> <li>5. Keep your hands away from moving parts (i.e., augers).</li> <li>6. Test the emergency shutoff switch on the drill rig daily.</li> </ol>
Vehicular Traffic	<ol style="list-style-type: none"> <li>1. Wear traffic safety vest when vehicle hazard exists.</li> <li>2. Use cones, flags, barricades, and caution tape to define work area.</li> <li>3. Use vehicle to block work area.</li> <li>4. Engage police detail for high-traffic situations.</li> <li>5. Always use a spotter in tight or congested areas for material deliveries.</li> <li>6. Review Shaw Procedure HS800, Motor Vehicle Operation.</li> </ol>
Noise  Shaw Procedure HS402	<ol style="list-style-type: none"> <li>1. Wear hearing protection when equipment such as a drill rig, jackhammer, cut saw, air compressor, blower or other heavy equipment is operating on the site.</li> <li>2. Wear hearing protection whenever you need to raise your voice above normal conversational speech due to a loud noise source; this much noise indicates the need for protection.</li> <li>3. Conduct noise monitoring of suspected high noise operations at the beginning of the workday or start up of new operations to verify noise control/hearing protection requirements.</li> </ol>

General Hazard Of Program	General Controls
Lifting and Material Handling	<ol style="list-style-type: none"> <li>1. Use leather gloves when handling metal, wire rope, sharp debris, or transporting materials (wood, piping, drums, etc.).</li> <li>2. The size, shape, and weight of the object to be lifted must first be considered. No individual employee is permitted to lift any object that weights over 60 pounds. Multiple employees or the use of mechanical lifting devices are required for objects over the 60-pound limit.</li> <li>3. If you must lift, plan the lift before doing it. Lift with the legs; keep the natural curves of the back; do not use your back muscles.</li> <li>4. Check your route for clearance.</li> <li>5. Bend at the knees and use leg muscles when lifting.</li> <li>6. Use the buddy system when lifting heavy or awkward objects.</li> <li>7. Do not twist your body while lifting.</li> <li>8. Know the capacity of the handling device (crane, forklift, chainfall, come-along) that you intend to use.</li> <li>9. Use tag lines to control loads.</li> <li>10. Ensure that your body, material, tools and equipment are safe from such unexpected movement as falling, slipping, rolling, tripping, blowing, or any other uncontrolled motion.</li> <li>11. Trucks (i.e., flat beds) hauling equipment or materials must not be moved once rigging has been released.</li> <li>12. Chock all material and equipment (such as pipe, drums, tanks, reels, trailers, and wagons) as necessary to prevent rolling.</li> <li>13. Tie down all light, large-surface-area material that might be moved by the wind.</li> <li>14. When working at heights, secure tools, equipment, and wrenches against falling.</li> <li>15. Do not store materials or tools on ducts, lighting fixtures, beam flanges, hung ceilings, or similar elevated locations.</li> <li>16. Fuel-powered tools used inside buildings or enclosures shall be vented and checked for excessive noise</li> </ol>
Fire Control	<ol style="list-style-type: none"> <li>1. Smoke only in designated areas.</li> <li>2. Keep flammable liquids in closed containers.</li> <li>3. Keep site clean; avoid accumulating combustible debris such as paper.</li> <li>4. Follow Hot Work Safety Procedures when welding or performing other activities requiring an open flame.</li> <li>5. Isolate flammable and combustible materials from ignition sources.</li> <li>6. Ensure fire safety integrity of equipment installations according to NEC specifications.</li> </ol>
Static Electricity/Transfer of Flammable Liquids	<ol style="list-style-type: none"> <li>1. Do not create static discharge in flammable atmosphere.</li> <li>2. Electrically bond and ground pumps, transfer vessels, tanks, drums, bailers and probes when moving flammable liquids.</li> <li>3. Electrically bond and ground vacuum trucks and the tanks they are emptying.</li> <li>4. Do not splash fill containers with flammable liquids.</li> <li>5. Pour flammable liquids slowly and carefully.</li> <li>6. Two Fire extinguishers (2A20: BC) must be available, charged, inspected, and readily accessible.</li> </ol>
Well Installation, Well Development, Well Abandonment, Well Gauging, Well Bailing, Soil/Ground-water Sampling	<ol style="list-style-type: none"> <li>1. Wear appropriate PPE to avoid skin, eye, and inhalation contact with contaminated groundwater and/or soil.</li> <li>2. Stand upwind when conducting tasks and minimize possible inhalation exposure; especially when first opening monitoring wells.</li> <li>3. Conduct air monitoring to determine level of respiratory protection.</li> <li>4. Utilize engineering controls such as portable venturi air movers to draw away or blow away chemical vapors.</li> </ol>

General Hazard Or Program	General Control
Insects Spiders	<ol style="list-style-type: none"> <li>1. Tuck pants into socks.</li> <li>2. Wear long sleeves.</li> <li>3. Use insect repellent.</li> <li>4. Avoid contact by always looking ahead to where walking, standing, sitting, leaning, grabbing, lifting or reaching-in-to.</li> <li>5. Check for signs of insect/spider bites, such as redness, swelling and flu-like symptoms.</li> </ol>
Ticks	<ol style="list-style-type: none"> <li>1. Do not try to detach a tick with your bare fingers; bacteria from a crushed tick may be able to penetrate even unbroken skin. Fine-tipped tweezers should be used.</li> <li>2. Grip the tick as close to your skin as possible and gently pull it straight away from you until it releases its hold.</li> <li>3. Do not twist the tick as you pull and do not squeeze its bloated body. That may actually inject bacteria into your skin.</li> <li>4. Thoroughly wash your hands and the bite area with soap and water. Then apply an antiseptic to the bite area.</li> <li>5. Save the tick in a small container with the date, the body location of the bite, and where you think the tick came from.</li> <li>6. Notify the SSO of any tick bites as soon as possible.</li> </ol>
Poisonous Snakes	<ol style="list-style-type: none"> <li>1. Avoid walking in areas where snake may nest or hide. Always look ahead to where walking for signs of snakes.</li> <li>2. Use extreme caution when moving or lifting objects that could be used by snakes as cover.</li> <li>3. Never reach under or behind objects or into other areas where snakes may hide.</li> <li>4. Poisonous snakebites are medical emergencies - seek immediate medical treatment.</li> <li>5. Wear sturdy leather boots.</li> </ol>
Poisonous Plants (Such as Poison Ivy, Oak or Sumac).	<ol style="list-style-type: none"> <li>1. Avoid entering areas infested with poisonous plants.</li> <li>2. Immediately wash any areas that come into contact with poisonous plants.</li> <li>3. Utilize PPE when possibility of walking into infested areas occurs.</li> </ol>
Heat Stress  Shaw Procedure HS400	<ol style="list-style-type: none"> <li>1. Increase water intake while working.</li> <li>2. Increase number of rest breaks and/or rotate workers in shorter work shifts.</li> <li>3. Watch for signs and symptoms of heat exhaustion and fatigue.</li> <li>4. Monitor WBGT or pulse and oral temperature to determine work/rest periods (See Appendix B for heat stress monitoring procedures and monitoring form, per Shaw Procedure HS400).</li> <li>5. Plan work for early morning or evening during hot months.</li> <li>6. Use ice vests when necessary</li> <li>7. Rest in cool, dry areas.</li> <li>8. In the event of heat stroke, bring the victim to a cool environment and initiate first aid procedures. Immediately seek medical attention.</li> </ol>
Inclement Weather	<ol style="list-style-type: none"> <li>1. Stop outdoor work during electrical storms, hailstorms, and other extreme weather conditions such as extreme heat or cold temperatures.</li> <li>2. Take cover indoors or in vehicle.</li> <li>3. Listen to local forecasts for warning about specific weather hazards such as tornadoes, hurricanes, and flash floods.</li> </ol>
Welding, Cutting, Brazing  Shaw Procedure HS314	<ol style="list-style-type: none"> <li>1. Conduct fire safety evaluation.</li> <li>2. Complete Hot Work Permit using form in Appendix B.</li> <li>3. Follow job safety analysis (JSA) guidelines for hot work in Appendix F.</li> <li>4. Ensure flammable materials are protected from hot work, sources of ignition.</li> <li>5. Ensure fire watch/fire extinguisher is on standby by hot work location.</li> <li>6. Follow Shaw Procedure HS304, Compressed Gas Cylinders.</li> </ol>

General Hazard Or Program	General Control
Heavy Equipment Decontamination  Shaw Procedure HS303	<ol style="list-style-type: none"> <li>1. Wear modified Level D protection, including a face shield and safety goggles.</li> <li>2. Ensure that other personnel are out of the area prior to decontamination.</li> <li>3. Secure the area around the decon pad with cones, caution tape, or barricades.</li> <li>4. Ensure that safe work practices and precautions are taken to minimize the potential for physical injury from high-pressure water spray.</li> <li>5. The pressure washer wand must be equipped with a safety release handle.</li> <li>6. Follow Shaw Procedure HS303 for pressure washing.</li> <li>7. Ensure that the area is clean after equipment is decontaminated. Barricades, cones, or caution tape must be left in place and secured at all times.</li> </ol>
Cleaning Equipment  Shaw Procedure HS303	<ol style="list-style-type: none"> <li>1. Wear appropriate PPE to avoid skin and eye contact with isopropyl alcohol, Alconox, or other cleaning materials.</li> <li>2. Stand upwind to minimize any potential inhalation exposure.</li> <li>3. Dispose of spent cleaning solutions and rinses accordingly.</li> <li>4. Follow Shaw Procedure HS303 for pressure washing.</li> </ol>

## 4.0 AIR MONITORING/PPE

### 4.1 Air Monitoring

Air monitoring at the site will be conducted to assess air quality and determine appropriate levels of personal protection. Personnel and area monitoring will be conducted while excavation and sampling activities are taking place at the site as part of the remedial activities. At a minimum, air monitoring will be conducted on those employees likely to have the highest exposures to hazardous substances and health hazards likely to be present above established exposure limits, by using personal air sampling frequently enough to characterize employee exposure.

Direct reading instruments will be used to assess the relative quality of the air on a real-time basis to make informed decisions concerning protection levels and standard work practices to reduce air borne contaminants. Real-time monitoring for VOCs will be conducted during all site activities. There is no available method for real-time analysis of occupational exposure levels to pesticides and herbicides; thus, the level of VOCs will be used as an indicator of overall airborne contamination. VOCs are used because they can be detected and were mixed with pesticides and/or herbicides in the formulation process. Although this data is not directly indicative of potential exposures to substances other than VOCs, however, this will serve as an indicator until personal monitoring results can be obtained.

Organic vapor and/or concentrations will be monitored in the field with a photo-ionization detector (PID) equipped with a 10.6 eV lamp. Detector tube grab sampling will be conducted for benzene when results of real-time monitoring action levels are reached or when their presence is suspected. All Real time monitoring will be conducted in the work area and breathing zone of workers. Air monitoring results must be documented on the Air Monitoring Forms (Appendix B) or in the field log book.

Calibration and maintenance of air monitoring equipment must follow manufacture specifications and documented. Re-calibration and adjustment of air monitoring equipment must be completed when site conditions and equipment operation reveal the need. Record all air monitoring equipment calibration and adjustment information on forms in Appendix B or in the field log book.

Air monitoring action levels (Table 7) have been developed to indicate the chemical concentrations in the breathing zone that require an upgrade in level of PPE. Action levels are typically set at either one-half the OSHA Permissible Exposure Limit (PEL), National Institute for Occupational Safety and Health (NIOSH) Recommended Exposure Limits (REL), or the

American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values (TLV). Rationale for establishing action levels is based upon the data available that characterizes contaminants of concern in soil or water.

All workers on-site must have been properly fitted with PPE (i.e., respirators) and have been trained in their use (i.e., donning and doffing). Air monitoring measurements will be taken in the breathing zone of the worker most likely to have the highest exposure. Transient peaks will not automatically trigger action. Action will be taken when levels are consistently exceeded in a 5-minute period. Similarly, if chemical odors are detected that are a nuisance, bothersome, or irritating, an upgrade in respiratory protection can provide an extra level of comfort or protection when conducting site activities. Guidelines for frequency of air monitoring are presented in Table 6. The PPE levels are described in Table 8. The task-specific protection level and task-specific air monitoring requirements are described in Table 9 (Air Monitoring/PPE Summary).

Engineering controls such as the venturi air mover (supplied by compressed air) to exhaust or dilute solvent vapors emanating from monitoring wells or when conducting intrusive activities can be utilized as a means to downgrade PPE requirements (Level B to C, Level C to D).

**Table 6 Air Monitoring Frequency Guidelines**

<p>Conduct periodic monitoring when:</p> <ul style="list-style-type: none"><li>• It is possible that an immediately dangerous to life or health (IDLH) condition or a flammable atmosphere has developed, or</li><li>• There is an indication that exposures may have risen over established action levels, permissible exposure limits or published exposure levels since the last monitoring. Look for a possible rise in exposures associated with these situations:<ul style="list-style-type: none"><li>• Change in site area - work begins on a different section of the site.</li><li>• Change in contaminants - handling contaminants other than those first identified.</li><li>• Visible signs of particulate exposure from intrusive activities such as drilling/boring and excavation.</li><li>• Perceptible chemical odors or symptoms of exposure.</li><li>• Change in on-site activity - one operation ends and another begins.</li><li>• Handling leaking drums or containers.</li><li>• Working with obvious liquid contamination (e.g., a spill or lagoon).</li></ul></li><li>• Conduct air monitoring when the possibility of volatilization exists (such as with a new monitoring well or a well containing known product).</li></ul>
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**Table 7 Air Monitoring Action Levels**

Instrument	Function	Measurement	Action
Photoluminescence Detector (PID)	10.7 eV Lamp	Flame Ionization Detector (FID)	Measures total organic vapors
Verify benzene concentration using detector tubes when 10 ppm PID reading has been sustained for 5 minutes and, at a minimum, during every hour of sustained Level C work activities.	Background	-10 ppm	Level D required.
	> 10 - 25 ppm		Level D required, monitor for benzene with detector tube to determine concentration.
	> 25 - 250 ppm		Upgrade to Level C. Full-face cartridge respirator is required.
	> 250 - 500 ppm		Upgrade to Level B. Contact PM and HSR for guidance and approval.
	> 500 ppm		Stop work. Contact PM and HSR for guidance and approval.
Benzene Detector Tubes	Non-detectable	- 0.5 ppm	Level D required.
	>0.5 - 5 ppm		Upgrade to Level C with QLFT.
	> 5 ppm - 25 ppm		Upgrade to Level C with QNFT and fit factor of at least 500. Contact PM and HSR for guidance.
	> 25 ppm - 125 ppm		Upgrade to Level C with QNFT and fit factor of at least 2500. Contact PM and HSR for guidance.
	> 125 ppm		Stop work. Evacuate area. Contact PM and HSR for guidance.
*Note: Instruments must be calibrated according to manufacturer's recommendations.			

**4.2 PPE**

Based upon the hazards that may be encountered during site activities, the minimum level of PPE was selected. Only PPE that meets the following American National Standards Institute (ANSI) standards are to be worn. At a minimum, all workers will wear the following protection while working on the site:

Eye protection - ANSI Z87.1-1989

Head protection - ANSI Z89.1-1986

Foot protection - ANSI Z41-1991

Traffic vest in high traffic areas and around heavy equipment

**4.2.1 Respiratory Protection**

Air purifying respiratory protection may be used for protection against petroleum hydrocarbons during the course of the project. The need for respiratory protection will be determined by air monitoring results and site conditions. However, engineering controls and administrative controls must first be evaluated as the primary controls for protection against site respiratory hazards. In the event engineering controls and administrative controls are deemed not feasible, respiratory PPE protection will be required.

Site personnel must also understand the limitations of using air purifying respirators and the requirements for End-of-Service Life cartridge change-out schedule for the particular type of respirator that will be used. Manufacturer's data has been evaluated for three (3) types of respirators (Scott, MSA, and Survivair (two cartridges)) and is provided in the cartridge change-out schedule for Total Hydrocarbons and Benzene tabulated below.

Total Hydrocarbons (Benzene, Toluene, Ethylbenzene, Xylenes, and n-Paraffins) Concentration (ppm)	Change-out Schedule			
	Scott 642 OV/Acid Gas 642 OV 642 MPC Cartridges	MSA Ultra Twin GMT Cartridge	Survivair Organic Vapor Cartridge 100100	Survivair OV/Acid Gas Cartridge 100300/1053 (includes P-100)
≤ 150	8 hours	8 hours	8 hours	8 hours
> 150 - 200	8 hours	8 hours	8 hours	8 hours
> 200 - 250	8 hours	8 hours	8 hours	8 hours
> 250	Stop Work	Stop Work	Stop Work	Stop Work

Benzene Air Concentration (ppm)	Change-out Schedule			
	SCODP 62 OV/Acid Gas 62 OV 62 MPC Cartridges	MSA Ultra Twin GMF Cartridges	Survivair OV Cartridge 100100	Survivair OV/Acid Gas Cartridge 100300/1053 (includes P-100)
≤ 10 **	8 hours	8 hours	8 hours	8 hours
> 10 - 100	8 hours	8 hours	8 hours	7 hours
> 100 - 125	7 hours	7 hours	7 hours	6 hours
> 125	Stop Work	Stop Work	Stop Work	Stop Work

\* Based on data from the manufacturer, and represents the worst case conditions

\*\* 10 ppm exceeds the recommended use level of 5 ppm for qualitatively fit-tested APRs.

Any site personnel requiring respiratory protection must also adhere to the site-specific respiratory protection program in Appendix N. Personnel using a respirator that is not listed above, contact your respective health and safety representative to determine the change-out schedule for the particular respirator that is intended. Any questions relative to the site-specific respiratory protection program must be directed to the respective health and safety representative or project manager.

#### 4.2.2 Project Specific Equipment

Personal protective equipment requirements for RP sites are identified in Table 8 (next page). The task-specific level requirements are listed in Table 9. Level D is the minimum acceptable level for sites where petroleum hydrocarbons are the contaminants of concern. Upgrade to Modified Level D occurs when the possibility of contact to the skin or work uniform can occur from contaminated media. Upgrade to Level C will occur when results of air monitoring reveals action levels have been exceeded. Upgrade to Level B occurs when results of air monitoring reveals action levels have been exceeded, and site personnel meet training requirements. Wear hearing protection when in areas where high noise levels are generated. The following is a general description of levels of protection that may be utilized. Workers must maintain proficiency in the use and care of PPE that is to be worn.

**Table 8 PPE**

Level	Requirements
Level D	<ul style="list-style-type: none"> <li>• Work uniform</li> <li>• Steel-toed boots</li> <li>• Approved safety glasses or goggles</li> <li>• Hard hat</li> <li>• Nitrile gloves.</li> <li>• Hearing protection (muffs and/or plugs).</li> <li>• Fluorescent vest, when vehicular traffic is on or adjacent to the site</li> </ul>
Modified Level D-1	<ul style="list-style-type: none"> <li>• Level D</li> <li>• PE-coated Tyvek suit.</li> <li>• Nitrile outer and inner liner gloves.</li> <li>• Latex booties or rubber overboots.</li> </ul>
Modified Level D-3	<ul style="list-style-type: none"> <li>• Modified Level D-2</li> <li>• Faceshield</li> <li>• Faceshield, goggles, metatarsal/leg guards for high pressure washing</li> </ul>
Level C	<ul style="list-style-type: none"> <li>• Level D and Modified Level D-2.</li> <li>• NIOSH/MSHA-approved full-face respirator with organic vapor/acid gas oil proof high efficiency (P100) cartridges.</li> </ul>
Level B	<ul style="list-style-type: none"> <li>• Level D and Modified Level D</li> <li>• NIOSH/MSHA approved full-face positive pressure demand supplied air respirator, either airline or self-contained.</li> </ul>
<p>Prior to using, all equipment must be inspected to ensure proper working condition.</p>	

**Table 9 Task Specific Air Monitoring/PPE Summary**

Job/Task	PPE Level	Instrument	Frequency
Removal of asphalt/concrete cover	Level D	PID <sup>1</sup>	Start up of work at each task location, then every 30 – 60 minutes based upon air monitoring results. Monitor 15 minutes to continuously if action levels have been reached.
Tank and sump removal	Level C	PID	Start up of work at each task location, then every 30 – 60 minutes based upon air monitoring results. Monitor 15 minutes to continuously if action levels have been reached.
Excavation of contaminated soils and loading into roll-offs. Removal of contaminated fluids	Level C	PID	Start up of work at each task location, then every 30 – 60 minutes based upon air monitoring results. Monitor 15 minutes to continuously if action levels have been reached.
Backfilling of excavations	Modified Level D-1	PID	Start up of work at each task location, then every 30 – 60 minutes based upon air monitoring results. Monitor 15 minutes to continuously if action levels have been reached.
P & A Monitoring Wells	Level D	PID	Start up of work at each task location, then every 30 – 60 minutes based upon air monitoring results. Monitor 15 minutes to continuously if action levels have been reached.
Sediment Removal	Level D	PID	Start up of work at each task location, then every 30 – 60 minutes based upon air monitoring results. Monitor 15 minutes to continuously if action levels have been reached.

<sup>1</sup> PID, Photoionization Detector with an 10.6 eV lamp

Note 1: "Start up of work at each new task location" means to monitor the air quality at each new operation on the site. The breathing zone is the area inside a 1-foot radius around the head.

Note 2: A downgrade in the air monitoring program must be approved by the SHSO and HSR.

**5.0 DECONTAMINATION**

**5.1 Decontamination Procedures**

Operations conducted at this site have the potential to contaminate field equipment and PPE. To prevent the transfer of contamination to vehicles, administrative offices and personnel, the procedures presented in Table 10 must be followed.

**Table 10 Decontamination Procedures**

Item	Examples	Procedure
Field Equipment	Bailers, interface probes, hand tools, drill augers, and miscellaneous sampling equipment	<p>Decontaminate with a solution of detergent and water; rinse with water prior to leaving the site.</p> <p>Protect from exposure by covering with disposable covers such as plastic to minimize required decontamination activities.</p>
Disposable PPE	Tyvek suits, inner latex gloves, respirator cartridges	<p>Dispose of according to the requirements of the client and state and federal agencies.</p> <p>Change out respirator cartridges on a daily basis and dispose accordingly.</p>
Non-disposable PPE	Respirators	<p>Wipe out respirator with disinfecting pad prior to donning.</p> <p>Decontaminate on-site at the close of each day with a solution of an approved sanitizing solution.</p>
	Boots and gloves	<p>Decontaminate outside with a solution of detergent and water; rinse with water prior to leaving the site.</p> <p>Protect from exposure by covering with disposable covers such as plastic to minimize required decontamination activities.</p>

## 5.2 Example Decontamination Diagram

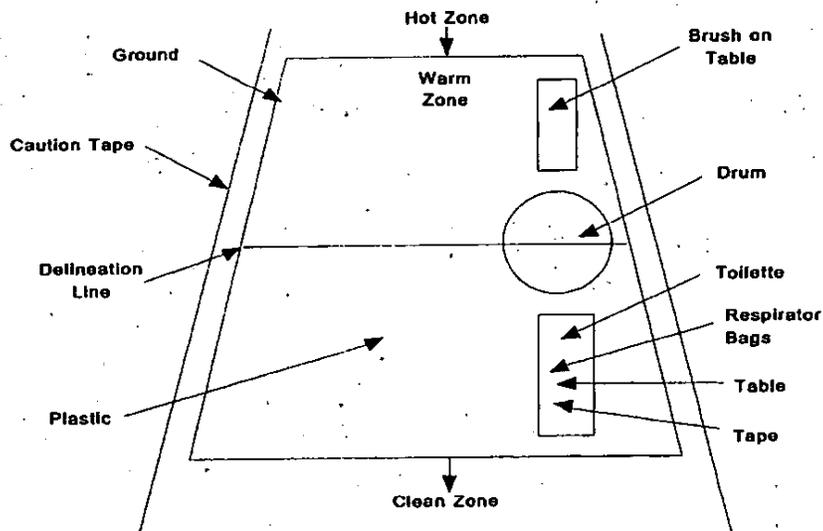
If Level C or Level B PPE is required, a CRZ will be constructed in a centralized common area with a travel path from the EZ demarcated with 4-foot-high cones. The decontamination procedure for this project site is a two-stage process.

### STAGE 1

- Remove gross contamination with a brush.
- Removes outer boots and dispose of in a drum.
- Remove Tyvek suit and dispose in a drum.
- Removes outer gloves and dispose of in a drum.
- Walk to Stage 2.

### STAGE 2

- Remove respirator.



- Remove cartridge and dispose in a drum.
- Clean respirator and insert into a bag.
- Remove inner gloves and dispose.
- Wipe hands with a toilette and dispose.
- Walk out of decontamination area.

All water used in decontamination procedures should be stored in portable storage tanks until sufficient amount is stockpiled to facilitate disposal treatment. Disposable sampling and PPE will be placed in plastic bags and temporarily stored in designated drums. These drums shall be disposed of according to regulatory guidelines, if necessary.

## 6.0 SITE CONTROL/COMMUNICATIONS

### 6.1 Site Control

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 clearly identified using signs or physical barriers.

- Exclusion Zone (EZ),
- Contamination Reduction Zone (CRZ), and
- Support Zone (SZ).

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

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

- Eating, drinking, chewing gum or tobacco, smoking is prohibited in the EZ/CRZs.
- Hands and face must be washed upon leaving the EZ and before eating, drinking, chewing gum or tobacco and smoking.
- 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.
- 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 SS/SSO, will be immediately dismissed from the site.
- Proper decontamination procedures must be followed before leaving the EZ.
- All employees and visitors must sign in and out of the job site and EZ.

Listed in Table 11 below are general guidelines for developing site security measures for working in a street or roadway and excavations.

**Table 11 Site Security and Work Zone Definition**

WORKING IN STREET OR ROADWAY
<ul style="list-style-type: none"><li>• Wear traffic vest and hardhat when vehicle hazard exists.</li><li>• Use cones, flag-mounted cones, caution tape, and/or barricades.</li><li>• Use vehicle strobe light and block area with truck.</li><li>• Develop traffic flow plan for high traffic situations (as appropriate):<ul style="list-style-type: none"><li>- use flag person</li><li>- use flashing arrow sign</li><li>- use "MEN WORKING" signs liberally</li><li>- obtain lane closing permits</li><li>- engage police details</li></ul></li></ul>
WORKING AT EXCAVATION/TRENCHING SITE
<ul style="list-style-type: none"><li>• "Competent person" is required per OSHA 29 CFR 1926 Subpart P.</li><li>• Safeguard open excavations by restricting unauthorized access.</li><li>• Highlight work area using prominent warning signs (cones, saw horses/barricades, and signage) placed a minimum of 10 feet back from excavation opening.</li><li>• Maintain zone definition along perimeter with <u>continuous string</u> of yellow orange caution tape.</li></ul>
EXCAVATIONS LEFT UNATTENDED OR OVERNIGHT
<p>Use one of the following methods to address these situations:</p> <ul style="list-style-type: none"><li>• Surround entire perimeter with plastic or cloth construction net fencing. Anchor fence to ground using steel posts driven into ground. Space out posts no greater than 8 feet apart. Fence height minimum 4 feet high. Fence material must be of a quality capable of withstanding a pressure of 200 pounds. <u>Place fence a minimum of 10 feet back from excavation opening.</u></li><li>• Place 8-foot-long barricades affixed with flashing lights end to end with 4-foot high construction net fence attached to barricades.</li><li>• Utilize temporary curbing or concrete "jersey" barriers affixed with flashing signal lights or other effective warning signs.</li></ul>

**6.2 Field Communications**

Communications at the work site can be accomplished by verbal and/or non-verbal means to ensure contact with all Shaw Environmental & Infrastructure, Inc. and subcontractors. Verbal communication can be impacted by the on-site background noise and while wearing respiratory protection. Table 12 lists the type of communication methods and equipment to use, depending on site conditions. Communication equipment must be checked daily to ensure proper operation and all project personnel must be initially briefed on the communication methods prior to starting work and reviewed in Daily Tailgate Safety Meetings as a reminder.

**Table 12 Field Communication Methods**

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

## 7.0 EMERGENCY RESPONSE AND CONTINGENCY PLAN

Table 13 presents pre-emergency situations which warrant implementation of the Emergency Response and Contingency Plan (ERCP). In the event of an emergency situation, immediate action must be taken by the first person to recognize the event.

**Table 13 Pre-emergency Plan for Site Emergencies**

Situation	Action
Evacuation/ Natural Disaster	<ul style="list-style-type: none"> <li>• Any situation which can potentially cause serious injury or death.</li> <li>• Notification of a facility or plant evacuation.</li> <li>• A rainstorm exceeds the flash flood level.</li> <li>• The facility is in a projected tornado path or a tornado has damaged facility property.</li> <li>• Severe wind gusts are forecasted or have occurred and have caused damage to the facility.</li> </ul>
Medical Emergency	<ul style="list-style-type: none"> <li>• Overexposure to hazardous materials.</li> <li>• Trauma injuries (broken bones, severe lacerations/bleeding, burns).</li> <li>• Eye/skin contact with hazardous materials.</li> <li>• Loss of consciousness.</li> <li>• Heat stress (Heat stroke).</li> <li>• Heart attack.</li> <li>• Respiratory failure.</li> <li>• Allergic reaction.</li> </ul>
Fire Emergency	<ul style="list-style-type: none"> <li>• The potential for human injury exists.</li> <li>• Toxic fumes or vapors are released.</li> <li>• The fire could spread on site or off site and possibly ignite other flammable materials or cause heat-induced explosions.</li> <li>• The use of water and/or chemical fire suppressants could result in contaminated run-off.</li> <li>• An imminent danger of explosion exists.</li> </ul>
Spill or Release of Hazardous Materials	<ul style="list-style-type: none"> <li>• The spill could result in the release of flammable liquids or vapors, thus causing a fire or gas explosion hazard.</li> <li>• 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</li> </ul>
Spill or Release of High Temperature Liquid or Vapor	<ul style="list-style-type: none"> <li>• The spill can be contained on site, but the potential exists for groundwater contamination.</li> <li>• The spill cannot be contained on site, resulting in off-site soil contamination and/or ground water or surface water pollution.</li> <li>• The spill quantity is greater than the reportable quantity limit for the material.</li> </ul>

### PRE-EMERGENCY MEASURES

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.

### Emergency Recognition and Prevention

Because unrecognized hazards may result in emergency incidents, it will be the responsibility of the Site Manager and the Site Safety Officer, 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	<ul style="list-style-type: none"><li>• Materials at the site</li><li>• Materials brought to the site</li></ul>
Physical Hazards	<ul style="list-style-type: none"><li>• Fire/explosion</li><li>• Slip/trip/fall</li><li>• Electrocutation</li><li>• Confined space</li><li>• IDLH atmospheres</li><li>• Excessive noise</li></ul>
Mechanical Hazards	<ul style="list-style-type: none"><li>• Heavy equipment</li><li>• Stored energy system</li><li>• Pinch points</li><li>• Electrical equipment</li><li>• Vehicle traffic</li></ul>

Environmental Hazards	<ul style="list-style-type: none"><li>• Electrical Storms</li><li>• High winds</li><li>• Heavy Rain/Snow</li><li>• Temperature Extremes (Heat/Cold Stress) Poisonous Plants/Animals</li></ul>
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Once a hazard has been recognized, the SM and 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,
- Personal Protective Equipment (PPE) selection/use,
- Written and approved permits for hot work, confined space,
- Trenching/shoring procedure,
- Air monitoring,
- Following all Shaw standard operating procedures, and
- Practice drills for fire, medical emergency and hazardous substances spills.

#### 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 Site Manager. In the event an emergency occurs and the emergency coordinator is not on site, the SM or the highest-ranking employee on site 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.

#### 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. Shaw will follow procedures as directed by the fire department, LEPC, State and Federal Agencies as required. Shaw will defer to the local Fire Department chief to assume the role of Incident Commander upon arriving on site. Additional

on-site personnel may be added to the Site Emergency Response Team as required to respond effectively.

#### 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 local Emergency Response Teams if their help is necessary to control the incident. The Site Emergency Form provides telephone numbers for emergency assistance.
- Direct on-site personnel to control the incident until, if necessary, outside help arrives.
- 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 facility Fire Department.
- Notify Client Representative.
- Notify Shaw Project Manager.
- 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, and
  - 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.

#### Safe Distances And Places Of Refuge

The emergency coordinator for all activities will be the SM. No single recommendation can be made for evacuation or safe distances because of the wide variety of emergencies that 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 on the SITE EMERGENCY FORM ON p IV.
- 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, and
  - 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.

#### 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.

#### 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 base station will be installed in the Shaw office trailer to monitor for emergencies. Only the emergency coordinator will initiate total site evacuation, 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 buildings will be posted on walls or other structural element of a building. Periodic drills will be conducted to familiarize each employee with the proper routes and procedures.

#### 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.
- The emergency coordinator or designee will make a final tally of persons. No attempt to find persons not accounted for will involve endangering lives of Shaw 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 Manager. 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 the emergency coordinator gives clearance. 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.

#### 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 the SITE EMERGENCY FORM (p iv), providing a quick reference guide to follow in the event of a major spill.

#### 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.

#### 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 the SITE EMERGENCY FORM-Page IV).

As called for in regulations developed under the Comprehensive Environmental Response Compensation Liability Act of 1980 (Superfund), Shaw's practice is to report 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. Shaw also follows the same practice for any substances not listed in the Acts noted above but which can be classified as a hazardous waste under RCRA.

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.

#### 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 (Emergency eyewash equipment meets ANSI Standard):

- ABC-type fire extinguisher,
- First-aid kit, industrial size,
- Eyewash/safety shower, and
- Emergency signal horn.

In addition to the equipment listed above, Shaw 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 Shaw office trailer.

EQUIPMENT NAME	APPLICATION
PID	Measures volatile organic compounds
LEL/O2	Measures for potential flammable and oxygen (enriched/deficient) atmospheres

**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.

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

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.

## EMERGENCY CONTINGENCY PLAN

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

### 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.

### 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, and
- 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 Shaw 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 Manager 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 Manager.

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 SM and SSO. An accident/injury/illness report will be completely and properly filled out and submitted to the Health and Safety Director/Project CIH, in accordance with Shaw's reporting procedures.
- A list of emergency telephone numbers is given on the SITE EMERGENCY FORM (p iv).

#### 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, and
- Client Representative.

### Fire Contingency Measures

Shaw 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.

### Response

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

- Anyone who sees a fire will notify his or her 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 worker has extinguished a small fire, the emergency coordinator will be notified.

### Hazardous Weather Contingency Measures

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

- Lightning,
- Heavy Rains/Snow, and
- High Winds.

### Response

- Excavation/soil stockpiles 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.

### Notification

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

- Shaw employees and subcontractors,
- Client Representative, and
- Local Emergency Management Agency.

### Spill/Release Contingency Measures

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

#### 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, and
- 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

**APPENDICES**





**APPENDIX B**

**H&S SITE LOGS AND FORMS**

Shaw E & I  
HASP AMENDMENT NO. 1

Project Name: THAN

Project Number: 771728

PM: Ken Romero

Location: New Orleans, Louisiana

Changes in field activities or hazards:

Soil Sampling Locations

One (1) sample will be collected from inside the concrete valve box containing the S&WBNO water meter and two (2) surface soil samples will be collected at 0 – 3 inches below ground surface (bgs) from the grassy area between the yard and the sidewalk at the corner of Burdette and Colapissa Streets. Soil samples will be collected in triplicate from three (3) stations identified above to assess potential contaminant migration on Burdette Street.

Hazards for this task will be de minimis at best considering the fact that the samples will be collected using a hand tool such as a garden spade down to a depth of 0 – 3 inches bgs. Slip, trip, fall, pinch points and outdoor heat will be the potential problems that will be mitigated as outlined in the full HASP document.

Approved by:  
Project Manager:

*Ken Romero*

Date:

*8/1/05*

Health and Safety:  
Representative

*See attached email*

Date:

Shaw E & I  
HASP AMENDMENT NO. 2

Project Name: THAN

Project Number: 771728

PM: Ken Romero

Location: New Orleans, Louisiana

Changes in field activities or hazards:

Sediment Sample Locations

To address concerns regarding potential impact of the recent water meter leak on the storm drain system, a sediment sample will be collected in triplicate from the drainage manhole at the intersection of Burdette and Fig Streets. The storm drain system along Burdette Street between Earhart Boulevard and Fig Street is scheduled to be cleaned up as part of the future remedial action. The location of the storm drain manhole to be sampled is the first manhole downstream of the area to be remediated.

Hazards for this task will be classified as confined space entry even though no one will actually descend into the manhole there is the potential that an arm or hand may break the plane of the manhole's surface. In addition the manhole is situated in an operating city street. To mitigate these hazards, standard sampling protocol will be followed in regards to PPE but in addition a uniformed New Orleans Police Officer and Unit will be present to protect against traffic hazards. As the confined space issue is concerned, as outlined in the full HASP document, "No One" will be allowed to enter a confined space at anytime. Air monitoring will be done in the breathing zone of the workers to monitor for possible airborne contaminants exposure. Although no one will be allowed to physically enter a manhole, confined space entry requirements will be followed as outlined in HS300 including the completion of Attachments 3 & 4 of that policy. Extra caution will be used to prevent accidental falls into any open manholes. Slip, trip, fall, pinch points and outdoor heat will also be potential problems that will be mitigated as well.

Approved by:  
Project Manager:



Date:

8/1/05

Health and Safety:  
Representative

See attached email

Date:



**ATTACHMENT 3  
ENTRY PERMIT for  
PERMIT-REQUIRED CONFINED SPACE (PRCS)**

Project/Location THAN/NEW ORLEANS, LA Project No. 771728  
 Location of PRCS MANHOLE ON BURDETTE ST. Identity of PRCS \_\_\_\_\_  
 Describe Hazards of PRCS (Chemical and Physical) VEHICULAR TRAFFIC, SLIP, TRIP, FALL  
 Purpose This Permit Authorized TO SAMPLE SEDIMENTS

T CHECKLIST	YES	DOES NOT APPLY	PERSONAL PROTECTIVE EQUIPMENT (Circle)	
			EYE/FACE	EXTREMITIES
All lines leading to and from the space have been blinded or disconnected.		X	Chemical Goggles	Face Shield
Electrical service disconnected or locked out.		X	Safety Glasses	
All grounding and bonding cables in place.		X	Hard Hat	Hoods
All lighting, fittings, power equipment, and extension cords are rated for anticipated atmosphere.		X	Boot Covers	
Ground Fault Circuit Interrupter (GFCI) checked and functioning.		X	Gloves (Material <u>NA</u> )	
All ignition sources have been isolated.		X	Shoes (Material <u>NA</u> )	
All respiratory equipment and alarms checked and functional.		X	BODY (Level <u>NA</u> , Material <u>NA</u> )	
All safety harnesses and lifelines checked.		X	RESPIRATORY	
All required PPE checked and in use.	X		SCBA	Supplied Air
Have all entrants, attendants, and entry supervisors received appropriate training?	X		Egress System	
Attendant(s) trained in non-entry rescue procedures.	X		Purifying (Cartridge <u>NA</u> )	
Rescue service has been identified and will be available for entry rescue.	X		Powered Air Purifying (Cartridge <u>NA</u> )	
Has rescue service passed evaluation?	X		OTHER	
Appropriate rescue equipment available and checked.		X	Hearing Protection	Harness & Lifeline
Mechanical ventilation system in use and effective.		X	Chest or Parachute	<u>NA</u>
All tests have been completed and indicate that entrance requirements have been met.		X	RESCUE EQUIPMENT	
Appropriate warning signs have been posted and unauthorized personnel have been excluded from the PRCS.		X	Mechanical Extraction Device	
			First Aid Kit	SCBA
			Other (Specify) <u>NA</u>	
IF ANSWER TO ANY OF THE ABOVE QUESTIONS IS NO, ENTRY IS NOT PERMITTED.			COMMUNICATION METHOD	
			Lifeline ATug= Signals	
			Air Powered Horn Signals	
			Other <u>NA</u>	

OTHER PERMITS ISSUED FOR WORK IN PRCS: NA

OTHER HAZARD CONTROL PROCEDURES OR INSTRUCTIONS: POLICE UNIT ON-SITE FOR TRAFFIC CONTROL

RESCUE PROCEDURES: CALL 911 AND/OR HAVE OFFICER RADIO FOR HELP



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**TEST DATA**  
**Oxygen, Flammability, and Toxic Contaminant(s)**

Time	Percent Oxygen	Percent LEL	(Other)	(Other)	(Other)	(Other)	(Other)	Tester's Initials	Comments

TESTER'S SIGNATURE: \_\_\_\_\_

AUTHORIZED ENTRANTS  
 NA

AUTHORIZED ATTENDANT(S)  
 MIKE OUBRE

RESCUE PERSONNEL  
 N.O. FIRE DEPT

Diagram the confined space indicate location of manways and ventilators. Indicate location(s) where tests conducted.

) (	Manway
4	Ventilator
X	Test Location

**ACCEPTABLE ENTRY CONDITIONS**

- 1. Entry Permit completely filled out
- 2. Oxygen between 19.5 and 23.5%
- 3. Combustible gases below 10% LEL
- 4. Permissible Levels of toxic gases (list):  
 NA
- 5. Other \_\_\_\_\_

**PRCS SAFE FOR ENTRY**

Date/Time \_\_\_\_\_ / \_\_\_\_\_  
 Name of Entry Supervisor \_\_\_\_\_ Signature \_\_\_\_\_  
 Current Entry Supervisor (if different) \_\_\_\_\_  
 Entry Permit Expires (no longer than 1 shift): Date/Time \_\_\_\_\_ / \_\_\_\_\_

**ENTRY PERMIT CANCELED**

Date/Time \_\_\_\_\_ / \_\_\_\_\_ Signature \_\_\_\_\_  
 Reason (T)     Work Complete     Authorized Conditions Not Met     Incident

**PROBLEMS DURING ENTRY AND RESOLUTION. Please Describe:**  
 \_\_\_\_\_  
 \_\_\_\_\_

**RECLASSIFICATION TO NON-PERMIT-REQUIRED CONFINED SPACE**

Describe hazard removal methods, without use of ventilation.  
 \_\_\_\_\_  
 \_\_\_\_\_

TESTING VERIFICATION SHOWN AT TIME \_\_\_\_\_ ON TEST DATA CHART ABOVE.

DATE/TIME \_\_\_\_\_ / \_\_\_\_\_ ENTRY SUPERVISOR SIGNATURE \_\_\_\_\_

REVIEWED BY:

\_\_\_\_\_  
 Health and Safety Representative Signature

\_\_\_\_\_  
 Date



ATTACHMENT 4

RESCUE SERVICE EVALUATION

INITIAL EVALUATION	
Project/Location <u>THAN NEW ORLEANS</u>	Project No. <u>771728</u>
Identity of PRCS <u>BURDETTE ST</u>	
Name of Rescue Service <u>NEW ORLEANS FIRE DEPT</u>	
Address <u>CARROLTON AVE.</u>	
Contact Person/Phone Number <u>911</u>	
Required Response Time _____	Estimated Response Time <u>2 MINUTES</u>
Availability of Rescue Service <u>ALWAYS</u>	

PERFORMANCE EVALUATION (Observe Test Rescue and Answer Following Questions)	YES	NO
Have all members of the service been trained in the potential hazards of the permit space(s), or of a representative permit space(s) from which rescue may be needed?	X	
Can team members recognize the signs, symptoms, and consequences of exposure to any hazardous atmospheres that may be present in the permit space(s)?	X	
Is every team member provided with, and properly trained in, the use and need for PPE which may be required to perform permit space rescues?	X	
Is every team member properly trained to perform his/her functions and make rescues, and to use any rescue equipment, such as ropes and backboards, that may be needed in a rescue attempt?	X	
Are team members trained in the first aid and medical skills needed to treat victims overcome or injured by the types of hazards that may be encountered in the permit space(s)?	X	
Do all team members perform their functions safely and efficiently?	X	
Do rescue service personnel focus on their own safety before considering the safety of the victim?	X	
Can the rescue service properly test the atmosphere of the identified PRCS?	X	
Can the rescue personnel identify information pertinent to the rescue from entry permits, hot work permits, and MSDSs?	X	
Has the rescue service been informed of any hazards to personnel that may arise from outside the space, such as those that may be caused by future work near the space?		X
Can the rescue service safely perform rescue(s) from the identified PRCS?	X	
Does the rescue service have a plan for rescue from the identified PRCS?	X	
Is the plan adequate for all types of rescue operations that may be needed?	X	

I certify that the evaluated rescue service is equipped and capable of providing rescue services during entry activities for the identified PRCS.

Evaluator:

MICHAEL T. OUBRE *Michael T. Oubre* 8-2-05  
Print Name Signature Date

I acknowledge our responsibility to provide rescue services during entry activities for the identified PRCS.

Rescue Service Representative:

\_\_\_\_\_  
Print Name Signature Date

**Shaw E & I  
HASP AMENDMENT NO. 3**

**Project Name:** THAN

**Project Number:** 771728

**PM:** Ken Romero

**Location:** New Orleans, Louisiana

**Changes in field activities or hazards:**

**On-Site Geoprobe Soil Sampling**

Results from previous on-site surface and subsurface soil sampling programs were used to determine the proposed sampling locations. Six soil borings are proposed to be completed as part of this Pre-Design Sampling Program. The locations of the proposed borings are as follows:

- One boring will be completed in the impacted soil located adjacent to Burdette Street north of sample SS-BC-1.
- Four borings will be completed in the impacted soil of the former pesticide area near the locations of samples MW-5S and Sump-6.
- One boring will be completed in the impacted soil of the former herbicide area near the location on sample Herb-1

Additional soil borings and sample collection may be completed if field conditions warrant.

Each soil boring will be continuously sampled using a Geoprobe Direct Push rig. Sampling for lithologic purposes will commence in the soil located beneath the concrete pavement which lies beneath the asphalt and crushed stone temporary cover, and will continue until total depth which is estimated to be 10 feet below ground surface (bgs). Soil samples will be collected using a soil probe with a nominal two-inch diameter sampling tool to collect core segments. The sampling tool will be fitted with an acetate liner to facilitate sample recovery. A minimum of three discrete subsurface soil samples will be collected and retained for chemical testing at each location.

The following mitigating factors will be implemented during all sampling activities.

1. Workers will be required to wear steel toed shoes, hard hats, and safety glasses at all times in addition to nitrile surgical gloves during all soil handling activities.
2. The drilling subcontractor will be responsible for monitoring the work space and breathing zone of his personnel for chemical constituents and upgrade personal protective equipment from Level D as necessary.

3. The HASP will be readily available in the field at all times. All Shaw and Shaw subcontractor field personnel will be required to read and sign the task-specific HASP indicating that they have read and understood the plan before they may begin activities in the field. The contractor will maintain their signed confirmation of reading the plan in his field records.

Approved by:  
Project Manager:

*Kenneth Roman*

Date: 8/1/05

Health and Safety:  
Representative

*See attached email*

Date: \_\_\_\_\_

**Oubre, Mike**

---

**From:** Florczak, Clifford  
**Sent:** Tuesday, August 02, 2005 12:52 PM  
**To:** Oubre, Mike  
**Subject:** RE: Attached Image

Consider this variance approved.

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**From:** Oubre, Mike  
**Sent:** Tuesday, August 02, 2005 8:49 AM  
**To:** Florczak, Clifford  
**Subject:** FW: Attached Image

Cliff attached are the HASP amendments for the THAN project.

Michael T. Oubre  
Shaw Environmental & Infrastructure, Inc.  
4171 Essen Lane, 6th Floor  
Baton Rouge, LA 70809  
Phone (225) 987-7341  
Fax (225) 987-3316  
Cell (225) 252-2618

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**From:** 38003rd@shawgrp.com [mailto:38003rd@shawgrp.com]  
**Sent:** Tuesday, August 02, 2005 8:44 AM  
**To:** Oubre, Mike  
**Subject:** Attached Image

8/2/2005

## DRILLING SAFETY CHECKLIST

Site Name THAN Project # \_\_\_\_\_  
Your Name \_\_\_\_\_ Drilling Co. \_\_\_\_\_  
Signature \_\_\_\_\_ Signature \_\_\_\_\_

Do not proceed with today's work until this checklist is completed

\_\_\_\_ Are your subcontractors wearing the correct PPE?

\_\_\_\_ Hard Hats                      \_\_\_\_ Ear Protection                      \_\_\_\_ Safety Glasses  
\_\_\_\_ Chemical Protection                      \_\_\_\_ Steel-toed Boots

\_\_\_\_ Have you designated a smoking and eating area?

\_\_\_\_ Have you completed a Tailgate Safety Meeting?

\_\_\_\_ Has the Health and Safety Plan been reviewed and signed?

\_\_\_\_ Do you have a cell phone or know the location of the nearest pay phone?

\_\_\_\_ Do you know the emergency procedures and where first aid kit is?

\_\_\_\_ Is someone CPR/First Aid trained with current certifications?

\_\_\_\_ Did you complete the underground/overhead utility checklist and reviewed/followed requirements?

\_\_\_\_ Have the utilities been marked out?

\_\_\_\_ Have you contacted the Project Manager or Site Manager if the utilities have not been marked?

\_\_\_\_ Pink: temporary survey markings                      \_\_\_\_ green: sewer  
\_\_\_\_ Yellow: natural gas, oil, steam                      \_\_\_\_ blue: water  
\_\_\_\_ Orange: communications                      \_\_\_\_ red: electric  
\_\_\_\_ White: proposed boring locations

Are your borings:

\_\_\_\_ 10/20 feet away from overhead lines (shielded and unshielded respectively)?

\_\_\_\_ 5 feet away from non-natural gas utilities?

\_\_\_\_ 10 feet away from natural gas lines?

\_\_\_\_ 3 feet away from concrete/asphalt scars/joints or repaved areas?

\_\_\_\_ Are you prepared to hand dig to 5 feet?

\_\_\_\_ Have any fiber optic lines been identified on site?

\_\_\_\_ If so, did you complete a fiber optics plan? (see Appendix F of HASP Appendix for form)

\_\_\_\_ Do you have enough barricades/cones to delineate the work zone?

\_\_\_\_ Is there spill control equipment at the site?

\_\_\_\_ Are your borings a minimum of 15 feet away from the fiber optic line mark outs?

\_\_\_\_ Do you have a copy of all access agreements?

\_\_\_\_ Did you give a copy of the drill rig inspection checklist to the subcontractor to complete?

\_\_\_\_ Did the subcontractor lead driller perform the daily inspection and complete the checklist?

\_\_\_\_ Are the kill switches working properly?

\_\_\_\_ Have you eliminated tripping hazards to best of your ability?

\_\_\_\_ Has your driller and driller's helper removed all of their jewelry and there is no loose clothing?

\_\_\_\_ Are you prepared to perform air monitoring?

\_\_\_\_ Have you calibrated your monitoring instruments and documented it on the air monitoring forms?

\_\_\_\_ Do your drillers have all the supplies that they need and do they have the labor required?

\_\_\_\_ Remember, the field geologist or field representative do not perform driller's tasks.

**CONTACT YOUR HEALTH AND SAFETY REPRESENTATIVE IN THE EVENT OF PROBLEMS, NON COMPLIANCE ISSUES, AND ANY INCIDENTS, ACCIDENTS, OR NEAR MISSES.**

**DRILL RIG INSPECTION CHECKLIST  
(DRILLING SUBCONTRACTOR TO COMPLETE)**

ITEMS TO CHECK	OK	ACTION NEEDED
Kill switches installed by the manufacturer are in operable condition and all workers at the drill site are familiar with their location and how to activate them?		
Kill switches are accessible to workers on both sides of the rotating stem? NOTE: <u>Optional</u> based on location and number of switches provided by the manufacturer.		
Cables on drill rig are free of kinks, frayed wires, bird cages and worn or missing sections?		
Cables are terminated at the working end with a proper eye splice, either swaged Coupling or using cable clamps?		
Cable clamps are installed with the saddle on the live or load side? Clamps should not be alternated and should be of the correct size and number for the cable size to which it is installed. Clamps are complete with no missing parts?		
Hooks installed on hoist cables are the safety type with a functional latch to prevent accidental separation?		
Safety latches are functional and completely span the entire throat of the hook and have positive action to close the throat except when manually displaced for connecting or disconnecting a load?		
Drive shafts, belts, chain drives and universal joints shall be guarded to prevent accidental insertion of hands and fingers or tools.		
Outriggers shall be extended prior to and whenever the boom is raised off its cradle. Hydraulic outriggers must maintain pressure to continuously support and stabilize the drill rig even while unattended.		
Outriggers shall be properly supported on the ground surface to prevent settling into the soil.		
Controls are properly labeled and have freedom of movement? Controls should not be blocked or locked in an action position.		
Safeties on any device shall not be bypassed or neutralized.		
Controls shall be operated smoothly and cables and lifting devices shall not be jerked or operated erratically to overcome resistance.		

Slings, chokers and lifting devices are inspected before using and are in proper working order? Damaged units are removed from service and are properly tagged?		
Shackles and clevises are in proper working order and pins and screws are fully inserted before placing under a load?		
High pressure hoses have a safety (chain, cable or strap) at each end of the Hose section to prevent whipping in the event of a failure?		
Rotating parts of the drill string shall be free of sharp projections or hooks which could entrap clothing or foreign objects?		
Wire ropes should not be allowed to bend around sharp edges without cushion material.		
The exclusion zone is centered over the borehole and the radius is equal or greater than the boom height?		
The work area around the borehole shall be kept clear of trip hazards and walking surfaces should be free of slippery material.		
Workers shall not proceed higher than the drilling deck without a fall restraining device and must attach the device in a manner to restrict fall to less than 6 feet.		
A fire extinguisher of appropriate size shall be immediately available to the drill crew. The drill crew shall have received annual training on proper use of the fire extinguisher.		
29 CFR 1910.333 (3) Except where electrical distribution and transmission lines have been de-energized and visibly grounded, drill rigs will be operated proximate to, under, by, or near power lines only in accordance with the following: .333 (3) (ii) 50KV or less -minimum clearance is 10 ft. For 50 KV or over, add 0.4 inches for every KV over 50 KV. If voltage is unknown, maintain at least 20 feet clearance.		
29 CFR 1910.333 (3) (iii) While the rig is in transit with the boom in the down position, clearance from energized power lines will be maintained as follows: Less than 50 KV - 4 feet 50 thru 365 KV - 10 feet 365 thru 720 KV - 16 feet		













**SHAW ENVIRONMENTAL & INFRASTRUCTURE, INC.  
UNDERGROUND UTILITY CONTACT PREVENTION AND MANAGEMENT PLAN**

**Check Off Each Section When Complete. Check list Must be Placed into the Project File**

STEPS	TASK DESCRIPTION	RESPONSIBLE EMPLOYEE
1	<p>Obtain site blueprints or as built drawings from client, if available, to show buried utilities (Electric Power Line, Natural Gas Line, Telephone Line, Water Line, Product Line, Steam Line, Sewer Line, Drain Line, Underground Tank, Overhead Power Line, Overhead Product Line, Septic Tank or /Drain lines).</p> <p>If site blueprints are not available other methods must be employed to identify subsurface conduits in the field. Examples include private contracted utility locators (capable of finding the types of suspected on-site utilities such as PVC piping, fiber optics, etc.), a hand-held utility location device, visual observations (cut pavement or concrete, signs and overhead lights, water, electric, and gas meters, etc.), and customer personnel with knowledge of utility locations.</p> <p>As many tools as practicable must be used to attempt to find all known/suspect utilities.</p> <p>Mark out any proposed digging locations with white survey paint.</p>	<p>PM</p> <p>PM and/or field personnel</p>
2	<p>Contact underground utility locating services service at least a minimum of 48 or 72 hours before the scheduled site work. (Check with the state for notification requirements). Give service proposed dates of drilling/excavation, dates, and location.</p> <p>If possible, arrange a site visit with the client, facilities maintenance manager, or other site-knowledgeable people to verify, utility and drilling/excavation locations.</p> <p>Note: At a minimum, excavation subcontractors will be required to supply sufficient labor to complete all requested installation tasks.</p>	<p>PM Assistant for contacting appropriate local utility locating service and/or field personnel</p> <p>PM</p>
3	<p>The Health and Safety Plan (HASP) must be amended to include any emergency telephone numbers for all utility companies identified during the notification process.</p>	<p>PM will provide updated information to the safety coordinator.</p>

STEPS	TASK DESCRIPTION	RESPONSIBLE EMPLOYEE
4	<p>On the day that on-site activities are scheduled to begin, at the first tailgate safety meeting, the locations of all known/suspect utilities (subgrade and overhead) must be reviewed with all field personnel (Shaw and all subcontractors).</p> <p>Make sure that all underground utility locator markings are visible for each noted utility, etc. Note any discrepancies. Visually inspect for undocumented trenches, laterals, etc. that may be visible as discolored areas, patched pavement, etc. and not marked accordingly. Complete the Underground/Overhead Utility checklist.</p>	<p>PM and/or field personnel</p> <p>PM and/or field personnel</p>
5	<p>Pre-screen each drilling/digging location by hand auguring and/or post hole digging to a depth of at least 3 to 5 feet using a clam-shell style post hole digger and/or hand auger that is at least as large as the OD of the drill bit or other drilling devices.</p> <p>As appropriate use a fiberglass pointed probe, insulated linemen's gloves, or other similar material in soils capable of probe utilization.</p> <p>As applicable use the Shaw lockout/tagout procedure when there are electrical utilities suspected on the site.</p> <p>Inspect excavation periodically with a flashlight to check for visual obstructions. Stop immediately upon encountering any substantial resistance to hand auger and/or post hole digger.</p>	<p>Subcontractors to conduct hand auguring and/or post hole digging under Shaw oversight.</p>
6	<p>During excavation/trenching activities, pavement/concrete work, use barricades and place cones with flags to mark a 10-foot distance from a located utility.</p>	<p>Field personnel</p>

STEPS	TASK DESCRIPTION	RESPONSIBLE EMPLOYEE
<p>7</p> <p>Encounter</p>	<p>In the event that a subsurface or overhead utility is encountered, immediately stop all operations and secure the area. Try to determine the source (i.e., electric power line, natural gas line, telephone line, water line, product line, steam line, sewer line, drain line, underground tank, overhead power line, overhead product line, septic tank or /drain lines, etc.).</p> <p>Contact the emergency numbers for that utility and the PM immediately so they can shut off the utility. Take the necessary safety precautions that all personnel are kept away from the area.</p> <p>Monitor the area using the LEL, O<sub>2</sub>, and PID for other substances that may be present as appropriate for that utility encounter (i.e., gas line).</p> <p>Complete a property damage assessment report by close of business on day of incident.</p> <p>PM submits Incident Investigation Report (final in 72 hours, begun as soon as incident is under control) to appropriate Shaw management where a follow-up report. Report is prepared and issued</p>	<p>Shaw field personnel secures area and contacts PM immediately.</p> <p>PM contacts client, etc., to discuss appropriate actions.</p> <p>Shaw field personnel contacts local emergency officials as necessary (i.e., fire, police, EPA, public works, etc.).</p>

## UNDERGROUND/OVERHEAD UTILITY CHECKLIST

Project Name/Number: \_\_\_\_\_ Date: \_\_\_\_\_

Location: \_\_\_\_\_

This checklist must be completed for any intrusive subsurface work such as trenching, excavating, pavement or concrete work, or drilling. It records the fact that all underground and overhead structures and utilities in the work area are identified and found. The Project Manager must request utility markouts before the start of field operations to allow the client and utility companies' time to complete them. If complete information is not available, a magnetometer survey must be performed to find obstacles before trenching, excavating, or drilling.

### Procedure

A diagram of the project area depicting the proposed location of trenching, excavation, or drilling sites must be attached to this HASP. The diagram must clearly indicate the areas checked for underground structures/utilities, and overhead power lines. This form and the diagram must be signed by the Project Manager, the Field Supervisor, and the client representative (if applicable).

TYPE OF STRUCTURE	Color	PRESENT	NOT PRESENT	METHOD OF MARKOUT
Electric Power Line	Red			
Natural Gas Line	Yellow			
Telephone Line/Cable	Orange			
Water Line	Blue			
Product Line				
Steam Line				
Sewer Line	Green			
Drain Line				
Underground Tank				
Overhead Power Line	Red			
Overhead Product Line				
Septic Tank				

Client Representative \_\_\_\_\_  
 (If applicable) (Signature) (Date)

Project Manager \_\_\_\_\_  
 (Signature) (Date)

Field Supervisor \_\_\_\_\_  
 (Signature) (Date)

### Procedure for Investigating Sites containing Fiber Optics Cables

---

Because of the sensitivity and costs associated with the damage of fiber optic cables, the following process, effective immediately, will be adopted as mandatory and as a minimum effort.

1. When a Shaw Project Manager or staff person becomes aware that a site requiring subsurface work contains a fiber optic cable within 50 feet of the outside working boundary, he/she will immediately notify the PM/BLM. The BLM, or if no BLM is in place the PM, will immediately notify the Area Manager and the Area Health and Safety Representative. The Project Manager and the Area Health and Safety Representative will develop a work plan designed to address the accomplishment of site activities while guaranteeing with certainty no impact to the fiber optic cable.
2. Any subsurface activities conducted at a site as described in item 1, will require the on-site presence of the Area Health and Safety Representative or a designee as affirmed in writing by the Area Health and Safety Representative.
3. No subsurface work will occur at a site as referenced in item 1, without the owner of the fiber optic cable being present.
4. The fiber optic cable will not be considered located unless a representative of the owner of the fiber optic cable has visited the site, confirmed the location of the cable, and signed the work plan which shall contain a site plan indicating the locations(s) of the subsurface work and location of the fiber optic cable.
5. Deviation from any of the above points, items 1 through 4, must be approved by the Area Manager.

**SHAW FIBER Optic Contingency Plan**

**Project Location:** Fina Station #1701, 1525 Inwood Road, Dallas, TX  
**Project No.:** 05020.1263  
**Field Activity Date:** August 4, 1999  
**Project Manager:** PM Name  
**Site Manager:** SM Name  
**Site Safety Officer:** SSO Name

**Site Description:**

This location is an active retail service station. The site is located at the intersection of Inwood Road and Interstate 35 (Stemmons Freeway). Inwood Road (running roughly N-S) borders the site to the east, the Stemmons Freeway access road (running roughly E-W) borders the site to the north, and commercial property borders the property to the south and west.

**Fiber Optic Cable and Location of Subsurface Work:**

A Southwestern Bell Telephone (SWBT) fiber optic cable runs parallel to Inwood Road on the east side. The SWBT cable is under some overhead electric and telephone lines, and curves to the east to enter the bank building east of the subject site across Inwood. Three soil borings (SB) will be drilled on the site, and one monitoring well (MW) will be drilled on the commercial property south of the Fina site. These borings/wells are on the opposite side of the street from the fiber optic cable and are not a threat to it. Two additional MWs will be installed west of Inwood Road in the city easement. Field measurements, based on SWBT markings, indicate that a distance of approximately 18 to 20 feet can be maintained between the proposed MW locations and the fiber optic cable. See the attached site map.

**Contingency Plan:**

A phone conversation with a locator for SWBT confirmed that no other cables run in the area. An on-site meeting between the SWBT locator and the Site Manager is scheduled on the day of the drilling prior to the start of work. No drilling within 50 feet of the fiber optic cables will occur until the Site Manager and the SWBT locator have marked the locations of the proposed drill sites and the cable location. Should the SWBT locator not be able to remain on site for the duration of the intrusive activities he will still sign this plan.

Shaw will have a designated health and safety representative on site to ensure safety protocol is observed.

**Approval:**

_____ Signature	_____ Date	_____ Signature	_____ Date
Area Manager		Area Health & Safety Manager	

**Acknowledgement:**

_____ Signature	_____ Date	_____ Signature	_____ Date
Project Manager		Site Manager	

**Fiber Optic Cable Owner's Representative:**

_____ Company Name			
_____ Representatives Name	_____ Signature		_____ Date

## HEAT/COLD STRESS PROCEDURES

### 1.0 HEAT STRESS

#### Definitions

- **Acclimatization** - Series of physiological and psychological adjustments that occur in an employee during initial exposures to hot environmental conditions.
- **Company** - All wholly-owned subsidiaries of The Shaw Group, Inc.
- **Maximum Heart Rate** - Amount of work (beats) per minute a healthy person's heart can be expected to safely deliver. Maximum heart rate (MHR) is calculated by subtracting an employee's age from 200.

### 1.2 Signs, Symptoms, and Treatment

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

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

#### 1.2.1 Heat Rash

Heat rash can be caused by continuous exposure to hot and humid air and skin abrasion from sweat soaked clothing.

**Signs and Symptoms:** The condition is characterized by a localized red skin rash and reduced sweating. Aside from being a nuisance, the ability to tolerate heat is reduced.

**Treatment:** Keep skin hygienically clean and allow it to dry thoroughly after using chemical protective clothing.

#### 1.2.2 Heat Cramps

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

### 1.2.3 Heat Exhaustion

- Heat exhaustion is a mild form of shock caused by increased stress on various organs to meet increased demand to cool the body. Onset is gradual and symptoms should subside within one hour.
- Signs and Symptoms: Weak pulse; shallow breathing; pale, cool, moist skin; profuse sweating; dizziness; fatigue.
- Treatment: Remove employee to a cool place and remove as much clothing as possible. Give sips of water or electrolytic solution and fan the person continually to remove heat by convection.  
**CAUTION**: Do not allow the affected person to become chilled—treat for shock if necessary.

### 1.2.4 Heat Stroke

- Heat stroke is the most severe form of heat stress; the body must be cooled immediately to prevent severe injury and/or death. **THIS IS A MEDICAL EMERGENCY!!**
- Signs and Symptoms: Red, hot, dry skin; body temperature of 105 degrees Fahrenheit (EF) or higher; no perspiration; nausea; dizziness and confusion; strong, rapid pulse.
- Treatment: Heat stroke is a true medical emergency. Transportation of the victim to a medical facility must not be delayed. Prior to transport, remove as much clothing as possible and wrap the victim in a sheet soaked with water. Fan vigorously while transporting to help reduce body temperature. Apply cold packs, if available; place under the arms, around the neck, or any other place where they can cool large surface blood vessels. If transportation to a medical facility is delayed, reduce body temperature by immersing victim in a cool water bath (however, be careful not to over-chill the victim once body temperature is reduced below 102° F). If this is not possible, keep victim wrapped in a sheet and continuously douse with water and fan.

### 1.3 Prevention

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

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

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

assigned other tasks.

All employees shall be informed of the importance of adequate rest and proper diet in the prevention of heat stress and the harmful effects of excessive alcohol and caffeine consumption.

#### **1.4 Monitoring**

The initiation of heat stress monitoring will be required when employees are working in environments exceeding 90EF ambient air temperature. If employees are wearing impermeable clothing, this monitoring will begin at 78EF. There are two general types of monitoring that the health and safety representative can designate to be used: wet bulb globe temperature (WBGT) and physiological. Attachment 2 will be used to record the results of heat stress monitoring.

##### **1.4.1 Wet Bulb Globe Temperature (WBGT)**

The WBGT index is the simplest and most suitable technique to measure the environmental factors which most nearly correlate with core body temperature and other physiological responses to heat. When WBGT exceeds 25.9° C (78° F), the work regimen in Table 1 and Figure 1 of the section Heat Stress in the latest edition of the American Conference of Governmental Industrial Hygiene (ACGIH) Threshold Limit Value (TLV) Booklet should be followed.

##### **1.4.2 Physiological**

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

###### **1.4.2.1 Heart Rate**

Each individual will count his/her radial (wrist) pulse as early as possible during each rest period. If the heart rate of any individual exceeds 75 percent of their calculated maximum heart rate ( $MHR = 200 - \text{age}$ ) at the beginning of the rest period, then the work cycle will be decreased by one-third. The rest period will remain the same. An individual is not permitted to return to work until his/her sustained heart rate is below 75 percent of their calculated maximum heart rate.

###### **1.4.2.2 Temperature**

Each individual will measure his/her temperature with a thermometer for one minute as early as possible in the first rest period. If the temperature exceeds 99.6° F at the beginning of the rest period, then the work cycle will be decreased by one-third. The rest period will remain the same.

An individual is not permitted to return to work if his/her temperature exceeds 100.4° F

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



**JOB SAFETY ANALYSIS FORM**

Operation/Location: \_\_\_\_\_ Date: \_\_\_\_\_  
 Person Doing JSA: Michael T. Oubre Project: THAN  
 SSHO: \_\_\_\_\_ Project Supervisor: \_\_\_\_\_

Job Steps	Job Hazards	Safeguards and Precautions
P&A'ing Off-Site Wells	Traffic, public, drill rig	Off duty police officers along with a patrol unit will be present at all times to control traffic and prevent unauthorized entry into the work area by the general public. All required safety equipment will be donned at all times during drill rig operation. This includes but is not limited to hard hat, safety glasses, steel toed boots, gloves and brightly colored safety vests.
Remedial Excavation Activities	Chemical hazards	Chemical hazards will be addressed as required by donning the appropriate PPE including but not limited to full face respirators, breathing air (if required), Saranex suits or other, double gloves (nitrile, latex or other), safety glasses, hard hats, steel toed leather or rubber boots, taped up suits, gloves, and boots as required.
Remedial Excavation Activities	Physical hazards including heavy equipment movement, open excavations, etc.	Spotters will be used during equipment operations as needed to prevent collisions, etc. During excavation activities spotters will be used as well to not only monitor excavation activities to ensure complete remediation but to ensure excavation safety as well.
Removing Contaminated Fluids	Slip, trip and fall	Extra caution will be taken to ensure no one falls into

<p>the excavation while pumping out contaminated fluids. This could be caused by getting too close to the edge of the excavation or tripping over hoses. Chemical hazards will be addressed as required by donning the appropriate PPE including but not limited to full face respirators, breathing air (if required), Saranex suits or other, double gloves (nitrile, latex or other), safety glasses, hard hats, steel toed leather or rubber boots, taped up suits, gloves, and boots as required.</p>		
<p>No one will be allowed to enter a confined space at anytime. Sediments will be removed mechanically using a super sucker. Air monitoring will be done in the breathing zone of the workers to monitor for possible airborne contaminants exposure. Although no one will be allowed to physically enter a manhole, confined space entry requirements will be followed. Extra caution will be used to prevent accidental falls into any open manholes.</p>	<p>Oxygen deficient atmosphere, airborne contaminants present, falling into manhole.</p>	<p>Removing contaminated sediments from the off-site storm drain system.</p>

PROJECT SAFETY INSPECTION REPORT

PROJECT: THAN DATE: \_\_\_\_\_

BUSINESS LINE: \_\_\_\_\_ PROJECT NAME/NUMBER: THAN  
PROGRAM MANAGER: \_\_\_\_\_ PROJECT MANAGER: Kenneth Romero  
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 \_\_\_\_\_ THAN \_\_\_\_\_

DATE \_\_\_\_\_

YES NO N/A

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? \_\_\_\_\_
- 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? \_\_\_\_\_









PROJECT SAFETY INSPECTION REPORT

PROJECT THAN

DATE \_\_\_\_\_

	YES	NO	N/A
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?	_____	_____	_____

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

**PROJECT SAFETY INSPECTION REPORT**

**PROJECT** \_\_\_\_\_ **THAN** \_\_\_\_\_

**DATE** \_\_\_\_\_

	<u>YES</u>	<u>NO</u>	<u>N/A</u>
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?	_____	_____	_____





**DAILY SAFETY MEETING**

**Project Name:** THAN

**Date:** \_\_\_\_\_

**Project Number:** \_\_\_\_\_

**Presented by:** \_\_\_\_\_

**Check the Topics/Information Reviewed:**

- |  |  |   |
|--|--|---|
| <input type="checkbox"/> safety glasses, hard hat, safety boots                | <input type="checkbox"/> slips, trips, and falls       | <input type="checkbox"/> daily work scope       |
| <input type="checkbox"/> site safety plan review and location                  | <input type="checkbox"/> directions to hospital        | <input type="checkbox"/> emergency protocol     |
| <input type="checkbox"/> equipment and machinery familiarization               | <input type="checkbox"/> anticipated visitors          | <input type="checkbox"/> parking and laydown    |
| <input type="checkbox"/> employee Right-To-Know/MSDS location                  | <input type="checkbox"/> electrical ground fault       | <input type="checkbox"/> hot work permits       |
| <input type="checkbox"/> open pits, excavations, and site hazards              | <input type="checkbox"/> public safety and fences      | <input type="checkbox"/> strains and sprains    |
| <input type="checkbox"/> vehicle safety and driving/road conditions            | <input type="checkbox"/> excavator swing and loading   | <input type="checkbox"/> noise hazards          |
| <input type="checkbox"/> portable tool safety and awareness                    | <input type="checkbox"/> orderly site and housekeeping | <input type="checkbox"/> no horseplay           |
| <input type="checkbox"/> overhead utility locations and clearance              | <input type="checkbox"/> smoking in designated areas   | <input type="checkbox"/> heat and cold stress   |
| <input type="checkbox"/> first aid, safety, and PPE location                   | <input type="checkbox"/> leather gloves for protection | <input type="checkbox"/> backing up hazards     |
| <input type="checkbox"/> sharp object, rebar, and scrap metal hazards          | <input type="checkbox"/> effects of the night before   | <input type="checkbox"/> accidents are costly   |
| <input type="checkbox"/> safety is everyone's responsibility                   | <input type="checkbox"/> vibration related injuries    | <input type="checkbox"/> dust and vapor control |
| <input type="checkbox"/> latex gloves inner/nitrile gloves outer               | <input type="checkbox"/> fire extinguisher locations   | <input type="checkbox"/> refueling procedures   |
| <input type="checkbox"/> excavation/trenching inspections/documentation        | <input type="checkbox"/> eye wash station locations    | <input type="checkbox"/> confined space entry   |
| <input type="checkbox"/> full face respirators with proper cartridges          | <input type="checkbox"/> decontamination procedures    | <input type="checkbox"/> flying debris hazards  |
| <input type="checkbox"/> upgrade to level c at: PID ( __ eV ) > __ ppm         |  |   |
| <input type="checkbox"/> work stoppage at: PID ( __ eV ) > __ ppm, % LEL > 10% |  |   |

**Tasks:** \_\_\_\_\_

**Discussion/Comments/Follow-up Actions:** \_\_\_\_\_

*Note: Use the back of this sheet if necessary for daily task description and discussion*

NAME	SIGNATURE	COMPANY
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

**Instructions:** Conduct a daily safety meeting prior to beginning each day's site activities. Complete form, obtain signatures, and file with the Daily Summary. Follow-up on any noted items and document resolution of any action items.

**APPENDIX C**  
**REQUIRED SHAW ENVIRONMENTAL & INFRASTRUCTURE, INC. H&S**  
**PROCEDURES**  
**TO BE ON-SITE**

SOP NO. HS001	SAFETY POLICY
SOP NO. HS010	EMPLOYEE SAFETY AND HEALTH WORK RULES
SOP NO. HS011	CONTRACTOR SAFETY AND HEALTH RULES
SOP NO. HS018	SAFETY COUNCILS
SOP NO. HS019	INJURY AND ILLNESS PREVENTION PROGRAM
SOP NO. HS020	REPORTING, INVESTIGATION, AND REVIEW
SOP NO. HS021	MANAGEMENT SAFETY REVIEWS
SOP NO. HS023	SAFETY INCENTIVE AWARD PROGRAM
SOP NO. HS040	STOP WORK AUTHORITY
SOP NO. HS045	JOB SAFETY ANALYSIS
SOP NO. HS051	TAILGATE SAFETY MEETINGS
SOP NO. HS060	HAZARD COMMUNICATION
SOP NO. HS090	OSHA REGULATORY INSPECTIONS
SOP NO. HS091- INCIDENTS]	REPORTING OF FATALITY OR MULTIPLE HOSPITALIZATION
SOP NO. HS300	CONFINED SPACES
SOP NO. HS 302	LADDER SAFETY
SOP NO. HS303	PRESSURIZED WATER CLEANING AND CUTTING (IF NECESSARY)
SOP NO HS304	COMPRESSED GAS CYLINDERS
SOP NO. HS307	EXCAVATION AND TRENCHING
SOP NO. HS314	HOT WORK IN HAZARDOUS LOCATIONS
SOP NO. HS315	CONTROL OF HAZARDOUS ENERGY SOURCES
SOP NO. HS 316	DRILL RIG OPERATIONS
SOP NO. HS400	WORKING IN HOT ENVIRONMENTS (IF NEEDED)
SOP NO. HS600	PERSONAL PROTECTIVE EQUIPMENT
SOP NO. HS601	RESPIRATORY PROTECTION PROGRAM
SOP NO. HS800/810	MOTOR VEHICLE/COMMERCIAL VEHICLE OPERATION AND MANAGEMENT PROCEDURES
SOP NO. HS822	CRANE OPERATIONS



Procedure No.	HS001
Revision No.	0
Date of Revision	05/21/02
Last Review Date	05/21/02
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## PROCEDURE

**Subject: SAFETY**

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### 1.0 PURPOSE AND SUMMARY

The Shaw Group is firmly committed to operating all of its facilities and projects in a safe, efficient manner and in compliance with all applicable safety, health and environmental regulations. Our goal is to provide an injury free work environment where facilities and projects are free of recognized hazards; and people, equipment and the environment are not placed at unreasonable risk of injury or damage.

The most valuable resource we have is our people. While quality and productivity are critical to our operations, they will never take precedence over the safety of personnel or protection of the environment.

To accomplish our goals, requires a unified team effort from all levels of the organization. Safety must be planned into all of our activities and receive the same level of attention as quality and productivity.

The Environmental, Health & Safety Program Manual has been developed to guide us in our daily activities. Teamwork and compliance with our safety standards, procedures and rules will help us achieve our goal of an injury free work environment. Your cooperation and active participation in The Shaw Group's safety process is expected and appreciated, anything less is unacceptable.

J.M. Bernhard, Jr.  
Chairman, President and Chief Executive Officer  
The Shaw Group Inc.



## PROCEDURE

**Subject:** EMPLOYEE HEALTH AND SAFETY MANUAL

### 1.0 PURPOSE AND SUMMARY

This procedure establishes the method of distribution for the employee health and safety manual. This manual is not intended to be an all-inclusive document, but rather an outline of general health and safety guidelines applicable to all employees. These guidelines have been developed to communicate some basic health and safety practices expected of all employees.

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  - 3.2 Action/Approval Responsibilities
- 4.0 Definitions
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- 6.0 Exception Provisions
- 7.0 Cross References
- 8.0 Attachments

### 3.0 RESPONSIBILITY MATRIX

- 3.1 **Procedure Responsibility**  
The Vice President of 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).

### 5.0 TEXT



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Project and office managers are to ensure that each employee at his/her location is provided with a copy of the health and safety manual. All newly hired employees will be provided with a copy of this manual as part of their new hire orientation package. All employees are encouraged to read, ask questions of their manager or health and safety representative, and retain this manual for future reference.

A completed copy of the signature card found at the end of the manual will be collected from all employees by their manager and forwarded to the employee's respective Human Resources Department. Additional copies of this manual can be obtained through various storerooms and Human Resources Departments throughout the company.

#### **6.0 EXCEPTION PROVISIONS**

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

#### **7.0 CROSS REFERENCES**

HS013 Health and Safety Procedure Variations

#### **8.0 ATTACHMENTS**

1. Responsibility Matrix
2. Employee Health and Safety Manual



ATTACHMENT 1

EMPLOYEE HEALTH AND SAFETY MANUAL  
RESPONSIBILITY MATRIX

Action	Procedure Section	Responsible Party			
		Human Resource Representative	Project/Office Manager	Health and Safety Representative	Vice President Health and Safety
Issue, Revise, and Maintain Procedure	3.1				X
Ensure Current Employees are Provided a Copy of the Manual	5.0		X		
Provide New Hires With a Copy of the Manual	5.0	X			
Answer Employee Questions Pertaining to Manual	5.0		X	X	
Forward Completed Signature Cards to Human Resources Department	5.0		X		



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**ATTACHMENT 2**

**EMPLOYEE HEALTH AND SAFETY MANUAL**



## PROCEDURE

Subject: HEALTH AND SAFETY RULES FOR CONTRACTORS

### 1.0 PURPOSE AND SUMMARY

The purpose of this procedure is to promulgate the General Safety Rules for Contractors and the Contractor Site Safety Rules Checklist. These documents set forth in broad terms the health and safety requirements to which a contractor is expected to conform while working under contract with Shaw Environmental & Infrastructure, Inc. (Shaw E & I).

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- 5.0 Discussion
- 6.0 Text
  - 6.1 Procurement Department
  - 6.2 Document Availability
  - 6.3 Document Updates
- 7.0 Cross References
- 8.0 Attachments

### 3.0 RESPONSIBILITY MATRIX

**3.1 Procedure Responsibility.** The Director of 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

**Contractor-** As used in this procedure, means a party in either the Prime or Subcontractor role or otherwise, providing supplies/services to Shaw E & I and performing some obligations of a particular prime contract.

**Contractor prequalification-** The process of ensuring that an individual or firm possesses the required capabilities so that both Shaw E & I and the Contractor are protected in the event of a failure to perform, an accident, or a difference of opinion as to the terms and conditions or performance. This prequalification process is governed by Shaw E & I Procedure PR012 Subcontractor Prequalification Requirements.



## 5.0 DISCUSSION

The attached publications have been created for the express purpose of circulating prescribed safety and health rules for contractors working on Shaw E & I projects, whether in-house or for clients. *These publications should be widely distributed to our contractors and the rules contained therein stringently enforced.* These rules are supported by years of experience in the field and are considered equally applicable to our own operations as well as our contractors.

## 6.0 TEXT

### 6.1 Procurement Department

Shaw E & I procurement specialists will forward copies of the attached documents to prospective contractors as part of the contractor prequalification process prescribed by Shaw E & I Procedure PR012- Subcontractor Prequalification Requirements. They will assure completion of the General Site Safety Rules for Contractors Receipt and maintain copies with the procurement file.

### 6.2 Document Availability

Stocks of the attachments will be maintained in the procurement system for issuance upon submittal of a request to the Procurement Department. In addition, local health and safety personnel will maintain a small working stock of the publications for ready issue.

### 6.3 Document Updates

It is desired to make these safety and health documents truly functional publications. To that end, suggestions for improvement are encouraged. Recommended changes should be submitted to local health and safety personnel for transmittal to the Corporate Health and Safety Office for consideration and incorporation.

## 7.0 CROSS REFERENCES

Shaw E & I Procedure PR012 Subcontractor Prequalification Requirements

## 8.0 ATTACHMENTS

1. Responsibility Matrix
2. General Safety Rules for Contractors



**ATTACHMENT I  
HEALTH AND SAFETY RULES FOR CONTRACTORS**

**Responsibility Matrix**

Action	Procedure Section	Procurement Specialist	Local HS Representative	Director of HS
Issuance, revision and maintenance of this procedure	3.1			X
Distribute General Safety Rules	6.1	X		
Maintain General Safety Rules Receipts	6.1	X		
Submit Recommended Changes	6.3		X	
Update General Safety Rules	6.3			X



## PROCEDURE

Subject: SAFETY COUNCILS

### 1.0 PURPOSE AND SUMMARY

The purpose of this procedure is to establish the framework for the conductance of safety councils. Safety councils are an integral part of our management approach to safety and are required at the corporate, group, and business line levels throughout the company. Essential provisions of this procedure include:

- Safety Council Charter, Purpose, and Duties
- Organization
- Membership
- Subcommittees
- Safety Council Meetings
- Reporting Requirements.

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- 4.0 Definitions
- 5.0 Text
  - 5.1 Safety Council Charter, Purpose, and Duties
    - 5.1.1 Charter
    - 5.1.2 Purpose
    - 5.1.3 Duties
  - 5.2 Organization
  - 5.3 Membership
  - 5.4 Subcommittees
    - 5.4.1 Incident Investigation Subcommittee
    - 5.4.2 Safety Inspection Subcommittee
    - 5.4.3 Work Rules Subcommittee
    - 5.4.4 Awareness and Recognition Subcommittee
    - 5.4.5 Ad Hoc Committees
  - 5.5 Safety Council Meetings
    - 5.5.1 Agenda
    - 5.5.2 General Rules of Operation
  - 5.6 Reporting Requirements
- 6.0 Exception Provisions



7.0 Cross References

8.0 Attachments

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).

5.0 TEXT

5.1 Safety Council Charter, Purpose, and Duties

The company safety policy states that we will provide a safe and healthful workplace for all employees, subcontractors, and others that work with us. Safety councils help to fulfill this policy by providing a mechanism for management and employees to take a proactive role in providing a safe workplace.

5.1.1 Charter

The charter of each safety council is to implement an effective safety program at the management level of the council, within the policy, procedures, and guidelines of the company. Each safety council is chartered to act within the bounds of the authority approved for that management level.

5.1.2 Purpose

The purpose of each safety council is to create an environment which actively involves management and employees in the continual enhancement of the safety of our workplaces.

5.1.3 Duties

A list of key safety council duties is provided below. It is expected that the duties of each safety council will evolve to meet the needs of the management level that it serves.

- Monitor the activities of lower level councils.
- Coordinate and monitor the safety inspection program.
- Verify that safety incident investigations and follow-up procedures are met.



- Establish activity-specific work rules at the level of the council and review annually.
- Administer safety awareness and recognition programs.

## 5.2 Organization

Safety councils will function at various management levels across the company, including the corporate level, group level, and each business line. Safety councils serving large business lines may, at their discretion, create a fourth tier of program or project safety councils.

Each safety council is accountable to the safety council above it in the organization and is responsible for monitoring those safety councils below it. The safety councils may execute many of their duties through subcommittees and ad hoc committees. Refer to Section 5.4.

Safety councils at all levels are empowered with the authority to act through the mandatory membership and participation of the senior manager at the level of the council (e.g., President at corporate level, business line manager at business line level). Authority to act includes the management authorities stated in various company procedures for the management level responsible for the safety council.

## 5.3 Membership

Each safety council will have a chairperson and secretary. The senior manager at the level of the council will be designated as the council chairperson. The senior health and safety representative at the level of the council will be the secretary. For example, the corporate safety council chairperson will be the President and the secretary will be the Vice President, Health and Safety. In the absence of a health and safety representative at a particular council location, the chairperson will appoint a secretary who is knowledgeable in company health and safety requirements.

Total membership of each safety council should be limited to approximately eight (8) people, equally divided between management and other employees. It is the responsibility of the chairperson to provide a safety council membership that represents a cross section of the employees within the council's responsibility. It is important that safety council members be highly visible within the organization represented by the council so that employees can communicate potential problems and ideas for improvement to members of the safety council.

Safety council members are expected to serve at least a one-year term before rotating. The position of chairperson does not rotate and remains the senior manager of the council level. The secretary does not rotate unless there are multiple health and safety representatives at the level of the council.

## 5.4 Subcommittees



Much of the work of each safety council can be accomplished by standing subcommittees and ad hoc committees. Each subcommittee or ad hoc committee will have as its chairperson a member of the safety council appointed by the council chairperson. Subcommittee and ad hoc committee membership should be equally split between management and other employees so that the necessary authority and influence exist to act upon recommendations for improvement, solve potential problems, and provide solutions to the safety council.

Following are the subcommittees which are a permanent part of each safety council.

**5.4.1 Incident Investigation Subcommittee**

This subcommittee reviews all incident reports, investigations, and accident review board proceedings which are the responsibility of the management level of the council. The subcommittee monitors compliance with company procedures, verifies that the investigation process identified the root cause of the incidents, tracks the timely completion of corrective action items, ensures consistency of disciplinary action, helps management identify trends, and conducts follow-up for serious incidents. It is not the function of this committee to conduct incident investigations.

**5.4.2 Safety Inspection Subcommittee**

This subcommittee reviews all inspection reports to verify that inspections required by company procedure are conducted, tracks the timely completion of action items, and helps management identify trends.

**5.4.3 Work Rules Subcommittee**

The work rules subcommittee is responsible for the development and implementation of safe work rules at the safety council level. Work rules must be approved by the next higher level of safety council and must be reviewed annually.

Most work rule development will be done by business line subcommittees, relating to a specific operation of the business line. Higher level safety councils will, in general, provide guidance for the lower level safety councils to implement work rules.

**5.4.4 Awareness and Recognition Subcommittee**

This subcommittee is responsible for developing and implementing safety awareness and recognition programs, such as internal safety awards and external safety competition participation. All locations are encouraged to participate in the company's safety incentive award program detailed in Procedure HS023.

**5.4.5 Ad Hoc Committees**

Ad hoc committees are to be appointed by the safety council chairperson for the solution of specific problems and to act on specific recommendations which are not part of the ongoing activities of other subcommittees. As for subcommittees, ad hoc committees can resolve issues only within their level of authority.



## 5.5 Safety Council Meetings

Safety council meetings shall be held once per month, preferably as part of a regularly scheduled management meeting. It is estimated that approximately 1 hour will be required for the conductance of a safety council meeting.

### 5.5.1 Agenda

The agenda for each safety council meeting should include, as a minimum, the topics listed below:

- Accident statistics report from the most recent period.
- Potentially unsafe conditions that have been identified and correction action taken.
- Preventive action and corrective action taken since the last safety council meeting.
- Each subcommittee chairperson should report the activity and findings since the previous safety council meeting, including progress on action items.
- Proposed work rule changes.
- Summary of lower level safety council activity.

### 5.5.2 General Rules of Operation

- Safety council and committee members participate on company time.
- Safety council meetings are open to all employees.
- All work rules must be approved by the next higher level safety council.
- Safety councils are encouraged to operate by consensus. When a vote is needed, a simple majority with one vote per member shall prevail.
- The chairperson of the safety council may not overrule a decision of the safety council. The chairperson may refer an issue to a higher level council prior to action, or for resolution, as appropriate.
- Safety councils must operate within their level of assigned management authority:
  - Spending authority is limited to that of the safety council chairperson.



- Safety councils may not change company policy and procedures or guidelines established by a higher level safety council; however, safety councils may recommend revisions to policy, procedures, or guidelines.
- Work rules cannot be set beyond the authority of the safety council.
- Safety council members are to seek employee input regarding unsafe conditions and/or safety program enhancement. All such comments must be presented to and responded to by the safety council which has the management authority to act.

#### **5.6 Reporting Requirements**

Each safety council is required to prepare a monthly report of activities. This report is to be prepared by the secretary and submitted to the secretary of the next higher level safety council by the fifth of the following month. Monthly reports from safety councils are to be posted on the local employee bulletin board.

#### **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  
HS023 Accident Prevention Program: Safety Incentive Award Program

#### **8.0 ATTACHMENTS**

1. Responsibility Matrix



**ATTACHMENT 1  
 SAFETY COUNCILS**

**Responsibility Matrix**

Action	Procedure Section	Responsible Party		
		Senior Manager	Senior Health and Safety Representative	Vice President Health and Safety
Issue, Revise, and Maintain Procedure	3.1			X
Fulfill Position and Duties of Council Chairperson	5.3	X		
Fulfill Position and Duties of Council Secretary	5.3		X	
Establish Council Membership	5.3	X		
Appoint Subcommittee Chairpersons	5.4	X		
Maintain Meeting Minutes and Distribute Agenda	5.5		X	
Submit Monthly Council Report to Secretary of the Next Higher Level Council	5.6		X	



## PROCEDURE

**Subject: INJURY AND ILLNESS PREVENTION PROGRAM**

### 1.0 PURPOSE AND SUMMARY

The purpose of this procedure is to set forth the requirements of Shaw Environmental and Infrastructure, Inc.'s (Shaw E & I) Injury and Illness Prevention Program (IIPP), applicable to California operations only. This procedure is a point-source reference for the Shaw E & I procedures which together form the Injury and Illness Prevention Program. Key requirements include:

- All work-place hazards must be properly identified, evaluated, and appropriately addressed.
- All profit/cost centers must have employer/employee Safety Councils to discuss work-place hazards and corrective actions, and review inspection reports, accident investigation reports and audits.
- All profit/cost centers have hazard training programs, non-compliance disciplinary procedures, and specific IIPP recordkeeping procedure.

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- 5.0 Text
  - 5.1 Identification and Evaluation of Workplace Hazards
  - 5.2 Methods and Procedures for Correcting Unsafe and Unhealthy Conditions and Work Practices
  - 5.3 Hazard Training
  - 5.4 Communication of Safety and Health Matters
  - 5.5 Ensuring Compliance
  - 5.6 Record-Keeping Requirements
- 6.0 Exception Provisions
- 7.0 Cross References
- 8.0 Attachments
  - 1. Injury and Illness Prevention Program Responsibility Matrix
  - 2. Procedure Responsibility



### 3.0 RESPONSIBILITY MATRIX

#### 3.1 Procedure Responsibility

The National Director, Health & Safety is responsible for the issuance, revision, and maintenance of this procedure in a corporate oversight capacity. (See Attachment 2 for Procedure Responsibility chart)

#### 3.2 Action/Approval Responsibilities

The responsibility matrix can be found as Attachment 1 in Section 8.0

### 4.0 DEFINITIONS

#### Injury and Illness Prevention Program (IIPP)

California Labor Code Section 6401.7 et seq requires the Occupational Safety and Health Standards Board to adopt regulations requiring every employer to establish, implement, and maintain an Injury and Illness Prevention Program (IIPP). These regulations are in Title 8 of the California Code of Regulations, Section 1509 (Construction) and Section 3203 (General Industry).

This IIPP must function as a self-supportive document. The IIPP reduces workplace hazards and thereby reduces the number and severity of injuries and illnesses.

### 5.0 TEXT

#### 5.1 Identification and Evaluation of Workplace Hazards

All levels of management perform periodic audits of Shaw E & I facilities, operations and projects to identify and evaluate workplace hazards. Shaw E & I Procedure HS021 Accident Prevention Program: Management Safety Reviews provides guidance for the conduct of safety audits as follows:

- Profit and Overhead Center Managers/Project Directors - monthly project and facility audits;
- Group/Operations/Project Managers and Superintendents - monthly project and facility audits;
- Field Supervisors - daily inspections (Shaw E & I Procedure HS051) coupled with submittal of weekly project and facility audits;
- Health & Safety managers - monthly facility audits and project audits as necessary. Location Health & Safety professionals will be responsible for conducting frequent facility inspections to identify daily facility hazards.



Supervisors record findings of daily audits on form HS051 Tailgate Safety Meeting Form. The project supervisor completes these forms each day before beginning other work, whenever new substances, processes, procedures or equipment are introduced into the workplace and represent a previously unaddressed hazard, and whenever a new person enters the work-site. The supervisor conducts a Tailgate Safety Meeting to inform employees of the site hazards and required personal protective measures (Shaw E & I Procedure HS051).

All safety auditors record findings of daily audits on Safety Inspection Report (Form HS021B or equivalent) and submit them to the local Health & Safety manager or representative.

## 5.2 Methods and Procedures for Correcting Unsafe and Unhealthy Conditions and Work Practices

Shaw E & I Procedure HS020 sets forth the requirements for Shaw E & I's Accident Prevention Program: Reporting, Investigation, and Review. All employees report all accidents-incidents, vehicle incidents, and near-miss incidents to management immediately. Line management investigates all incidents and conducts Accident Review Boards. All accompanying documentation is forwarded to the regional Health & Safety manager and the National Director, Health & Safety. Line management addresses all hazards in a timely manner on the basis of severity, the more potentially hazardous conditions addressed first.

Each of the four tiers of management (corporate, divisional, regional, and local profit/cost centers) maintains a Safety Council to review reports of inspections and audits. The Shaw E & I for Safety Councils (see Shaw E & I Procedure HS018) provides specifics for operating Safety Councils. Safety councils review reports from audits and inspection results, reports from accident investigations, recommendations for preventative and corrective actions, track progress of corrective actions outlined in previous meetings, and present a forum for discussion on safety-related issues. The Safety Council meets monthly and distributes its minutes to all members and managers within the unit of organization.

Each Safety Council creates subcommittees for specific tasks. The incident investigation subcommittee is responsible for tracking accidents and incidents and determining the effectiveness of the prescribed preventative measures. The audit subcommittee is responsible for verifying that audits are done and for tracking satisfactory completion of the corrective actions identified. Corporate, divisional, regional, and local profit/cost centers track the close out of action items assigned by the safety councils and the safety performance of their unit of organization. Safety Councils review OSHA 200 logs, accident review board reports, safety audit and inspection forms, and safety council monthly reports.



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### 5.3 Hazard Training

Shaw E & I Procedure HS050 sets forth the Training Requirements for Shaw E & I personnel and Shaw E & I subcontractors. Shaw E & I requires all employees whose work may expose them to hazardous waste or dangerous conditions to attend training on safe work practices. (See Tables I and II, Shaw E & I Procedure HS050). Shaw E & I training programs satisfy federal and state mandated training regulations.

Field supervisors train personnel on site specific hazards through Tailgate Safety Meetings (Shaw E & I Procedure HS051). During these daily meetings the supervisor discusses potential physical, chemical, radiological, and biological hazards associated with the work scheduled for the day and the appropriate methods of dealing with these hazards. These discussions include instructions on the implementation and operation of engineering controls and the selection and use of personal protective equipment. All personnel acknowledge their understanding of the issues presented at the Tailgate Safety Meeting by signing the Tailgate Safety Meeting Form before entering the site.

The Health & Safety staff develop site specific Health and Safety Plans for each project regulated by 29 CFR 1910.120. The project manager, the site supervisor and a Health & Safety professional review the site specific Health and Safety Plan and sign it when they approve. The site specific Health and Safety Plan addresses all health and safety related issues associated with the proposed project. The site specific Health and Safety Plan provide guidance to field supervisors when preparing Tailgate Safety Meetings and directs site personnel on health and safety issues. The site specific Health and Safety Plan addresses all issues required by the hazardous waste operations and emergency response (HAZWOPER) regulations (29 CFR 1910.120 and T8 CCR, Section 5192). Projects not regulated under these standards conform to the specific Health & Safety guidelines determined in the mandatory Health & Safety Pre-Project Review, as set forth in HS022 Accident Prevention Program: Review of New Proposals, Projects, Operations, Construction, and Jobs by Health & Safety.

### 5.4 Communication of Safety and Health Matters

Shaw E & I Procedures HS060 details the components of Shaw E & I Hazard Communication Program. This program provides training to employees on hazardous materials they might encounter in the course of their work. This training includes instruction on labeling, interpretation of material safety data sheets, recognition of hazardous releases, and general chemical hazards associated with hazardous materials. *All field personnel attend this training annually.*

All employees report all hazardous conditions in the workplace immediately upon discovery. This information is documented on the Safety Inspection Report Form HS021B, Facilities and Equipment Inspection Form HS021C (Section 5.1 above). To disseminate this information effectively and productively, the local Health & Safety professional reviews this information and the location manager addresses it in the monthly safety council meeting. An audit committee tracks the progress of corrective actions and reports its findings to the Safety Council (Section 5.2 above). The members of the Safety Council route this information to the respective discipline leader in charge



of the project, facility, or operation in question so that corrective actions are taken on a line management level. (Some members of the Safety Council will be non-management field personnel.)

All personnel have access to their exposure and medical records through their local Health & Safety department and are encouraged to review these with their Health & Safety professional.

#### **5.5 Ensuring Compliance: Incentive and Disciplinary Measures**

In accordance with Shaw E & I's code of conduct, an employee failing to report immediately an accident or incident is subject to termination. Shaw E & I Procedure HS800 provides a numerical rating system for evaluating employee's motor-vehicle driving performance and delineates the appropriate disciplinary steps for violations of its provisions. Serious injuries and fatalities are reported according to Shaw E & I Procedure HS091. Disciplinary measures are enforced against any employee who violates Shaw E & I Health & Safety Procedures in accordance with the Shaw E & I progressive discipline system.

#### **5.6 Record-Keeping Requirements**

The local Health & Safety manager maintains a file for all accident/incident reports, accident investigation reports, audit forms, safety council monthly reports, OSHA 200 logs (Shaw E & I Procedure HS105), and associated documentation. Each Health & Safety manager is responsible for maintaining the records for his/her respective profit/cost centers. The regional Health & Safety manager is responsible for maintaining the associated audit summaries for each profit/cost center in his/her region. The National Director of Health & Safety is responsible for maintenance of summaries of all the above listed documents from a corporate level. The periodic Health & Safety audit of each profit/cost center reviews these records as part of the audit.

Local Health & Safety departments send local audit summaries to the location manager and the regional/divisional Health & Safety manager no later than the fifth day of the following month.

The regional/divisional Health & Safety manager prepares regional/divisional audit summaries and submits them to the regional/divisional directors and National Health & Safety by the tenth day of the following month.

The National Director of Health & Safety prepares a corporate-wide summary for inclusion with the Accident Statistics Report for that period.



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## 6.0 EXEMPTION PROVISIONS

Exemptions shall be per the requirements of Shaw E & I Procedure HS013.

## 7.0 CROSS REFERENCES

- HS012: Chemical Hygiene Plan (Locator Reference)
- HS013: Health & Safety Procedure Variance
- HS020: Accident Prevention Program: Reporting, Investigation and Review
- HS021: Accident Prevention Program: Management Safety Reviews
- HS022: Accident Prevention Program: Review of New Proposals, Projects, Operations, Construction, and Jobs by Health & Safety
- HS050: Training Requirements
- HS051: Tailgate Safety Meetings (9540.1)
- HS060: Hazard Communication Program (9552)
- HS091: Serious Injury and Fatality Reporting Requirements
- HS102: Management of Employee Exposure and Medical Records
- HS105: Occupational Injury/Illness Procedures
- HS800: Motor Vehicle Operation: General Requirements

## 8.0 ATTACHMENTS

1. Responsibility Matrix
2. Procedure Responsibility Chart



**ATTACHMENT 1**  
**INJURY AND ILLNESS PREVENTION PROGRAM**

**Responsibility Matrix**

Action	Procedure Section	Responsible Party					
		Line Mgmt	Local HS	Location Manager	Regional HS	National HS	Safety Council
Identification of Workplace Hazards	5.1	X	X	X	X	X	X
Conduct Tailgate Safety Meetings	5.1	X					
Accident and Incident Investigations	5.2	X	X				X
Hazard Training	5.3	X	X	X			
Health and Safety Plans	5.3	X	X				
Reporting Hazardous Conditions, Accidents, and Incidents	5.4	ALL ASSOCIATES					
Corrective Action Tracking	5.4	X	X	X	X	X	X
Disciplinary and Incentive Measures	5.5			X			
IIPP Recordkeeping	5.6		X		X	X	X



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## ATTACHMENT 2 PROCEDURE RESPONSIBILITY

Each Shaw E & I location manager implements this procedure in his/her respective profit/cost center.

Irvine  
Martinez  
NorCal Sites  
San Bernardino  
San Diego  
San Jose  
Torrance  
Wilmington

Mike Salmon  
Dave McMurtry  
Dave McMurtry  
David Daftary  
Mark Unruh  
John McGuire  
Frank Rice  
Larry Chase



## 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 identification of potential causal factors and corrective actions. 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 reviewed by an Accident Review Board. The Accident Review Board report is submitted to the Baton Rouge Corporate Safety Department, for production to and retention on behalf of the Legal Department.
- All incidents involving a fatality, major injury/illness, or resulting in significant property damage will be immediately reported to: the business line Health & Safety Manager; the Corporate Health and Safety Department; Business Line Vice President and the Legal Department.
- All investigations and associated materials obtained and/or produced, in association with OSHA recordable injuries/illnesses, chargeable vehicle accidents, fatalities, major injury/illness, or incidents resulting in significant property damage, are to be performed for & on behalf of the legal department and will be subject to being classified as Confidential Attorney-Client / Attorney Work Product.
- All business line Health & Safety Managers are required to prepare a Monthly Loss Report summarizing all current month, and year-to date, chargeable vehicle accidents, injury/illness cases (requiring outside medical care), lost work day totals and restricted work day totals. This report shall then be forwarded, by the 10<sup>th</sup> day of the following month, to the Baton Rouge Corporate Safety Office.

### 2.0 TABLE OF CONTENTS

1.0	Purpose and Summary
2.0	Table of Contents
3.0	Responsibility Matrix
	3.1 Procedure Responsibility
	3.2 Action/Approval Responsibilities
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- 5.1 Incident Reporting Process
- 5.2 Supervisor's Employee Injury Report
- 5.3 Vehicle Accident Report
- 5.4 Equipment, General Liability, Property Damage, and Loss Report
- 5.5 Incident Investigation Report
- 5.6 Witness Statement Form
- 5.7 Accident Review Board
- 5.8 Monthly Loss Report
- 6.0 Exception Provisions
- 7.0 Cross References
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### 3.0 RESPONSIBILITY MATRIX

#### 3.1 Procedure Responsibility

The Corporate Health & Safety Department 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

**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
- When company owned, leased or rented vehicles are involved and damage exceeds \$2,500.00.
- When an employee is driving a personal vehicle while on company business and damage exceeds \$2,500.00.

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

**Days Away From Work** - Days away from work are the number of calendar days following the injury or illness, excluding the date of the injury.

**Job Safety Analysis (JSA)** - 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. (See HS045: Job Safety Analysis)



**Restricted Work** – Occurs when, as the result of a work-related injury or illness:

- A physician or other licensed health care professional recommends that the employee not perform one or more of the routine functions of his or her job, or not work the full workday that he or she would otherwise have been scheduled to work

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

**OSHA Recordable Case** – See Attachment 8

**Vehicle** - Any passenger vehicle, including trucks, used upon the highway 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. (See HS800 Motor Vehicle Operation: General Requirements)

## 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. Site Business Line Managers or Supervisors (supervisor directly responsible for the employee involved in the incident) with first-hand knowledge of an incident is required to:

- Immediately arrange for appropriate medical attention and notify the responsible health and safety representative.
- As soon as practical, but not longer than one hour after gaining knowledge of the occurrence, notify the Shaw Notification Hotline/Helpdesk by calling 1-866-299-3445 (Attachment 10) of any injury requiring off-site medical treatment, any chargeable vehicle accident or equipment incident involving property damage exceeding \$2,500 in value (Shaw or third party).
- *Inform Health Resources of all incidents requiring off-site medical attention by calling 1-800-350-4511. This call should be made prior to transporting the employee such that they can coordinate physicians services prior to arrival of the employee to the clinic, and provide the following information:*
  - Company Name (Shaw E&I) & Business Line (e.g. DOD, Commercial)
  - Employee Name
  - Name of anticipated, 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, Release of Medical Information, and Return to Work* (Attachment 9A, 9B, 9C) and the *Supervisor's Employee Injury Report* (Attachment 2) for all cases requiring off-site medical attention. The Site Safety and Health Representative or responsible supervisor shall ensure that the forms are completed and faxed to Health Resources at (800) 853-2641 prior to leaving the medical facility or as soon as reasonably possible.
- Post accident drug and alcohol testing shall occur in accordance with HS101 Drug and Alcohol Testing, immediately following an incident.

NOTE: Prior to performing non-DOT post accident testing, it is the responsibility of the employee's supervisor to ensure that Health Resources has verified that this testing is not prohibited or restricted by state or local regulations.

- 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 shall initiate/complete the appropriate company documentation in accordance with the following incident classifications: (note: if a Site Safety and Health Representative is on site, he should work in concert with the supervisor)
  - OSHA Recordable Cases
    - a. Supervisor's Employee Injury/Illness Report (Attachment 2)
    - b. Incident Investigation Report (Attachment 5)
    - c. Witness Statement Form (Attachment 6)
    - d. Accident Review Board (Attachment 7)
  - First Aid Cases
    - a. Supervisor's Employee Injury/Illness Report (Attachment 2)
    - b. Incident Investigation Report (Attachment 5)
    - c. Witness Statement Form (Attachment 6)
  - Chargeable Vehicle Accidents
    - a. Vehicle Accident Report (Attachment 3)
    - b. Incident Investigation Report (Attachment 5)
    - c. Witness Statement (Attachment 6)
    - d. Accident Review Board (Attachment 7)
    - e. Driving Record Certification (Procedure HS800)
  - Non-Chargeable Vehicle Accidents
    - a. Vehicle Accident Report (Attachment 3)
    - b. Incident Investigation Report (Attachment 5)
    - c. Witness Statement (Attachment 6)



- **Equipment, Property Damage and General Liability Incidents**
  - a. Incident Investigation Report (Attachment 5)
  - b. Witness Statement Form (Attachment 6)
  - c. Equipment, Property Damage and General Liability Loss Report (Attachment 4).
  
- **Near Miss**
  - a. Incident Investigation Report (Attachment 5).

**5.2 Supervisor's Employee Injury/Illness Report (Attachment 2)**

The Supervisor's Employee Injury Report is to be completed for all incidents that result in an employee occupational injury or illness requiring off-site medical attention. It is to be initiated by the supervisor of the injured employee and forwarded to the respective Business Line Safety Manager for review / comments. Upon completion of review and comments the report should be forwarded, **within 24 Hours**, to the Shaw Corporate Claims department in Baton Rouge, via the corporate claims fax number (225.932.2636).

**5.3 Vehicle Accident Report (Attachment 3)**

The Vehicle Accident Report 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 both the employee involved in the accident and his/her direct supervisor and forwarded to the respective Business Line Safety Manager for review / comments. Upon completion of review and comments the report should be forwarded to the Shaw Corporate Claims department in Baton Rouge (fax number 225.932.2636).

**5.4 Equipment, General Liability, Property Damage, and Loss Report (Attachment 4)**

The General Liability, Property Damage, and Loss Report is to be used for all losses or damage to company property in excess of \$2,500.00. This form must be completed for all third party property, regardless of value, damaged as a result of company activities.

The employee most familiar with the events that contributed to the loss or damage will complete the form, and then forward it to the project/location manager. The Corporate Claims Department and the respective Business Line Safety Manager must receive a copy of the report within one business day of the incident.

**5.5 Incident Investigation Report (Attachment 5)**

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 Business Line Health and Safety Manager, will:

- Collect the **facts**;
  
- Describe and document (include sketch, photos, etc.) how the incident occurred;



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Collect support documentation (JSA's, AHA's, Tailgate Safety Meetings, Work Orders, etc.);

List witnesses and collect written statements;

If applicable, contact the employee's Functional Manager in an effort to gain relevant information

Identify the causative factors;

Identify potentially unsafe acts or unsafe conditions that may have contributed to the incident;

Identify potential curative action; and

List the corrective actions which are to be executed, appropriate curative action, the person(s) responsible for the corrective action, and the date by which action is to be completed.

The investigation will be started as soon as possible following the incident and the relevant reports and support documentation (JSA's, AHA's, Tailgate Safety Meetings, Work Orders, etc.) shall be submitted to the appropriate Business Line Health and Safety Manager 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 by the Business Line Safety Manager to the Corporate Claims department in Baton Rouge.

- 5.6 Injured Employee Statement & Witness Statement Forms (Attachment 6a & 6b)**  
The Injured Employee and Witness Statement Forms allow for consistency in the development of the investigation process. The Injured Employee Statement must be completed in all cases where an employee injury results in off site medical treatment. If there are witnesses to the accident/incident, the Witness Statement form should be completed and signed by the subject witness. Both of these forms should be attached to the incident investigation report. It is essential that these statements are executed immediately following the incident to ensure an accurate account of the events.

- 5.7 Accident Review Board (ARB) (Attachment 7)**  
The purpose of the Accident Review Board is to collect and review the information gathered for each incident, report that information to the Legal Department and take appropriate curative action. In all cases, the purpose of the entire investigative process, inclusive of conducting an ARB, is to identify curative actions as it relates to the incident / injury. Accordingly, a diligent and concerted effort to accomplish these tasks must be established at the onset of all of the subject incidents.

In order to assist the Legal Department in evaluating the risk to, or liability of, the company, associated with OSHA recordable injuries, chargeable vehicle accidents, fatalities or incidents resulting in significant property damage, the responsible Project / Location Manager is required to coordinate with all parties and set up the ARB such



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that it occurs within 10 days of the accident. The respective Business Line Health and Safety Manager, whose project/location experiences accident is then required to conduct the subject ARB.

The Accident Review Board shall be composed of the project/location manager, the employee's direct supervisor (at time of incident), a health and safety representative, and the employee(s) involved in the incident.

Additionally, there may be cases that involve an employee that has been assigned to a project and the Functional Manager of that employee may not have direct knowledge of an incident. In cases such as these, the Functional Manager shall be notified of the incident and requested to participate in the ARB. Also, as determined by the Business Line Health and Safety Manager, a representative of other internal sources of expertise should be involved where applicable.

All investigations and associated materials obtained and/or produced, in association with injuries/illnesses resulting in OSHA recordable classification, chargeable vehicle accidents, fatalities or incidents resulting in significant property damage, are to be performed for and on behalf of the legal department and will be subject to being classified as Confidential Attorney-Client / Attorney Work Product. If the ARB is initiated under a Confidential Attorney-Client / Attorney Work Product status, all documents and other work product arising out of, or associated with, the investigation process, including the ARB, shall be prepared in anticipation of litigation. The Accident Review Board report, and associated documents, is submitted to the Corporate Safety Department, for production to and retention on behalf of the Legal Department.

The ARB report, and all associated documents, shall be completed as soon as practicable, but not more than 5 business days following the ARB meeting, and forwarded by the Business Line Safety Manager to the Corporate Safety Department, via the Corporate Claims fax number. The original documents shall then be mailed to the Corporate Safety Department. These documents shall then be filed in a lockable cabinet, separate from files not meeting the subject criteria, by the Corporate Safety Department, for production to and retention on behalf of the Legal Department. In the event that copies of these files are maintained by Business Line Safety Managers and / or the respective location in which the injury occurred, the same filing criteria shall be followed. The criteria shall be that these documents are filed in lockable cabinets, separate from files not meeting the subject Attorney-Client / Attorney Work Product criteria.

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



#### **5.8 Monthly Loss Report**

Each business line Health and Safety Manager is responsible to submit a Monthly Loss Report summarizing incidents that took place within their business line during the previous month. The business line Health and Safety Manager is responsible for submitting a consolidated package for the entire business line to the corporate health and safety office for receipt **no later than the 10th working day of the following month.**

#### **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  
HS101 Drug and Alcohol Testing  
HS800 Motor Vehicle Operations - General Requirements  
HS810 Commercial Motor Vehicles

#### **8.0 ATTACHMENTS**

1. Responsibility Matrix
2. Supervisor's Employee Injury/Illness Report
3. Vehicle Accident Report
4. Equipment, Property Damage and General Liability Loss Report
5. Incident Investigation Report
6. a. Injured Employee Statement  
b. Witness Statement
7. Accident Review Board Report
8. Injury/Illness Classification Guidelines
9. Medical Forms
  - a. Authorization for Treatment of Occupational Injury/Illness
  - b. Authorization for Release of Medical Information
  - c. Return to Work Examination Form.
10. Help Desk / Hotline Notification Guidelines



**ATTACHMENT 1**

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

Action	Procedure Section	Responsible Party					
		Employee	Supervisor	Project/Location Manager	Site Health and Safety Rep./Officer	Business Unit Health and Safety Manager	Corporate Health & Safety Manager
Issue, Revise, and Maintain Procedure	3.1						X
Report All Incidents to Supervisor	5.1	X					
Notify Health and Safety Representative	5.1		X				
Arrange Medical Care	5.1		X		X		
Notify Health Resources or Gates McDonald of Incident	5.1		X		X		
Initiate/Complete Company Forms	5.1		X		X		
Complete Investigation of incident	5.5		X	X	X	X	
Complete Equipment, Property Damage and General Liability Loss Report Incident	5.4	X					
Coordinate and Set up Accident Review Board	5.7			X			
Conduct Accident Review Board	5.7					X	
Participate in Accident Review Board	5.7	X	X	X	X	X	
Complete Monthly Loss Report	5.8					X	



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**Attachment 2**

REPORT ALL WORKER'S COMPENSATION INJURIES TO SHAW CLAIMS DEPARTMENT  
 FAX REPORT WITHIN 24 HOURS OF INCIDENT TO 225-932-2636.  
 Phone all injuries/ illnesses to Shaw Notification Hotline/Helpdesk  
 1-866-299-3445

**Supervisor's Employee Injury/Illness Report Form**

EMPLOYEE INFORMATION			
Employee's Social Security Number:		Claim Number:	
Employee's Name:		Home Phone Number:	
Home Address:			Business Line Code:
Male <input type="checkbox"/> Female <input type="checkbox"/>	Date of Birth:	Hire Date:	
Dependents:	Dependents Under 18:	Marital Status:	
Occupation:		Department Name:	
Date Hired:	Currently Weekly Wage:	Hourly Wage:	
Hours/Days Worked Per Week:	Days Per Week:	Hours Worked Per Day:	
Employment Status:	Employee Report No.: N/A	Employee ID No.:	N/A
<input checked="" type="checkbox"/> Continued:	Paid For Date of Injury:	Education No. of Years:	
Ever Injured on the Job:	Supervisor Name & Phone:		

EMPLOYER INFORMATION	
Employer Name:	The Shaw Group, Inc.
Work Location:	
Contact Name:	John Mollere
Telephone Number:	(800)747-3322, Ext. 572
Employer SIC:	Employer Location Code:
Employer FED ID:	Employer Code: N/A
Nature of Business:	
Policy Number:	

ACCIDENT INFORMATION	
Date and Time of Injury:	
Did the Accident Occur at the Work Location:	If no, where did the accident occur? N/A
Accident Address:	
Nature of Accident:	
Give a Full Description of the Accident: (Be as Factually Complete As Possible)	
Are Other WC Claims Involved?	No
Date and Time Reported to Employer:	
Person Reported To:	



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**WITNESS INFORMATION**

Were There Any Witnesses?  
 Yes, List Names and How to Contact Them:

**INJURY INFORMATION**

Which Part of the Body Was Injured? (e.g. Head, Neck, Arm Leg)  
 What Was the Nature of Injury? (e.g. Fracture, Sprain, Laceration)  
 Part of Body Location: (e.g. Left, Right, Upper, Lower)  
 Injury Description:

Source of Injury:	Is Employee Hospitalized?
Loss Time:	If Yes, What was First Full Day Out:
Date Last Day Worked:	Date Disability Began: N/A
Date Returned to Work:	Estimated Return Date: N/A

**MEDICAL INFORMATION**

ER Treated & Released:	Hospitalized:	Phy./Clinic:
Hospital - Name, Address, Phone Number:	Was Employee Transported via Ambulance:	Yes No
Clinic - Name, Address, Phone Number:		

**ADDITIONAL COMMENTS & INFORMATION**

\_\_\_\_\_  
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**REPORT PREPARED BY**

Name:	Title:
Phone:	



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ATTACHMENT 3  
VEHICLE ACCIDENT REPORT  
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ACCIDENT DESCRIPTION

This report is to be initiated by the employee involved in the accident or his/her direct supervisor. Please answer all questions completely. This report must be forwarded to the appropriate health and safety representative within 24 HOURS of the accident. Attach police report.

ACCIDENT DATE \_\_\_\_\_ TIME \_\_\_\_\_  A.M. or  P.M.  
 LOCATION OF ACCIDENT (CITY, STATE) \_\_\_\_\_  
 DESCRIPTION OF ACCIDENT \_\_\_\_\_  
 \_\_\_\_\_  
 WITNESS \_\_\_\_\_ PHONE NO. \_\_\_\_\_  
 ADDRESS \_\_\_\_\_ CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_  
 POLICE OFFICER'S NAME AND BADGE # \_\_\_\_\_ DEPARTMENT \_\_\_\_\_

COMPANY VEHICLE

DRIVER \_\_\_\_\_ DRIVERS LICENSE NO. \_\_\_\_\_ STATE \_\_\_\_\_  
 ADDRESS \_\_\_\_\_ CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_  
 WORK PHONE NO. (\_\_\_\_) \_\_\_\_\_ S.S. NO. \_\_\_\_\_ PROJECT NAME/NO. \_\_\_\_\_  
 VEHICLE NO. \_\_\_\_\_ YEAR \_\_\_\_\_ MAKE \_\_\_\_\_ MODEL \_\_\_\_\_ LICENSE PLATE NO. \_\_\_\_\_  
 STATE \_\_\_\_\_ VEHICLE OWNER:  COMPANY  LEASED/RENTED  PRIVATE VEHICLE  
 VEHICLE TYPE:  COMMERCIAL MOTOR VEHICLE  NON-COMMERCIAL  
 NOT COMPANY-OWNED: OWNER \_\_\_\_\_ PHONE NO. (\_\_\_\_) \_\_\_\_\_  
 ADDRESS \_\_\_\_\_ CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_  
 VEHICLE DAMAGE \_\_\_\_\_  
 NO. OF VEHICLES TOWED FROM SCENE \_\_\_\_\_ NUMBER OF INJURIES \_\_\_\_\_ NUMBER OF FATALITIES \_\_\_\_\_  
 WERE HAZARDOUS MATERIALS RELEASED?  NO  YES IF YES, DESCRIBE MATERIALS \_\_\_\_\_  
 \_\_\_\_\_

FILE

DRIVER \_\_\_\_\_ DRIVERS LICENSE NO. \_\_\_\_\_ STATE \_\_\_\_\_  
 ADDRESS \_\_\_\_\_ CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_  
 PHONE NO. (\_\_\_\_) \_\_\_\_\_ S.S. NO. \_\_\_\_\_  
 OWNER'S NAME ( CHECK IF SAME AS DRIVER) \_\_\_\_\_  
 ADDRESS \_\_\_\_\_ CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_  
 INSURANCE COMPANY \_\_\_\_\_ POLICY NO. \_\_\_\_\_  
 AGENT'S NAME \_\_\_\_\_ PHONE NO. (\_\_\_\_) \_\_\_\_\_  
 ADDRESS \_\_\_\_\_ CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_  
 VEHICLE YEAR \_\_\_\_\_ MAKE \_\_\_\_\_ MODEL \_\_\_\_\_ PLATE NO. \_\_\_\_\_ STATE \_\_\_\_\_  
 VEHICLE I.D. NO. \_\_\_\_\_  
 VEHICLE DAMAGE \_\_\_\_\_  
 PASSENGERS:  NO  YES INJURIES:  NO  YES (if Yes, list names and telephone numbers below)  
 \_\_\_\_\_  
 \_\_\_\_\_



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**VEHICLE ACCIDENT REPORT**

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WEATHER:  Clear  Cloudy  Fog  Rain  Sleet  Snow Other \_\_\_\_\_  
 SURFACEMENT:  Asphalt  Steel  Concrete  Wood  Gravel/Dirt  
 Brick/Stone Other \_\_\_\_\_  
 CONDITION:  Dry  Wet  Icy  Pot Holes Other \_\_\_\_\_  
 TRAFFIC CONTROL:  Traffic Light  Stop Sign  Railroad  No Intersection  No Control  
 ROADWAY: Number of Lanes Each Direction: \_\_\_\_\_  Residential  Divided Highway  Undivided Highway

*Draw and name roadways showing each vehicle, direction of travel, and point of impact. Indicate travel before the accident with a solid line, and post-accident movement with a broken line.*

- SYMBOLS:
- Your Vehicle ①
  - Other Vehicle(s) ② ③
  - Pedestrian
  - Stop Sign
  - Railroad

ADDITIONAL INFORMATION:

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

EMPLOYEE \_\_\_\_\_ (Print) \_\_\_\_\_ (Signature) \_\_\_\_\_ (Date)  
 SUPERVISOR \_\_\_\_\_ (Print) \_\_\_\_\_ (Signature) \_\_\_\_\_ (Date)  
 HEALTH & SAFETY REP. \_\_\_\_\_ (Print) \_\_\_\_\_ (Signature) \_\_\_\_\_ (Date)

**ATTACH POLICE REPORT TO VEHICLE ACCIDENT REPORT**

REPORT MUST BE FAXED TO:  
 CORPORATE CLAIMS DEPARTMENT (FAX: 225-932-2636)  
 WITHIN 24 HOURS, OR NOT LATER THAN NEXT BUSINESS DAY.

**REPORT ALL CHARGEABLE VEHICLE ACCIDENTS TO SHAW NOTIFICATION HOTLINE/HELPDESK  
 (PHONE: 1-866-299-3445)**



ATTACHMENT 4

EQUIPMENT, PROPERTY DAMAGE AND GENERAL LIABILITY LOSS REPORT

This report is to be completed for all losses or damage to company property in excess of \$2,500.00 and all third party damage, regardless of value, resulting from company activities.

PROJECT/LOCATION \_\_\_\_\_ PROJECT NO. \_\_\_\_\_ DATE \_\_\_\_\_  
 ADDRESS \_\_\_\_\_  
 HOW DID DAMAGE OR LOSS OCCUR: \_\_\_\_\_

DESCRIPTION AND VALUE (\$) OF DAMAGED/LOST/STOLEN PROPERTY: \_\_\_\_\_

LOCATION OF DAMAGED/LOST/STOLEN PROPERTY (Before Loss): \_\_\_\_\_

DATE AND TIME OF DAMAGE, LOSS, OR THEFT: Date: \_\_\_\_\_ Time: \_\_\_\_\_ a.m./p.m.

OWNER OF DAMAGED/LOST/STOLEN PROPERTY:

Name \_\_\_\_\_ Phone No. ( ) \_\_\_\_\_  
 Address \_\_\_\_\_ City \_\_\_\_\_  
 Employer and Address \_\_\_\_\_

INJURED PARTIES (Also complete a Supervisor's Employee Injury Report if a Company Employee):

Name \_\_\_\_\_ Phone No. ( ) \_\_\_\_\_  
 Address \_\_\_\_\_ City \_\_\_\_\_  
 Employer and Address \_\_\_\_\_  
 Description of Injury \_\_\_\_\_

WITNESSES:

1. Name \_\_\_\_\_ Home Phone ( ) \_\_\_\_\_  
 Home Address \_\_\_\_\_ City \_\_\_\_\_  
 Employer and Address \_\_\_\_\_  
 2. Name \_\_\_\_\_ Home Phone ( ) \_\_\_\_\_  
 Home Address \_\_\_\_\_ City \_\_\_\_\_  
 Employer and Address \_\_\_\_\_

WERE PICTURES TAKEN?  YES  NO  
 WERE POLICE NOTIFIED?  YES  NO DEPT. \_\_\_\_\_ REPORT NO. \_\_\_\_\_

COMPLETED BY: \_\_\_\_\_ (Print) \_\_\_\_\_ (Signature) \_\_\_\_\_ (Date)

PROJECT/LOCATION MANAGER: : \_\_\_\_\_ (Print) \_\_\_\_\_ (Signature) \_\_\_\_\_ (Date)

REPORT MUST BE FAXED TO:  
 CORPORATE CLAIMS DEPARTMENT (FAX: 225-932-2636)  
 WITHIN 24 HOURS, OR NOT LATER THAN NEXT BUSINESS DAY



**ATTACHMENT 5  
 INCIDENT INVESTIGATION REPORT**

**Must Be Completed Within 72 HOURS & Relevant Support Documentation Must Be Attached / Submitted**

Investigation Date \_\_\_\_\_ Date of Incident \_\_\_\_\_

Employee Name \_\_\_\_\_

Supervisor Name \_\_\_\_\_

Project Number/Name \_\_\_\_\_

Location of Incident \_\_\_\_\_

- Incident Classification
  - Injury  First Aid  OSHA Recordable  Lost Workday  Restricted Workday
  - Vehicle  Chargeable  Non-chargeable  DOT  DOT Vehicle  DOT Reportable
  - Near Miss  General Liability

Description (Provide facts, describe how incident occurred, provide diagram [on back] or photos)

\_\_\_\_\_

\_\_\_\_\_

Analysis (What unsafe acts or conditions contributed to the incident?)

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Corrective Action(s) (List corrective action items, responsible person, scheduled completion date)

\_\_\_\_\_

\_\_\_\_\_

Witness Names (Complete Attachment 6 – Employee Witness Statement)

\_\_\_\_\_

\_\_\_\_\_

Investigated By \_\_\_\_\_  
 Print Name Signature Date

Project/Location Mgr. \_\_\_\_\_  
 Print Name Signature Date



**ATTACHMENT 6a  
 Injured Employee Statement  
 \*MUST BE COMPLETED WITHIN 24 HOURS OF THE INCIDENT\***

This form should be completed by the injured employee involved in the incident. Describe only the facts for which you have personal knowledge. If you have no knowledge of a particular question, write "no knowledge".

Company \_\_\_\_\_

Exact Location of Incident/Accident \_\_\_\_\_

Name of Injured Employee \_\_\_\_\_

Date of Incident/Accident \_\_\_\_\_ Time \_\_\_\_\_ am pm

Date of this Statement \_\_\_\_\_ Time \_\_\_\_\_ am pm

Time your shift begins? Time \_\_\_\_\_ am pm Time your shift ends? Time \_\_\_\_\_ am pm

Name of Known Witnesses:

Name \_\_\_\_\_

Name \_\_\_\_\_

Name \_\_\_\_\_

Name \_\_\_\_\_

Your Immediate Supervisors Name \_\_\_\_\_

If not employed by Shaw E&I, enter name of company and phone number \_\_\_\_\_

Have you had a prior injury similar to this injury? \_\_\_\_\_

Was it while you were at work? \_\_\_\_\_

What date did the prior injury occur? \_\_\_\_\_

Stating Only Factual Information, Describe in Detail What Happened and Include Any Applicable Events Leading to the Incident/Accident.

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

I certify that, to the best of my knowledge, all of the above information is complete, accurate and factual. I acknowledge that the intentional falsification or altering of facts or making misleading statements may be grounds for disciplinary action.

\_\_\_\_\_  
 Signature/Date

\_\_\_\_\_  
 Print Name



**ATTACHMENT 6b**  
**Employee Witness Statement**

**\*MUST BE COMPLETED WITHIN 24 HOURS OF THE INCIDENT\***

This form should be completed by every employee working in the crew of the injured employee and by every other employee with knowledge of events or circumstances involved in the incident. This information is being solicited from you so that the company can accurately assess the reported incident to avoid similar occurrences in the future. Describe only the facts for which you have personal knowledge. If you have no knowledge of the incident, write "no knowledge".

Company \_\_\_\_\_

Exact Location of Incident/Accident \_\_\_\_\_

Name of Injured Employee \_\_\_\_\_

Date of Incident/Accident \_\_\_\_\_ Time \_\_\_\_\_ am pm

Date of this Statement \_\_\_\_\_ Time \_\_\_\_\_ am pm

Time your shift begins? Time \_\_\_\_\_ am pm Ends \_\_\_\_\_ am pm

**Witness Information:**

Name \_\_\_\_\_

Home Phone No. \_\_\_\_\_

Home Address \_\_\_\_\_

County \_\_\_\_\_ Zip \_\_\_\_\_

Witness' Supervisor Name \_\_\_\_\_

If not employed by Shaw E&I, enter name of company \_\_\_\_\_

Company Phone Number \_\_\_\_\_

Did You See the Incident/Accident? \_\_\_\_\_

How Far From You (approx., in feet) Did the Incident/Accident Occur? \_\_\_\_\_

Stating Only Factual Information, Describe in Detail What Happened and Include Any Applicable Events Leading to the Incident/Accident.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

I certify that, to the best of my knowledge, all of the above information is complete, accurate and factual. I acknowledge that the intentional falsification or altering of facts or making misleading statements may be grounds for disciplinary action.

\_\_\_\_\_  
 Witness Signature/Date

\_\_\_\_\_  
 Print Name



**ATTACHMENT 7  
 ACCIDENT REVIEW BOARD**

DATE:		LOCATION:	
BOARD MEMBERS:			
ACCIDENT DATE:		EMPLOYEE(S) INVOLVED IN INCIDENT:	
INVESTIGATION COMPLETE:	YES <input type="checkbox"/> NO <input type="checkbox"/>	ACCIDENT CLASSIFICATION:	
<b>THE FOLLOWING INFORMATION <u>MUST</u> BE PROVIDED BY THE REVIEW BOARD FOR THIS INCIDENT (PRINT):</b>			
SUPERVISOR: _____		PROJECT/LOCATION MGR.: _____	
POTENTIAL CAUSE OF ACCIDENT:			
ACTION BY BOARD*:			
* ALL ACTIONS BY THE ACCIDENT REVIEW BOARD ARE SUBJECT TO FINAL REVIEW BY THE HUMAN RESOURCES AND LEGAL DEPARTMENTS.			
ACCEPTED:			
_____		_____	
(Employee Signature)		(Supervisor Signature)	
APPROVED:		REJECTED FOR:	
_____		_____	
(Project/Location Manager)			
APPROVED:		REJECTED FOR:	
_____		_____	
(Business Line Health and Safety Manager or Designee)			
APPROVED:		REJECTED FOR:	
_____		_____	
(Business Line Vice President)			



## ATTACHMENT 8

### INJURY/ILLNESS CLASSIFICATION GUIDELINES

**First Aid Treatment** – If the incident requires only the following types of treatment, consider it first aid. Do Not record the case if it involves only:

- Using non-prescription medications at non-prescription strength
- Administering tetanus immunizations
- Cleaning, flushing, or soaking wounds on the skin surface
- Using wound coverings such as bandages, Band-Aids™, gauze pads, etc., or using SteriStrips™ or butterfly bandages
- Using hot or cold therapy
- Using any totally non-rigid means of support, such as elastic bandages, wraps, non-rigid back belts, etc.
- Using temporary immobilization devices while transporting an accident victim (slings, neck collars, or back boards)
- Drilling a fingernail or toenail to relieve pressure, or draining fluids from blisters
- Using eye patches
- Using simple irrigation or a cotton swab to remove foreign bodies not embedded in or adhered to the eye
- Using irrigation, tweezers, cotton swab or other simple means to remove splinters or foreign material from areas other than the eye
- Using finger guards
- Using massages
- Drinking fluids to relieve heat stress

**Medical Treatment** – Includes managing and caring for a patient for the purpose of combating disease or disorder. The following are not considered medical treatments and are not recordable:

- Visits to a doctor or Licensed Health Care Professional (LHCP) solely for the purpose of observation or counseling
- Diagnostic procedures, including administering prescription medications that are used solely for diagnostic purposes
- Any procedure that can be labeled first aid (see above descriptions)

### OSHA Recordable Injuries and Illnesses

Work related injuries and illnesses that result in the following should be recorded on the OSHA 300 Log:

- Death
- Loss of consciousness
- Days away from work
- Restricted work activity or job transfer
- Medical treatment beyond first aid.



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You must also record any **work related injury or illness that involves cancer, chronic irreversible disease, a fractured or cracked bone, or a punctured eardrum.**

#### **Additional Recordable Criteria**

You must also record the following conditions when they are work related:

- Any needle stick injury or cut from a sharp object that is contaminated with another person's blood or other potentially infectious material
- Any case requiring an employee to be medically removed from a site under the requirements of an OSHA health standard
- Any Standard Threshold Shift (STS) in hearing (i.e., cases involving an average hearing loss of 10dB or more in either ear)
- Tuberculosis infection as evidenced by a positive skin test or diagnosis by a physician or other licensed health care professional after exposure to a known case of active tuberculosis.



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**ATTACHMENT 9B  
 MEDICAL FORMS**

**AUTHORIZATION FOR TREATMENT OF OCCUPATIONAL INJURY/ILLNESS**

Employee Name: \_\_\_\_\_  
 Social Security #: \_\_\_\_\_  
 Job Title: \_\_\_\_\_  
 Project/Location: \_\_\_\_\_  
 Telephone #: \_\_\_\_\_  
 H&S Representative: \_\_\_\_\_  
 Body Part(s) Injured: \_\_\_\_\_  
 Describe in detail how incident occurred: \_\_\_\_\_

Injury:  Illness:   
 Incident Date: \_\_\_\_\_  
 Location of Accident/Exposure: \_\_\_\_\_

**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 **AND** The Shaw Group, Inc. Corporate Claims Department  
 Both of the Following: 600 West Cummings Park, Suite 3400 4171 Essen Lane  
 Woburn, Massachusetts 01801 Baton Rouge, LA 70809

Please Send Bills To: The Shaw Group, Inc. Corporate Claims Department  
 4171 Essen Lane  
 Baton Rouge, LA 70809

**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.**

Send Bills to Shaw Corporate Claims Department



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**ATTACHMENT 9B  
 MEDICAL FORMS  
 AUTHORIZATION FOR RELEASE OF PROTECTED MEDICAL INFORMATION**

Printed Name: \_\_\_\_\_ Date of Birth: \_\_\_\_\_

Address: \_\_\_\_\_

Social Security #: \_\_\_\_\_ Home Telephone: \_\_\_\_\_

**Authority to Release Protected Health Information**

I hereby authorize the release of medical information, identified in this authorization form, and provide such information to:

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

**AND**

**The Shaw Group Inc.**  
 4171 Essen Lane  
 Baton Rouge, Louisiana 70809  
 Phone: 225-932-2500  
 Fax: 225-932-2636

**The Information To Be Released includes the following:**

Complete health record	Discharge summary	Progress notes
History and physical exam	Consultation reports	X-ray films / images
Laboratory test results	X-ray & Image reports	Itemized bill
Diagnosis & treatment codes	Complete billing record	

or, (specify) \_\_\_\_\_

**Purpose of the Requested Disclosure of Protected Health Information**

I am authorizing the release of my Protected Health Information.

**Drug and/or Alcohol Abuse, and/or Psychiatric, and/or HIV/AIDS Records Release**

I understand if my medical or billing record contains information in reference to, psychiatric care, sexually transmitted disease, hepatitis B or C testing, previous drug and/or alcohol abuse and/or other sensitive information, I agree to its release. *Check One:*  Yes  No

I understand if my medical or billing record contains information in reference to HIV/AIDS (Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome) testing and/or treatment I agree to its release. *Check One:*  Yes  No

**Right to Revoke Authorization**

Except to the extent that action has already been taken in reliance on this authorization, the authorization may be revoked at any time by submitting a written notice to **The Corporate Claims Dept. at The Shaw Group Inc., 4171 Essen Lane, Baton Rouge, Louisiana 70809**. Unless revoked, this authorization will expire at which time completion of treatment for the injury or illness has been accomplished.

**Re-disclosure**

I understand the information disclosed by this authorization may be subject to re-disclosure by the recipient and no longer be protected by the Health Insurance Portability and Accountability Act of 1996.

**Signature of Patient or Personal Representative Who May Request Disclosure**

I understand that I do not have to sign this authorization. However, if health care services are being provided to me for the purpose of providing information to a third-party (e.g. fitness-for-work test), I understand that services may be denied if I do not authorize the release of information related to such health care services to the third-party. I can inspect or copy the protected health information to be used or disclosed. I hereby release and discharge **The Shaw Group Inc** of any liability and the undersigned will hold **The Shaw Group Inc** harmless for complying with this Authorization.

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Description of relationship if not patient: \_\_\_\_\_



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**ATTACHMENT 9C  
 MEDICAL FORMS**

**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



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## ATTACHMENT 10

### HELP DESK / HOTLINE NOTIFICATION GUIDELINES

Any incident, as defined in the bulleted items below, requires corporate notification **as soon as practical but not longer than one hour after occurrence**, via the Health and Safety Help Desk / Hotline. This requirement is a corporate wide directive and applies to all Shaw Group companies, not just Shaw E&I. As such, the responsibility for whom makes this notification has purposefully not been defined. This is due to the various types of projects in which The Shaw Group performs activities. Some projects may only consist of three technicians at a site; others may involve multiple levels of site management and consist of 200+ employees. Therefore, the intent is for the supervisory/management person to communicate the notification requirements to his/her employees and make the appropriate determination as to how the notification takes place.

Immediate Corporate Notification via Help Desk: 1-866-299-3445

- Illness and/or injury (doctors cases and above);
- Property damage (dollar amount greater than \$2,500);
- Automobile accidents (All);
- Criminal activity (i.e. bomb threat, theft);
- Natural disaster (i.e. earthquakes, flood, storm damage, hurricanes);
- Explosion and/or fires (that results in property damage greater then \$2,500 or result in injury);

Environmental spills/releases/accidents that require regulatory notification or have an on-site impact.  
Regulatory Agency (OSHA, EPA, DBO, MSHA, etc.)

- Fatalities

#### Note:

- Help Desk / Hotline notification is in addition to the requirement to **inform Health Resources** of all incidents requiring off-site medical attention by calling **1-800-350-4511**. This call should be made **prior** to transporting the employee such that they can coordinate physicians' services prior to arrival of the employee to the medical facility.
- As stated above, the notification requirements are a corporate directive and apply to the entire Shaw Group. Accordingly, Shaw E&I managers/supervisors should use sound judgment as it pertains to the two bulleted items that have been highlighted above. Although they may not be desired events, some Environmental spills/releases that occur may not be an uncommon situation at a particular site. In addition, there may be projects in which the EPA or some other regulatory agency visits on some normal frequency. Events such as these, which would typically be unusual at a construction or fabrication site, are not so unusual to some of our environmental projects. As such, a notification to the helpdesk would not be required.



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## PROCEDURE

**Subject: ACCIDENT PREVENTION PROGRAM:  
MANAGEMENT SAFETY INSPECTIONS**

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### 1.0 PURPOSE AND SUMMARY

This procedure establishes the requirement for management safety inspections of project and office locations. These inspections are an integral part of the overall accident prevention program and help to demonstrate management's commitment to safety. Key requirements of this procedure include:

- Project managers are required to conduct one inspection per month and ensure that at least one other inspection is conducted during the month;
- Office managers are required to conduct an office safety inspection once every six months.
- Completed inspection reports are given to the project/office health and safety representative for review. A copy of the completed report will then be forwarded to the respective business line health and safety manager.

### 2.0 TABLE OF CONTENTS

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2.0	Table of Contents
3.0	Responsibility Matrix
3.1	Procedure Responsibility
3.2	Action/Approval Responsibilities
4.0	Text
4.1	Safety Inspections and Documentation
4.1.1	Management Site Visits
4.1.2	Project Managers
4.1.3	Office Managers
4.1.4	Project Supervisors
4.1.5	Health and Safety Representative
4.2	Workshops
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### 3.0 RESPONSIBILITY MATRIX

#### 3.1 Procedure Responsibility

The Director of 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 TEXT

Inspections of project and office locations by managers, supervisors, and the health and safety staff are critical factors in a comprehensive accident prevention program. Management safety inspections help demonstrate management's commitment to safety and verify that proper work practices are in use. These inspections are also used to verify the existence of safe work conditions and regulatory compliance. All employees are afforded the opportunity to participate in the inspection process via the safety interview process.

#### 4.1 Safety Inspections and Documentation

Safety inspections are required by various tiers of the management structure. The objective is for operation managers to visibly demonstrate their concern for safety in the workplace by direct contact with employees while in the workplace. Each inspection is to be documented on the appropriate Safety Inspection Report (Attachment 2 or 3).

The primary responsibilities of the inspector include:

- Interviewing employees with regard to health and safety issues and how they might be corrected;
- Observing and correcting unsafe conditions and acts; and
- Verifying that corrective actions have been assigned to a responsible employee and implemented.

Positive safety observations and safety issues not specifically addressed in the Safety Inspection Report can be documented on the last page of the report. A list of all corrective action items will be maintained showing the corrective action, responsible person, and the date action is to be completed. Completed reports are to be given to the project/office health and safety representative, then forwarded to the respective business line health and safety manager.

##### 4.1.1 Management Site Visits

Each senior manager is encouraged to make an informal safety inspection and review previously conducted inspection reports, during each site visit, to demonstrate their commitment to safety and reinforce the responsibilities of project management. Findings during this informal inspection are to be brought to the attention of the project manager so that corrective action can be initiated.



#### **4.1.2 Project Managers**

All project managers are required to complete at least one safety inspection per month and ensure that at least one other safety inspection per month is conducted. In the event that the project manager is not present at the project site during the month, this responsibility may be delegated to the project supervisor.

#### **4.1.3 Office Managers**

Office managers are required to conduct an office safety inspection once every six months. Managers are encouraged to conduct more frequent inspections if the office location is being remodeled or if new space is being occupied that was not previously inspected.

#### **4.1.4 Project Supervisors**

Project supervisors are expected to inspect their projects monthly and ensure that corrective actions are implemented. Dependent upon project manager participation, project supervisors may also be required to conduct an additional monthly inspection. The requirement to conduct these inspections cannot be delegated.

#### **4.1.5 Health and Safety Representative**

Health and safety representatives must continually observe activities and correct unsafe acts/conditions as soon as reasonably possible. They are also required to review each Safety Inspection Report completed at their location to ensure that corrective actions are implemented. Once this review is complete, they will forward the reports to the appropriate business line health and safety manager.

#### **4.2 Workshops**

Health and safety representatives will present workshops and/or conduct joint inspections to help managers and supervisors develop their inspection skills.

### **5.0 EXCEPTION PROVISIONS**

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

### **6.0 CROSS REFERENCES**

HS013 Health and Safety Procedure Variations

### **7.0 ATTACHMENTS**

1. Responsibility Matrix
2. Project Safety Inspection Report
3. Office Safety Inspection Report



ATTACHMENT 1

ACCIDENT PREVENTION PROGRAM : MANAGEMENT SAFETY INSPECTIONS  
 RESPONSIBILITY MATRIX

Action	Procedure Section	Responsible Party				
		Senior Managers	Project/Office Manager	Project Supervisors	Health and Safety Representative	Director of Health and Safety
Issue, Revise, and Maintain Procedure	3.1					X
Conduct Informal Safety Inspections and Review Previously Completed Reports	4.1.1	X				
Conduct Safety Inspections	4.1.2 4.1.3 4.1.4		X	X		
Give Completed Reports to Health and Safety Representative	4.1.2 4.1.3 4.1.4		X	X		
Review Reports and Forward to Health and Safety Manager	4.1.5				X	
Conduct Inspection Workshops	4.2				X	



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ATTACHMENT 2

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?   | _____ | _____ | _____ |
| 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?    | _____ | _____ | _____ |



### PROJECT SAFETY INSPECTION REPORT

PROJECT \_\_\_\_\_

DATE \_\_\_\_\_

	YES	NO	N/A
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 vehicles 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?	_____	_____	_____
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)?	_____	_____	_____



**PROJECT SAFETY INSPECTION REPORT**

PROJECT \_\_\_\_\_

DATE \_\_\_\_\_

	YES	NO	N/A
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?	_____	_____	_____

**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 access ways, stairways, ramps, and ladders clean of ice, mud, snow, or debris?	_____	_____	_____



PROJECT SAFETY INSPECTION REPORT

PROJECT \_\_\_\_\_

DATE \_\_\_\_\_

	YES	NO	N/A
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 side rails 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?			
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



PROJECT SAFETY INSPECTION REPORT

PROJECT \_\_\_\_\_

DATE \_\_\_\_\_

	YES	NO	N/A
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 <sub>2</sub> deficiency)?	_____	_____	_____
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?	_____	_____	_____

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 300 Log maintained on site and posted during February 1, to April 30,?	_____	_____	_____
2. Are accident report forms available?	_____	_____	_____
3. Is a copy of health and safety policy and procedures available on site?	_____	_____	_____



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### PROJECT SAFETY INSPECTION REPORT

PROJECT \_\_\_\_\_

DATE \_\_\_\_\_

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

DESCRIBE POSITIVE SAFETY OBSERVATIONS



ATTACHMENT 3

OFFICE SAFETY INSPECTION REPORT

OFFICE \_\_\_\_\_ DATE \_\_\_\_\_

DATE: \_\_\_\_\_ OFFICE NAME: \_\_\_\_\_  
OFFICE MANAGER: \_\_\_\_\_  
AREA(S) OF OFFICE INSPECTED: \_\_\_\_\_

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: \_\_\_\_\_



## OFFICE SAFETY INSPECTION REPORT

OFFICE \_\_\_\_\_

DATE \_\_\_\_\_

	YES	NO	N/A
<u>FIRST AID</u>			
1. Are first aid kits accessible and identified?	_____	_____	_____
2. Are emergency eye wash/safety showers available where needed and inspected?	_____	_____	_____
3. Are first aid kits inspected weekly?	_____	_____	_____
<u>FIRE PREVENTION</u>			
1. Are employees smoking only in designated outdoor areas?	_____	_____	_____
2. Are fire lanes/evacuation routes established and maintained?	_____	_____	_____
3. Are approved safety cans/cabinets available for storage of flammable liquids?	_____	_____	_____
4. Are fire exits clearly identified and unobstructed?	_____	_____	_____
<u>FURNITURE AND EQUIPMENT</u>			
1. Are desks, file cabinets, etc. arranged so that drawers do not open into aisles or walkways?	_____	_____	_____
2. Are desk and file drawers closed after use?	_____	_____	_____
3. Is weight distributed in file cabinets so that upper drawer contents does not create a top-heavy condition?	_____	_____	_____
4. Are cabinets, bookcases, and shelves secured to prevent their falling over?	_____	_____	_____
5. Are faulty desks, chairs, or other office equipment repaired or taken out of service?	_____	_____	_____
6. Is adequate and sufficient lighting provided in all work areas?	_____	_____	_____
7. Are paper cutter blades in fully down and locked position when not in use?	_____	_____	_____
8. Are work stations arranged to be comfortable without unnecessary strains on backs, arms, necks, etc.?	_____	_____	_____
9. Do machines with exposed moving parts have appropriate guards?	_____	_____	_____
<u> AISLES AND FLOORS</u>			
1. Is aisle clearance adequate for two-way traffic and for unobstructed access to all parts of the office and building?	_____	_____	_____
2. Does office arrangement allow easy egress under emergency conditions?	_____	_____	_____
3. Are wastebaskets, briefcases, or other objects placed where they are not a tripping hazard?	_____	_____	_____
4. Are floors clear of pencils, bottles, and other loose objects?	_____	_____	_____
5. Are tripping hazards from electrical cords, phone outlets, or other protrusions on the floor prevented by arrangement of furniture or other means?	_____	_____	_____
6. Are floors free of loose tiles and projections that can create a tripping hazard?	_____	_____	_____
7. Is carpeting in good condition and not badly worn or torn?	_____	_____	_____
<u>HAND AND POWER TOOLS</u>			
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. Is the correct tool being used for the job?	_____	_____	_____
6. Do knife blades have guards when not in use?	_____	_____	_____
<u>MOTOR VEHICLES</u>			
1. Are vehicles regularly inspected?	_____	_____	_____
2. Are personnel licensed for the vehicles they operate?	_____	_____	_____
3. Are unsafe vehicles reported to supervision?	_____	_____	_____



## OFFICE SAFETY INSPECTION REPORT

OFFICE \_\_\_\_\_

DATE \_\_\_\_\_

	YES	NO	N/A
4. Is safety equipment on vehicles?	_____	_____	_____
5. Are loads secure on vehicles?	_____	_____	_____
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 an emergency route to the hospital been established and posted?	_____	_____	_____

### MATERIALS HANDLING

1. Are materials stacked and stored to prevent sliding or collapsing?	_____	_____	_____
2. Are flammables and combustibles stored in approved containers?	_____	_____	_____
3. Are tripping hazards identified?	_____	_____	_____
4. Are riders prohibited on material handling equipment?	_____	_____	_____

### 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 marked?	_____	_____	_____
4. Have fire extinguishers been professionally inspected during the last year?	_____	_____	_____
5. Are fire extinguishers visually inspected monthly?	_____	_____	_____
6. Is there an operating fire detection system?	_____	_____	_____

### ELECTRICAL

1. Are extension cords kept out of wet areas?	_____	_____	_____
2. Are certified electricians used for electrical work?	_____	_____	_____
3. Are GFCIs being used as needed?	_____	_____	_____
4. Are extension cords not being used in lieu of permanent wiring?	_____	_____	_____
5. Are warning signs exhibited on high voltage equipment (250V or greater)?	_____	_____	_____
6. Are switches, circuit breakers, and switchboards installed in wet locations enclosed in weatherproof enclosures?	_____	_____	_____
7. Are electric fans protected with guards of not over one-half inch mesh, which prevents fingers getting inside guard?	_____	_____	_____
8. Are cords, panels, receptacles, and plugs in good condition?	_____	_____	_____
9. Are multi-outlet strips not plugged into other multi-outlet strips?	_____	_____	_____
10. Are extension cords not plugged into other extension cords?	_____	_____	_____
11. Are circuit breakers or fuse panels properly labeled, kept closed, and accessible?	_____	_____	_____
12. Are extension cords arranged so that they are not placed over radiators, steam pipes, through doorways, or under carpets?	_____	_____	_____
13. Do space heaters have automatic shut-offs that will actuate if the heater tips over?	_____	_____	_____
14. Are space heaters UL listed and plugged directly into a wall receptacle?	_____	_____	_____
15. Are space heaters located at least 3 feet from combustible material?	_____	_____	_____

### WALKING AND WORKING SURFACES

1. Are cords, cables, and other items not placed in walkways?	_____	_____	_____
2. Are ladders regularly inspected?	_____	_____	_____
3. Are access ways, stairways, ramps, and ladders clean of ice, mud, snow, or debris?	_____	_____	_____



**OFFICE SAFETY INSPECTION REPORT**

OFFICE \_\_\_\_\_

DATE \_\_\_\_\_

	YES	NO	N/A
4. Are ladders being used in a safe manner?	_____	_____	_____
5. Are ladders kept out of passageways, doors, or driveways?	_____	_____	_____
6. Are broken or damaged ladders tagged and taken out of service?	_____	_____	_____
7. Are metal ladders prohibited in electrical service?	_____	_____	_____
8. Are stairways and floor openings guarded?	_____	_____	_____
9. Are safety feet installed on straight and extension ladders?	_____	_____	_____
10. Are employees walking instead of running?	_____	_____	_____
11. Are handrails and side rails installed along the unprotected sides of stairways having 4 or more risers or rising more than 30 inches?	_____	_____	_____
12. Are there torn, loose, or curled carpets?	_____	_____	_____

**HOUSEKEEPING**

1. Is good housekeeping maintained?	_____	_____	_____
2. Are paper and materials stored properly?	_____	_____	_____
3. Are cleaning fluids used only in small quantities and stored in closed containers that are kept in well-ventilated areas?	_____	_____	_____
4. If cleaning fluids are flammable, are they not used near a flame or an open heating element?	_____	_____	_____
5. Are wastebaskets emptied on a daily basis?	_____	_____	_____

**SITE POSTERS**

1. Are the following posters displayed in a prominent and accessible area?			
A. Minimum Wage	_____	_____	_____
B. OSHA Job Protection	_____	_____	_____
C. Equal Employment Opportunity	_____	_____	_____
2. Are all required state-specific posters displayed?	_____	_____	_____

**HAZARD COMMUNICATION**

1. Is the written HAZCOM program available?	_____	_____	_____
2. Is there a MSDS FOR EACH HAZARDOUS CHEMICAL present in the office?	_____	_____	_____
3. Are all containers properly labeled, as to content, hazard?	_____	_____	_____
4. Have employees been trained on chemical hazards?	_____	_____	_____
5. Have all employees signed the HAZCOM acknowledgment form?	_____	_____	_____
6. Is there a list of chemicals maintained on site?	_____	_____	_____

**DOCUMENTATION**

1. Is an OSHA 300 Log maintained and posted during February 1, to April 30?	_____	_____	_____
2. Are accident report forms available?	_____	_____	_____
3. Is a copy of health and safety policy and procedures available?	_____	_____	_____



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### OFFICE SAFETY INSPECTION REPORT

OFFICE \_\_\_\_\_ DATE \_\_\_\_\_

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

DESCRIBE POSITIVE SAFETY OBSERVATIONS



## PROCEDURE

**Subject: ACCIDENT PREVENTION PROGRAM: SAFETY INCENTIVE AWARD PROGRAM**

### 1.0 PURPOSE AND SUMMARY

The purpose of this procedure is to establish the guidelines for implementing a company safety incentive award program. This program has been designed to recognize group safety performance and reward the individual only when the project/location team has achieved its established goals. It is intended to encourage all employees to be concerned not only for their own safety, but for the safety of co-workers, as well. Key elements of this procedure include:

- Eligibility;
- Program Development;
- Award Value;
- Program Funding;
- Minimum Goals;
- Award Request; and
- Goal Verification.

### 2.0 TABLE OF CONTENTS

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	3.1 Procedure Responsibility
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4.0	Definitions
5.0	Text
	5.1 Eligibility
	5.2 Program Development
	5.3 Award Value
	5.4 Program Funding
	5.5 Minimum Goals
	5.6 Award Request
	5.7 Goal Verification
6.0	Exception Provisions
7.0	Cross References
8.0	Attachments



### 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).

**OSHA Recordable Injury/Illness** - All work-related deaths and illnesses, and those work-related injuries which result in: loss of consciousness, restriction of work or motion, transfer to another job, or require medical treatment beyond first aid.

**Lost/Restricted Workday Injury/Illness** - Cases which involve days away from work and/or days of restricted work activity. Days away from work are: the number of workdays (consecutive or not), excluding the date of injury, the employee would have worked, but could not because of occupational injury or illness; and/or the number of workdays (consecutive or not), excluding the date of injury, on which, because of injury or illness:

- The employee was assigned to another job on a temporary basis; or
- 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.

**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.
- When only company employees, company owned or leased (not rented) vehicles, and property is involved and damage exceeds \$1,000.00.



## 5.0 TEXT

### 5.1 Eligibility

All company employees are eligible to participate in a safety incentive award program. In certain instances, subcontractors, teaming partners, and/or clients may also be eligible for participation. Each project/location manager must determine who will be eligible to participate prior to the initiation of a program. Only those employees physically present at one project/location for five days or more during a calendar month period will be eligible for an award. No employee will be permitted to participate in more than one program at any one time.

### 5.2 Program Development

The project/location manager is responsible for developing a safety incentive award program tailored to their specific project/location needs. This program must comply with the guidelines contained in this procedure and be approved by the appropriate business line lead and Vice President, Health and Safety. The project/location manager is responsible for obtaining all required approvals prior to implementing a program (Attachment 2). Once approved, a copy of the program is to be forwarded to the Vice President of Health and Safety.

### 5.3 Award Value

For every calendar month a project/location achieves its goals, all approved participants will receive an award valued at a maximum of \$10.00/calendar month. The project/location manager will be responsible for determining the value and type of award. It is recommended that awards be non-monetary in nature, such as gift certificates, clothing, etc. Awards may not be accumulated for a period of greater than five months unless approved by the business line director.

### 5.4 Program Funding

All costs associated with the awards must be approved by the project/location manager. Project awards will be funded by the project and location awards will be charged to the employee's home department. In some cases, clients may establish safety incentive programs that differ from the guidelines established in this procedure. Client-sponsored programs, while in effect, will be used in lieu of this safety incentive award program.

### 5.5 Minimum Goals

The safety incentive award program is designed to recognize and reward exemplary team safety performance. At a minimum, the participating team must achieve the following goals:

- Zero Recordable Injury/Illness Cases;
- Zero Lost/Restricted Workday Injury/Illness Cases; and
- Zero Chargeable Vehicle Accidents.



Other health and safety related goals, such as timely completion of Safety Inspection Reports, safety meeting participation, etc., may be established at the discretion of the project/location manager.

#### **5.6 Award Request**

A representative from each project/location must submit a list of employees eligible for an award to the project/location manager. The project/location manager is then responsible for submitting the eligibility list and the Safety Incentive Award Request Form (Attachment 3) to the awareness and recognition subcommittee of a local safety council for approval. Approval by the subcommittee is required prior to award distribution.

#### **5.7 Goal Verification**

Determining when a safety award goal has been achieved is the ultimate responsibility of the local safety council administering the program. If the awareness and recognition subcommittee of the council determines that accidents are not being reported or that accident reports are modified for the purpose of maintaining the goals, the program will be discontinued. Reinstatement of the program may only be achieved if the project/location manager submits a letter to the awareness and recognition subcommittee detailing the corrective actions that will be taken to prevent further deficiencies. The subcommittee must then obtain approval from the Vice President, Health and Safety prior to reinstating the program.

### **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**

HS001 Safety Policy  
HS013 Health and Safety Procedure Variances  
HS018 Safety Councils  
HS020 Accident Prevention Program: Reporting, Investigation, and Review

### **8.0 ATTACHMENTS**

1. Responsibility Matrix
2. Safety Incentive Award Program Approval
3. Safety Incentive Award Request Form



ATTACHMENT 1

ACCIDENT PREVENTION PROGRAM: SAFETY INCENTIVE AWARD PROGRAM  
 Responsibility Matrix

Action	Procedure Section	Responsible Party					
		Project/Location Representative	Business Line Director	Project Location Manager	Local Safety Council	Business Line Lead	Vice President Health and Safety
Issuance, Revision, and Maintenance of Procedure	3.1						X
Determine Who is Eligible for Participation	5.1			X			
Develop Project/Location Specific Incentive Award Program	5.2			X			
Approve Programs	5.2					X	X
Forward Approved Program to Vice President, Health and Safety	5.2			X			
Approve One-Time Awards of Greater Than \$50.00	5.3		X				
Determine Value and Type of Award	5.3			X			
Establish Goals Beyond Minimum Requirement	5.5			X			
Submit List of Award Eligible Employees to Project/Location Manager	5.6	X					
Complete Attachment 2 and Forward to Local Safety Council	5.6			X			
Determine When Goals Achieved	5.7				X		



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**ATTACHMENT 2**

**SAFETY INCENTIVE AWARD PROGRAM APPROVAL**

I HAVE REVIEWED THE ATTACHED SAFETY INCENTIVE AWARD PROGRAM FOR  
\_\_\_\_\_ AND APPROVE OF ITS USE.

Project/Location

\_\_\_\_\_  
Business Line Lead (Printed)

\_\_\_\_\_  
Business Line Lead (Signature)

\_\_\_\_\_  
Date

\_\_\_\_\_  
Vice President, Health and Safety (Printed) Vice President, Health and Safety (Signature)

\_\_\_\_\_  
Date



ATTACHMENT 3

**SAFETY INCENTIVE AWARD REQUEST FORM**

I AM REQUESTING THAT THE ATTACHED LIST OF EMPLOYEES AT THE \_\_\_\_\_  
Project/Location

PROJECT/LOCATION BE PRESENTED A SAFETY INCENTIVE AWARD. THESE

INDIVIDUALS WILL BE GIVEN \_\_\_\_\_ (MAXIMUM VALUE OF \$10.00 PER  
Type of Award

MONTH) ON \_\_\_\_\_ FOR ACHIEVING ESTABLISHED GOALS FOR THE  
Date of Award

MONTH(S) \_\_\_\_\_  
Month(s)/Year

Project/Location Manager (Printed)

Project/Location Manager (Signature)

Date

**AWARENESS AND RECOGNITION SUBCOMMITTEE CHAIRMAN APPROVAL**

\_\_\_\_\_  
Chairman (Printed)

\_\_\_\_\_  
Chairman (Signature)

\_\_\_\_\_  
Date



## PROCEDURE

**Subject: STOP WORK AUTHORITY**

### 1.0 PURPOSE AND SUMMARY

The purpose of this procedure is to recognize the authority of company employees to stop work when unsafe conditions warrant.

### 2.0 TABLE OF CONTENTS.

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- 4.0 Definitions
- 5.0 Text
- 6.0 Exception Provisions
- 7.0 Cross References
- 8.0 Attachments

### 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

Responsibility Matrix is Attachment 1.

### 4.0 DEFINITIONS

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

**Stop Work Order** – Order that may be issued by any employee of the company when workplace conditions are observed that present an immediate uncontrolled risk of injury or illness.



## 5.0 TEXT

All employees have the right and duty to stop work when conditions are unsafe, or when established safety procedures are being disregarded. Whenever an employee determines that workplace conditions present an immediate uncontrolled risk of injury or illness, immediate resolution with the appropriate supervisor shall be sought. Should the supervisor be unable or unwilling to correct the unsafe conditions, the employee is authorized and required to issue a Stop Work Order. The specific activity or operation in question shall be discontinued until the issue is resolved.

Upon issuance of a Stop Work Order, the supervisor shall contact the project/location manager and the project/location H&S representative and request their assistance in assessing the situation or conditions that lead to the Stop Work Order. If the project manager and the H&S representative are unable to agree on the necessary corrective actions, or the appropriateness of the Stop Work Order, the issue shall be referred to the business line/program manager and the Vice President, Health and Safety.

Resumption of safe operations is the primary objective; however, operations shall not resume until an H&S representative has given approval that workplace conditions now meet acceptable safety standards. Any supervisor or manager responsible for resuming operations without H&S approval, thereby endangering project personnel, shall be subject to termination.

## 6.0 EXCEPTION PROVISIONS (Not Applicable)

## 7.0 CROSS REFERENCE (None)

## 8.0 ATTACHMENT 1. Responsibility Matrix



**ATTACHMENT 1**  
**STOP WORK AUTHORITY**

**Responsibility Matrix**

Action	Procedure Section	Responsible Party					
		Employee	Supervisor	Project Location Manager	Business Line/Program Manager	H&S Representative	President Health & Safety
Resolve unsafe condition(s)	5.0	X	X				
Issue Stop Work Order if resolution not immediately possible	5.0	X					
Resolve unsafe conditions when field supervisor unable to do so	5.0			X		X	
Resolve unsafe conditions when lower level management refers issue	5.0				X		X
Issue Approval to Resume Operations	5.0					X	



## 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

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5.1	General Requirements
5.2	Methods of Conducting JSA's
5.3	Analyzing The Job
5.4	Common Errors
5.5	Identifying the Hazards and Potential Accidents
5.6	Accident Types
5.7	Writing Instructions
5.8	Develop Solutions
6.0	Specific Requirements
6.1	Sequence of Basic Job Steps
6.2	Potential Hazards
6.3	Recommended Action Procedure
7.0	References
8.0	Attachments



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



# 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: \_\_\_\_\_



# JOB SAFETY ANALYSIS

DATE:  
JOB#:  
PERMIT#:  
ISSUED BY:

<b>Location of Job</b> (Unit/Location on Project):		
Required PPE:	<b>Safety Access/ Location</b>	Supervisor of Work:
	Safe Haven:	JSA Prepared By:
	Wind Direction:	Are other crews in area?
<u>Pre-Job Preparation</u>  1. Fill out JSA 2. Review JSA (EVERYONE) 3. Sign JSA (EVERYONE)	Evacuation Route:	New: <input type="checkbox"/>
	Assembly Point:	Revised: <input type="checkbox"/>
<b>Job Task</b> (What are You Doing)		<b>Audit the Job</b> <b>Audit Time:</b>
<b>Potential Hazards</b>		<b>Supervisors Comments</b>
<b>Recommended Action or Procedure</b>		<b>Supervisor's Initials:</b>
<b>Crew Name Signatures:</b>		



## 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

- 1.0 Purpose and Summary
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- 3.0 Responsibility Matrix
  - 3.1 Procedure Responsibility
  - 3.2 Action/Approval Responsibilities
- 4.0 Definitions
- 5.0 Text
- 6.0 Exception Provisions
- 7.0 Cross References
- 8.0 Attachments

### 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.



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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



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**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



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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: \_\_\_\_\_

New Equipment: \_\_\_\_\_

Other Safety Topic(s): \_\_\_\_\_

Attendees

NAME PRINTED

SIGNATURE

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Meeting conducted by:



## 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.

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  - 5.1 Hazardous Chemical Inventories
  - 5.2 Procurement of Hazardous Chemicals
  - 5.3 Container Labeling
  - 5.4 Material Safety Data Sheets (MSDS)
  - 5.5 Training
  - 5.6 Trade Secrets
  - 5.7 Contractors
- 6.0 Exception Provisions
- 7.0 Cross References
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### 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



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### 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	EHS 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	



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**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: \_\_\_\_\_



## PROCEDURE

**Subject: OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA)  
REGULATORY INSPECTIONS**

### 1.0 PURPOSE AND SUMMARY

This procedure prescribes the steps to be taken in the event an OSHA regulatory inspection occurs at any of Shaw Environmental & Infrastructure, Inc. (Shaw E & I) field or office locations.

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### 3.0 RESPONSIBILITIES

#### 3.1 Procedure Responsibility

The National Director of 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 DISCUSSION

Generally, OSHA inspections occur without any advance notice. In order for the OSHA inspector to conduct an inspection, he/she must obtain the employer's consent. If the inspector fails to produce credentials or disclose the nature of his visit, a warrant can be requested. As a general rule, the fact that a warrant is required should not be enforced by Shaw E & I associates. We should cooperate with the OSHA inspector but in accordance with these guidelines.

## 5.0 PROCEDURE

### 5.1 Arrival of OSHA Inspector(s)

**5.1.1 Site Representative.** All Shaw E & I projects and locations will have a health and safety representative or an assigned individual that is responsible for interaction with the OSHA inspector(s). This individual will be summoned immediately upon arrival of the inspector(s). The designated Shaw E & I site representative will be responsible for completing the attached OSHA inspection report form Shaw E & I-HS090.1 (Attachment 2) and forwarding it to the National Director of Health and Safety as soon as reasonably possible. In a unionized workplace, dependent upon the scope of the inspection, the lead site union official may select a representative to accompany the inspector(s) and the Shaw E & I site representative during the inspection.

**5.1.2 Credential Verification.** Immediately upon arrival of the OSHA inspector(s), Shaw E & I's site representative will request the inspector's identification and will record the appropriate information on Shaw E & I-HS090.1. If the identity of the inspector(s) is in question, a call to his/her home office is an acceptable practice in order to verify authenticity of credentials and assignment to your location.

### 5.2 Opening Conference

The typical inspection will begin with the inspector(s) initiating an opening conference. The inspector(s) should explain the nature, purpose, and scope of the inspection, and the records that will be reviewed. The Shaw E & I site representative will ask the following questions and record all replies on Shaw E & I-HS090.1:

- What type of inspection is going to be completed (i.e., employee complaint, accident, etc.)?
- Is the inspector(s) a safety or industrial hygiene compliance officer?
- Which area(s) of the site is going to be inspected?
- What type of industrial hygiene monitoring will be performed?
- Does the inspector(s) meet the training and medical requirements relevant to the site?



**5.2.1 Site-Specific Training.** The inspector(s) must be given an overview of any site-specific training applicable to the areas of the site in which they will be inspecting. The inspector(s) will be given the opportunity to read the Site Health and Safety Plan (SHSP) and should agree to abide by the provisions of the plan. The inspector(s) is to be informed that, in the interest of safety, you will continue to enforce the established health and safety rules during the inspection and that you would like for them to comply as well.

**5.2.2 Notification.** The site representative will contact the the National Director of Health and Safety or his designee and give a short briefing on the events taking place. This notification should occur after the opening conference, but before the initiation of the actual inspection.

### **5.3 Inspection**

The site representative will accompany the inspector(s) at all times during the visit. All photos, samples, or notes will be replicated, paying special attention to where the inspector goes, who is talked to, what sampling is done, which instruments are used, and any specific comments that are made.

**5.3.1 Employee Interviews.** All site personnel approached by the inspector(s) for the purpose of interviewing, must be made aware of the three options that they may exercise. This decision must be made solely by the individual employee that is going to be interviewed. The site representative or other site personnel will in no way influence the decision of the employee. The employee's choices are:

1. Interview in private with inspector;
2. Interview with the Shaw E & I site representative present; or
3. Refuse to interview.

**5.3.2 Personnel Protective Equipment (PPE).** The inspector will be offered the PPE required for the area he wishes to inspect and will be asked to follow the safety and health rules in place for the site. Any deviations from established rules should be brought to the attention of the inspector and documented on the OSHA inspection report.

**5.3.3 Conduct.** As always it is very important that site personnel conduct themselves in a professional manner when interacting with regulatory officials. The following guidelines should be adhered to during the inspection:

- Keep all responses short and to the point without elaboration. Personnel should not volunteer information not specifically asked for by the inspector(s), and should avoid statements that might be construed as an admission of noncompliance.



- Do not demonstrate any operations for the inspector(s) that are not part of the days normal planned activities. OSHA requires that inspections be conducted in a manner that avoids disrupting the normal activities of the site.
- If possible immediately remedy any alleged violation(s) identified by the inspector(s). If an employee violates a work rule during an inspection the same disciplinary action will be taken as if the inspector(s) was not present. Failure to correct a violation noticed during the inspection may itself result in a citation.
- Federal law and OSHA regulations require the maintenance of certain safety and health records. If the inspector requests to review records we are under no obligation to provide these records without a subpoena. It should be noted that it is unlikely that a subpoena will be denied for pertinent documents and therefore any benefit derived from a temporary delay gained by insisting on a subpoena should be weighed against the goodwill generated with the inspector from prompt disclosure. Therefore, under most circumstances we should grant access to the documents.

#### 5.4 Closing Conference

The inspector(s) will typically initiate a closing conference after all inspection activities have been completed. It is important for the site representative to clarify with the inspector that the inspection is over. If not, the specific areas which are left to inspect and the anticipated time of inspection will be discussed.

**5.4.1 Attendees.** The national director of health and safety or his designee will be present or connected via telephone during closing conference discussions. The Shaw E & I site representative will be responsible for taking detailed notes and recording them on Shaw E & I-HS090.1. A representative of Shaw E & I's legal department may also participate and/or be available for telephone consultation.

**5.4.2 Citations.** The closing conference can be used as a method to obtain information from the inspector on possible citations. The site representative should ask for precise areas in which the inspector is going to recommend for citation, and any other information pertaining to the inspection results. Request a copy of inspector's notes, even though they are not required to provide them. At no time during the closing conference should the site representative or anyone else make any admissions of noncompliance even if they think the inspector is correct.

#### 6.0 EXCEPTION PROVISIONS

Variances may be requested as described in procedure HS013; Health and Safety Procedure Variances.



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**7.0 CROSS REFERENCES**  
(Not Applicable)

**8.0 ATTACHMENTS**

1. Responsibility Matrix
2. OSHA Inspection Report (Form Shaw E & I-HS090.1)



**ATTACHMENT 1**  
**POLICIES AND PROCEDURES**  
**for**  
**OCCUPATIONAL HEALTH AND SAFETY AGENCY (OSHA)**  
**REGULATORY INSPECTIONS**

**Responsibility Matrix**

Action	Procedure Section	Location/Project Manager	Site Representative	National Director of H&S
Issuance, revision and maintenance of this procedure	3.1			X
Designate site representative	5.1.1	X		
Complete OSHA Inspection Report form	5.1.1		X	
Verify inspector's credentials	5.1.2		X	
Provide site-specific training	5.2.1		X	
Notification of National Director of H&S	5.2.2		X	
Accompany inspector	5.3		X	X <sup>1</sup>
Participate in closing conference	5.4.1	X	X	X <sup>1</sup>

<sup>1</sup> After notification is made, the National Director of H&S may wish to participate in inspections or conferences.



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ATTACHMENT 2

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**OSHA INSPECTION REPORT**  
**FORM Shaw E & I-HS090.1**

**GENERAL INFORMATION:**

Division/Subsidiary \_\_\_\_\_ Facility \_\_\_\_\_  
Date \_\_\_\_\_ Time \_\_\_\_\_ Job Number \_\_\_\_\_  
Customer \_\_\_\_\_ Address \_\_\_\_\_  
Specific Location \_\_\_\_\_  
Site Representative \_\_\_\_\_

**OSHA INSPECTOR INFORMATION:**

Name \_\_\_\_\_  
Office \_\_\_\_\_  
Address \_\_\_\_\_  
Phone Number \_\_\_\_\_  
Identification Number \_\_\_\_\_  
Date and Time of first appearance \_\_\_\_\_  
First Person Contacted \_\_\_\_\_

**REASON FOR INSPECTION:**

Complaint \_\_\_\_\_ Accident/fatality \_\_\_\_\_  
(obtain copy)  
Referral \_\_\_\_\_ General Programmed Schedule \_\_\_\_\_  
Imminent danger \_\_\_\_\_  
Specific location(s) of inspection \_\_\_\_\_  
Was the inspector asked to wait for the health and safety representative? \_\_\_\_ yes \_\_\_\_ no



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**FORM Shaw E & I-HS090.1**

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**INSPECTION:**

Opening Conference Held? (check one)  Yes  No

Persons present at Opening Conference (no employee representatives permitted):

Name	Company
_____	_____
_____	_____
_____	_____

Does the OSHA Inspector comply with all site training and medical requirements?  Yes  No

Has the OSHA Inspector been given site specific training?  Yes  No

Employees Interviewed:

Name	Company
_____	_____
_____	_____
_____	_____

Witnesses to Violations (list of violations follows names):

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



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ALLEGED VIOLATIONS NOTED FOR POSSIBLE CITATION (type and location):

1.

2.

3.

4.

5.



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Did the inspector take photos? \_\_\_ Yes \_\_\_ No

Did you take the same photos? \_\_\_ Yes \_\_\_ No

Did the inspector take industrial hygiene samples? \_\_\_ Yes \_\_\_ No

Did you replicate these samples? \_\_\_ Yes \_\_\_ No

Results of the Closing Conference:

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**FOLLOW-UP:**

Comments on alleged violations:

1.

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2.

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4.

5.

**PERSONAL INFORMATION:**

This form was completed by:

\_\_\_\_\_ (Print name)

\_\_\_\_\_ (Print Title)

\_\_\_\_\_ (Signature)

\_\_\_\_\_ (Date)

Distribution: National Health and Safety Director



## PROCEDURE

**Subject: REPORTING OF FATALITY OR MULTIPLE HOSPITALIZATION INCIDENTS TO OSHA**

### 1.0 PURPOSE AND SUMMARY

This procedure identifies the OSHA reporting requirements for workplace incidents resulting in the death or in-patient hospitalization of any associate.

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### 3.0 RESPONSIBILITY MATRIX

#### 3.1 Procedure Responsibility

The National Director, 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

(Not Applicable)

### 5.0 TEXT

Reporting of fatal incidents, or incidents resulting in the in-patient hospitalization of associates is required by OSHA. Such incidents shall be reported immediately to the HS professional and project manager for the project/site, who must then notify the following on an immediate basis:

- Region/Division HS Manager
- National Director HS
- Division Vice President



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The National Director of Health & Safety and/or Division Vice President shall notify the Chief Operating Officer, President, and the Legal Department.

Applicable provisions of procedures HS020, Accident Prevention Program: Reporting, Investigation and Review; and HS105, Occupational Injury/Illness Procedures, also apply.

#### 5.1 Agreement States

Agreement states operating their own occupational safety and health programs each establish their own reporting requirements which are "at least as effective" as the requirements of the U.S. Department of Labor OSHA regulations. When an incident involving fatal injuries or hospitalization of associates occurs in an agreement state, reports shall be made in accordance with the state requirements by the HS Manager responsible for the site.

#### 5.2 U. S. Department of Labor OSHA Jurisdiction

Within 8 hours after the death of any associate from a work-related incident or the in-patient hospitalization of three or more associates as a result of work-related incident, the HS professional responsible for the site, after consulting with the National Director HS and the Legal Department, shall orally report the fatality/multiple hospitalization by telephone or in person to the Area Office of the Occupational Safety and Health Administration (OSHA), U.S. Department of Labor, that is nearest to the site of the incident, or by using the OSHA toll-free central telephone number (800) 321-OSHA.

This requirement applies to each such fatality or hospitalization of three or more associates which occurs within thirty (30) days of an incident.

Each report required by this procedure shall relate the following information: company name, location of incident, time of the incident, number of fatalities or hospitalized associates, contact person, phone number, and a brief description of the incident.

#### 6.0 EXCEPTION PROVISIONS (None permitted)

#### 7.0 CROSS REFERENCES HS020 Accident Prevention Program: Reporting, Investigation and Review HS105 Occupational Injury/Illness Procedures

#### 8.0 ATTACHMENTS 1. Responsibility Matrix



**ATTACHMENT 1**  
**REPORTING OF FATALITY OR MULTIPLE HOSPITALIZATION INCIDENTS TO OSHA**

**Responsibility Matrix**

Action	Procedure Section	Responsible Party				
		Site Supervisor	Project Manager	HS Manager	Division VP	National HS Director
All fatal incidents, or incidents resulting in the in-patient hospitalization of associates, shall be immediately reported to the local HS professional.	5.0	X				
Notify Region/Division HS Manager, National HS Director, and Division VP.	5.0		X	X		
Notify Chief Operating Officer, President, and Legal Department.	5.0				X	X
When such incidents occur in Agreement States, reports shall be made in accordance with the applicable state requirements.	5.1			X		
Within 8 hours of such incidents, oral report must be made by telephone or in person to the Area Office of OSHA, U.S. Department of Labor, nearest to the site, or by using the OSHA toll-free central telephone number: 800-321-OSHA.	5.2			X		
The above requirement also applies to each such fatality or hospitalization of three or more associates which occurs within 30 days of an incident.	5.2			X		



## PROCEDURE

**Subject: CONFINED SPACES**

### 1.0 PURPOSE AND SUMMARY

This procedure describes the requirements for identifying and working within confined spaces. It has been developed to ensure compliance with the Occupational Safety and Health Administration (OSHA) permit-required confined spaces regulation. Key provisions of this procedure include:

- Scope and Applicability
- Workplace Evaluation
- Permit-Required Confined Spaces (PRCS)
  - Duties of PRCS Participants
  - Permit System
  - Training
- Non-Permit-Required Confined Spaces
- Rescue and Emergency Services
- Employee Access to Documentation
- Retention of Inspection and Test Logs
- Program Review.

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5.2	Workplace Evaluation
5.3	Permit-Required Confined Spaces
5.3.1	Duties of PRCS Participants
5.3.1.1	Authorized Entrant(s)
5.3.1.2	Attendant(s)
5.3.1.3	Entry Supervisor(s)
5.3.2	Permit System
5.3.3	Training
5.4	Non-Permit-Required Confined Spaces
5.5	Rescue and Emergency Services



- 5.5.1 Outside Rescue Services
- 5.5.2 Company Rescue Services
- 5.6 Employee Access to Documentation
- 5.7 Retention of Inspection and Test Logs
- 5.8 Program Review
- 6.0 Exception Provisions
- 7.0 Cross References
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### 3.0 RESPONSIBILITY MATRIX

#### 3.1 Procedure Responsibility

The Vice President of 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

**Acceptable Entry Conditions** - The conditions that must exist in a permit space to allow entry so that employees involved with a permit-required confined space entry can safely enter into and work within the space.

**Attendant** - An individual stationed outside one or more permit spaces who monitors the authorized entrants and who performs all attendant=s duties described in this procedure.

**Authorized Entrant** - An employee who is authorized to enter a permit-required confined space.

**Blanking or Blinding** - The absolute closure of a pipe, line, or duct by the fastening of a solid plate (such as a spectacle blind or a skillet blind) that completely covers the bore and that is capable of withstanding the maximum pressure of the pipe, line, or duct with no leakage beyond the plate.

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

**Confined Space** - A space that:

- Is large enough and so configured that an employee can bodily enter and perform assigned work;
- Has limited or restricted means for entry or exit (for example, tanks, vessels, silos, storage bins, hoppers, vaults, pits, and excavations are spaces that may have limited means of entry); and
- Is not designed for continuous employee occupancy.



**Double Block and Bleed** - The closure of a line, duct, or pipe by closing and locking or tagging two in-line valves and by opening and locking or tagging a drain or vent valve in the line between the two closed valves.

**Emergency** - Any occurrence (including any failure of hazard control or monitoring equipment) or event, internal or external, to the permit-required confined space that could endanger entrants.

**Engulfment** - The surrounding and effective capture of a person by a liquid or finely divided (flowable) solid substance that can be aspirated to cause death by filling or plugging the respiratory system or that can exert enough force on the body to cause death by strangulation, constriction, or crushing.

**Entry** - The action by which a person passes through an opening into a permit-required confined space. Entry includes ensuing work activities in that space and is considered to have occurred as soon as any part of the entrant's body breaks the plane of an opening into the space.

**Entry Permit** - The written or printed document that is provided by the company to allow and control entry into a permit space.

**Entry Supervisor** - The person responsible for determining if acceptable entry conditions are present at a permit space where entry is planned, for authorizing entry and overseeing entry operations, and for terminating entry as required by this section. An entry supervisor may also serve as an attendant or as an authorized entrant, as long as that person is trained and equipped for each role he/she fills.

**Hazardous Atmosphere** - An atmosphere that may expose employees to the risk of death, incapacitation, impairment of ability to self-rescue (that is, escape unaided from a permit space), injury, or acute illness from one or more of the following causes:

- Flammable gas, vapor, or mist in excess of 10 percent of its lower explosive limit (LEL).
- Airborne combustible dust at a concentration that meets or exceeds its LEL.  
NOTE: This concentration may be approximated as a condition in which the dust obscures vision at a distance of 5 feet or less.
- Atmospheric oxygen concentration below 19.5 percent or above 23.5 percent.
- Atmospheric concentration of any substance for which a dose or a published exposure guideline is available and which could result in employee exposure in excess of its dose or permissible exposure limit.
- Any other atmospheric condition that is immediately dangerous to life or health.

**Hot Work Permit** - Written authorization to perform hot operations (for example, riveting, welding, cutting, burning, and heating) capable of providing a source of ignition. Refer to Procedure HS314.



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**Immediately Dangerous to Life or Health (IDLH)** - Any condition that poses an immediate or delayed threat to life or that would cause irreversible adverse health effects or that would interfere with an individual's ability to escape unaided from a confined space.

**Inerting** - The displacement of the atmosphere in a confined space by a noncombustible gas (such as nitrogen) to such an extent that the resulting atmosphere is noncombustible.

**Isolation** - The process by which a confined space is removed from service and completely protected against the release of energy and material into the space by such means as: blanking or blinding; misaligning or removing sections of lines, pipes, or ducts; a double block and bleed system; lockout or tagout of all sources of energy, including hydraulic or electric; blocking or disconnecting all mechanical linkages; or physically restraining moving parts.

**Line Breaking** - The intentional opening of a pipe, line, or duct that is or has been carrying flammable, corrosive, or toxic material; an inert gas; or any fluid at a volume, pressure, or temperature capable of causing injury.

**Non-Permit-Required Confined Space** - A confined space that does not contain or, with respect to atmospheric hazards, have the potential to contain any hazard capable of causing death or serious physical harm.

**Oxygen-Deficient Atmosphere** - An atmosphere containing less than 19.5 percent oxygen by volume.

**Oxygen-Enriched Atmosphere** - An atmosphere containing more than 23.5 percent oxygen by volume.

**Permit-Required Confined Space (PRCS)** - A confined space that has one or more of the following characteristics:

- Contains or has a potential to contain a hazardous atmosphere.
- Contains a material that has the potential for engulfing an entrant.
- Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross section.
- Contains any other recognized serious safety or health hazard.

**Prohibited Condition** - Any condition in a PRCS that is not allowed by the permit during the period when entry is authorized.

**Rescue Service** - The personnel designated to rescue employees from PRCSs.

**Retrieval System** - The equipment (including a retrieval line, chest or full-body harness, wristlets, if appropriate, and a lifting device or anchor) used for non-entry rescue of persons from PRCSs.



**Testing** - The process by which the hazards that may confront entrants of a confined space are identified and evaluated. Testing includes specifying the tests that are to be performed in the confined space.

## 5.0 TEXT

### 5.1 Scope and Applicability

This procedure contains the requirements for performing work in confined spaces and is applicable to all company activities, including construction.

### 5.2 Workplace Evaluation

All company facilities or project locations will be evaluated by a health and safety representative or an entry supervisor to identify the presence of permit-required confined spaces (PRCS). All such spaces will be posted with a sign bearing the following or similar warning: "DANGER X PERMIT-REQUIRED CONFINED SPACE. DO NOT ENTER." This workplace evaluation will be documented using Attachment 2.

Entry into confined spaces determined during the workplace evaluation not to be permit-required need not comply with the requirements of this procedure. However, these confined spaces must be re-evaluated whenever the use or configuration of the space changes in any way that might change its classification.

### 5.3 Permit-Required Confined Spaces

Prior to beginning any PRCS entry operation, a PRCS entry permit will be completed by the entry supervisor. All such entries will be considered permit-required until/unless the space meets the requirements specified in Section 5.4. The following guidelines are to be followed for each PRCS entry:

- Combustible vapors will not exceed 10.0 percent of the LEL and oxygen levels must be between 19.5 and 23.5 percent by volume for entry to be allowed. Appropriate toxic gas/vapor action levels will also be established and documented on the permit. Entries requiring Level A protection or where IDLH conditions exist require Vice President of Health and Safety approval.
- Lockout, tagout, tryout, and return to service procedures for potential sources of hazardous energy must be completed (see Procedure HS315, Control of Hazardous Energy Sources).
- As necessary, purging, inerting, flushing, or ventilating the space may be used to control hazardous atmospheres. Continuous mechanical ventilation will be used whenever entrants are in PRCSs that have or that can be expected to have a hazardous atmosphere.
- Inspecting, monitoring, and testing the PRCS to verify that acceptable conditions exist prior to and throughout the entry operation must be conducted. This includes:
  - Conducting specific atmospheric tests as described on the entry permit. PRCSs will be tested as often as necessary to verify entrant safety, whenever operations



or conditions change (e.g., temperature change or product agitation, etc.), and no less often than hourly.

- For confined spaces that cannot be completely isolated (e.g., sewers, etc.), continuous testing with real-time direct reading instruments is required.
  - Testing for oxygen will occur first, followed by combustible gases, then toxic gases and vapors.
- Personal protective equipment will be used as specified on the entry permit and will include:
    - Type of protective suits, boots, and gloves.
    - Type of face, head, and foot protection.
    - Specify type of harness (chest or full-body) with approved lifelines at least one-half inch in diameter, 2,000 pounds test and meeting ANSI A10.14 requirements. The lifeline is to be attached at the center of the entrant's back near shoulder level, above the entrant's head, or at another point which presents a profile small enough for the successful removal of the entrant. (NOTE: Wristlets may be used only when a health and safety representative finds that a harness presents a greater hazard to the employee and wristlets are the safest, most effective alternative.) All lifelines will be secured to a mechanical extraction device or fixed point outside the PRCS. Mechanical extraction devices will be used for all vertical entries greater than five (5) feet deep.
    - Type of respiratory protection will be specified, per the requirements of Procedure HS601.
  - Material Safety Data Sheets (MSDS) will be readily available and provided to the medical facility when treating injured/exposed entrants.
  - Lighting equipment required to safely illuminate the work will be utilized. NOTE: All lighting and electrical equipment used inside a PRCS will be of the appropriate National Electrical Code (NEC) rating. Rating should be Class I, Division I unless the space specifically meets other rating class requirements.
  - Protective barriers will be used to protect entrants from external pedestrian, vehicle, or equipment hazards.



- Ingress and egress equipment such as ladders or mechanical extraction devices will be used as necessary.
- Rescue and emergency services, procedures, and equipment will be determined prior to entry. The permit must specify whether the company or another source will provide these services and equipment, and how to summon them. The company will provide rescue services unless a qualified outside rescue service is available (see Section 5.5).
- Communication methods will be used that will provide continuous communication between entrants and attendants. This can be done using the standard system of lifeline "tugs" below, so long as the attendants continuously hold the lifelines in their hands:

**Lifeline "Tug" Signals**

- 1 Tug = Are you OK?
- 2 Tugs = Yes, I am OK.
- 3 Tugs = Exit the confined space immediately.

An alternative communication system would be to provide all entrants and attendants with an air-powered horn. Substituting horn blasts for tugs, equivalent signals to the lifeline "tug" signals, would be used. Any other or uncertain signals would require immediate exit.

If these methods are not practical or possible, appropriately rated powered communication equipment will be provided.

- The number of attendants and other outside support personnel will be determined prior to entry. Each PRCS being entered will have a minimum of one (1) dedicated attendant and one other support person (who may have other duties) within sight or call.

### 5.3.1 Duties of PRCS Participants

#### 5.3.1.1 Authorized Entrant(s). Authorized Entrants will:

- Know the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of potential exposures.
- Communicate with the attendant as necessary to enable the attendant to monitor entrant status and to enable the attendant to alert entrants of the need to evacuate the space.



- Alert the attendant whenever the entrant recognizes any warning sign or symptom of exposure to a dangerous situation, or if the entrant detects a prohibited condition.
- Exit from the permit space as quickly as possible whenever:
  1. An order to evacuate is given by the attendant or the entry supervisor;
  2. The entrant recognizes any warning sign or symptom of exposure to a dangerous situation;
  3. The entrant detects a prohibited condition; or
  4. An evacuation alarm is activated.

**5.3.1.2 Attendant(s). Attendants will:**

- Know the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of potential exposures.
- Be cognizant of possible behavioral effects of hazard exposure in authorized entrants.
- Continuously maintain an accurate count of authorized entrants in the PRCS so that the means used to identify authorized entrants accurately identifies who is in the permit space.
- Remain outside the PRCS during entry operations until relieved by another attendant.
- Communicate with authorized entrants as necessary to monitor entrant status and to alert entrants of the need to evacuate the space.
- Monitor activities inside and outside the space to determine if it is safe for entrants to remain in the space, and orders the authorized entrants to evacuate the PRCS immediately under any of the following conditions:
  1. If the attendant detects a prohibited condition;
  2. If the attendant detects the behavioral effects of hazard exposure in an authorized entrant;



3. If the attendant detects a situation outside the space that could endanger the authorized entrants; or
  4. If the attendant cannot effectively and safely perform all prescribed duties.
- Summon rescue and other emergency services as soon as the attendant determines that authorized entrants may need assistance to escape from the PRCS.
  - Take the following actions when unauthorized persons approach or enter a PRCS while entry is underway:
    1. Warn the unauthorized persons that they must stay away from the PRCS.
    2. Advise the unauthorized persons that they must exit immediately if they have entered the PRCS.
    3. Inform the authorized entrants and the entry supervisor if unauthorized persons have entered the PRCS.
  - Perform non-entry rescues.
  - Perform no duties that might interfere with the attendant's primary duty to monitor and protect the authorized entrants.

#### 5.3.1.3 Entry Supervisor(s). Entry Supervisors will:

- Remain immediately available on site throughout entry operations.
- Know the hazards that may be faced during entry, including information on the mode, signs and symptoms, and consequences of potential exposures.
- Verify, by checking that the appropriate entries have been made on the permit, that all tests specified by the permit have been conducted and that all procedures and equipment specified by the permit are in place before endorsing the permit and allowing entry to begin.
- Terminate the entry and cancel the permit as required.
- Verify that qualified rescue services are available and that the means for summoning them are operable. Evaluate capabilities of service prior to entry (see Section 5.5).



- Arrange for the removal of unauthorized individuals who enter or who attempt to enter the permit space during entry operations.
- Determine, when responsibility for a permit space entry operation is transferred and at intervals dictated by the hazards and operations performed within the space, that entry operations remain consistent with terms of the entry permit and that acceptable entry conditions are maintained.
- Document on the entry permit any incidents or circumstances requiring review of the confined space entry program. Such incidents may include:
  1. Unauthorized entry.
  2. The detection of a condition/hazard not authorized by the permit.
  3. The occurrence of an injury or near-miss during entry.
  4. A change in use or configuration of the space.
  5. Employee complaints about the program.
- Dictate procedures for coordination of entry when personnel from multiple employers will work simultaneously within a PRCS.

**5.3.2 Permit System.** Before entry can be authorized, the entry supervisor must complete and sign an entry permit (Attachment 3) to document that all pre-entry requirements have been met and that acceptable entry conditions exist. The completed permit will be posted at the primary entrance to the PRCS, and made available to each employee entering the space or to that employee's authorized representative.

All entry permits are valid for a maximum of one (1) work shift, and will be canceled by the entry supervisor when the shift ends, PRCS operations are complete, or whenever a prohibited condition arises in or near the space. All PRCSs will be securely closed or barricaded whenever the entry permit is canceled.

Supplemental information regarding the location of each entrant will be provided as described below:

- The current entry status of all entrants will be logged, with new entries made whenever the entry status of an entrant changes.



- Each entrant will securely affix a tag bearing their name to the outside lifeline fitting which is attached to a secure point.

**5.3.3 Training.** Prior to assignment to PRCS entry work, all affected employees will receive training in the hazards of confined spaces, work practices to control these hazards, and duties to be performed. Training will consist of a detailed review of this procedure as well as the hazards inherent with the particular PRCS that will be entered.

There are two types of training modules that have been developed for PRCS participants. The first is designed for either entrants or attendants and can be conducted by a qualified entry supervisor or a health and safety representative. The second is for entry supervisors and must be conducted by a health and safety representative. Copies of these training modules can be obtained from the company Training Department.

The company Training Department will also maintain training records to include employee name and signature, date of training, and signature of the trainer.

#### **5.4 Non-Permit-Required Confined Spaces**

All confined spaces initially considered PRCSs can be reclassified as non-permit-required confined spaces by the entry supervisor only under the following conditions:

- All contaminants have been isolated or removed.
- All actual or potential atmospheric hazards have been eliminated, with testing verification.
- Ventilation is not required to maintain control of atmospheric hazards.
- All recognized hazards, including engulfment, within the space have been eliminated.
- The space will be re-evaluated (and reclassified to permit-required, if needed) whenever the use or configuration of the space changes in any way that might increase the hazards to the entrants. All entrants will exit the space immediately when hazards are noted.
- The entry supervisor will make the certification that all hazards have been removed on the entry permit.
- The entry permit will be posted at the entrance to the confined space.

#### **5.5 Rescue and Emergency Services**

The company recommends the use of non-company rescue services whenever possible. In certain instances, such as unavailability of a qualified outside provider, company



employees can participate in rescues if they have been provided the required equipment and training.

**5.5.1 Outside Rescue Services.** Prior to designating a non-company rescue service, an evaluation of their capabilities must be conducted. This documented evaluation can be conducted by an entry supervisor or a health and safety representative. Attachment 4 can be used to document this evaluation. The rescue service must be certified by the evaluator as capable of performing rescues prior to being identified as the rescue service provider.

Each selected rescue service will be informed of the hazards they may encounter at the location. They will also be provided access to all PRCs from which a rescue may be necessary.

**5.5.2 Company Rescue Services**

Company personnel assigned to provide emergency entry and rescue services will be trained annually in the proper use of personal protective and rescue equipment. Such training will include a simulated rescue exercise. Company rescue services will be evaluated using Attachment 4 and must be certified by the evaluator as capable of performing rescues prior to being identified as the rescue service provider.

**5.6 Employee Access to Documentation**

Each employee participating in a PRC entry, or that employee's authorized representative, will be provided an opportunity to observe all testing and be provided a copy of the testing results. Each employee, or that employee's authorized representative, may also request the company to re-evaluate the PRC because the employee or representative has reason to believe that the evaluation of the space may not have been adequate.

**5.7 Retention of Inspection and Test Logs**

A copy of all entry permits and other documents related directly to the PRC entry (e.g., hot work permits, etc.) will be maintained in project files. If requested, these documents will also be made available to all employees participating in a PRC entry or their authorized representatives.



#### **5.8 Program Review**

Annually in January, the health and safety representative responsible for each location performing PRCS operations will review all entry permits for incidents or problems occurring during entry. Incidents or problems may include injuries, accidents, unauthorized entries, or any other event which indicates that improvements can be made in the PRCS program. After review with appropriate operations personnel, recommendations for program revision will be forwarded to the Vice President, Health and Safety for review.

#### **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  
HS052 Health and Safety Plans  
HS314 Hot Work in Hazardous Locations  
HS315 Control of Hazardous Energy Sources  
HS601 Respiratory Protection Program

#### **8.0 ATTACHMENTS**

1. Responsibility Matrix
2. Workplace Evaluation
3. Entry Permit, Permit-Required Confined Space
4. Rescue Service Evaluation



**ATTACHMENT 1**  
**CONFINED SPACES**

**Responsibility Matrix**

Action	Procedure Section	Responsible Party			
		Health and Safety Representative	Vice President Health and Safety	Training Department	Entry Supervisor
Issue, Revise, and Maintain This Procedure	3.1		X		
Conduct Workplace Evaluation and Post All PRCSs	5.2	X			X
Complete PRCS Entry Permit	5.3				X
Approve IDLH or Level A Entries	5.3		X		
Cancel Entry Permits	5.3.2				X
Provide PRCS Training	5.3.3	X		X	X
Retain Training Records	5.3.3			X	
Reclassify PRCS as Non-Permit-Required	5.4				X
Evaluate Rescue Service Capabilities	5.5.1	X			X
Conduct Annual Program Review	5.8	X	X		





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**ATTACHMENT 3  
ENTRY PERMIT for  
PERMIT-REQUIRED CONFINED SPACE (PRCS)**

Project/Location \_\_\_\_\_ Project No. \_\_\_\_\_  
 Location of PRCS \_\_\_\_\_ Identity of PRCS \_\_\_\_\_  
 Describe Hazards of PRCS (Chemical and Physical) \_\_\_\_\_  
 Purpose This Permit Authorized \_\_\_\_\_

CHECKLIST	YES	DOES NOT APPLY	PERSONAL PROTECTIVE EQUIPMENT (Circle)		
			EYE/FACE	EXTREMITIES	BODY
All lines leading to and from the space have been blinded or disconnected.			Chemical Goggles	Face Shield	Safety Glasses
Electrical service disconnected or locked out.			Hard Hat	Hoods	Boot Covers
All grounding and bonding cables in place.			_____ (Material _____)		
All lighting, fittings, power equipment, and extension cords are rated for anticipated atmosphere.			_____ (Material _____)		
Ground Fault Circuit Interrupter (GFCI) checked and functioning.			BODY (Level _____, Material _____)		
All ignition sources have been isolated.			RESPIRATORY		
All respiratory equipment and alarms checked and functional.			SCBA	Supplied Air	Egress System
All safety harnesses and lifelines checked.			Purifying (Cartridge _____)		
All required PPE checked and in use.			Powered Air Purifying (Cartridge _____)		
Have all entrants, attendants, and entry supervisors received appropriate training?			OTHER		
Attendant(s) trained in non-entry rescue procedures.			Hearing Protection Harness & Lifeline		
Rescue service has been identified and will be available for entry rescue.			Chest or Parachute		
Has rescue service passed evaluation?			RESCUE EQUIPMENT		
Appropriate rescue equipment available and checked.			Mechanical Extraction Device		
Mechanical ventilation system in use and effective.			First Aid Kit		
All tests have been completed and indicate that entrance requirements have been met.			Other (Specify) _____		
Appropriate warning signs have been posted and unauthorized personnel have been excluded from the PRCS.			SCBA		
IF ANSWER TO ANY OF THE ABOVE QUESTIONS IS "NO" ENTRY IS NOT PERMITTED			<b>COMMUNICATION METHOD</b>		
			Lifeline AT U <sub>g</sub> Signals		
			Air Powered Horn Signals		
			Other _____		

OTHER PERMITS ISSUED FOR WORK IN PRCS: \_\_\_\_\_

OTHER HAZARD CONTROL PROCEDURES OR INSTRUCTIONS: \_\_\_\_\_

RESCUE PROCEDURES: \_\_\_\_\_



TEST DATA
Oxygen, Flammability, and Toxic Contaminant(s)

Table with columns: Time, Percent Oxygen, Percent LEL, (Other), (Other), (Other), (Other), (Other), Test Initials, Comments

TESTER'S SIGNATURE:

AUTHORIZED ENTRANTS

AUTHORIZED ATTENDANT(S)

RESCUE PERSONNEL

Diagram the confined space indicate location of manways and ventilators. Indicate location(s) where tests conducted.

Legend table with columns: Symbol, Description (Manway, Ventilator, Test Location)

ACCEPTABLE ENTRY CONDITIONS

- 1. Entry Permit completely filled out
2. Oxygen between 19.5 and 23.5%
3. Combustible gases below 10% LEL
4. Permissible Levels of toxic gases (list):
5. Other

PRCS SAFE FOR ENTRY

Date/Time
Name of Entry Supervisor
Signature
Current Entry Supervisor (if different)
Entry Permit Expires (no longer than 1 shift): Date/Time

ENTRY PERMIT CANCELED

Date/Time
Signature
Reason (T) Work Complete Authorized Conditions Not Met Incident

PROBLEMS DURING ENTRY AND RESOLUTION. Please Describe:

RECLASSIFICATION TO NON-PERMIT-REQUIRED CONFINED SPACE

Describe hazard removal methods, without use of ventilation.

TESTING VERIFICATION SHOWN AT TIME ON TEST DATA CHART ABOVE.

DATE/TIME ENTRY SUPERVISOR SIGNATURE

REVIEWED BY:

Health and Safety Representative Signature

Date





## PROCEDURE

Subject: **LADDER SAFETY**

### 1.0 PURPOSE AND SUMMARY

The purpose of this procedure is to establish the requirements for the inspection, setup, and proper use of portable step, straight, and extension ladders. It is intended to address the elements of OSHA Standards 29 CFR 1910.25 *Portable Wood Ladders*, 29 CFR 1910.26 *Portable Metal Ladders*, and 29 CFR 1926.1053 *Ladders*. Some of our clients may establish ladder safety requirements that exceed those discussed within this procedure (i.e., USACE EM 385-1-1). In these situations, the more protective safety requirements and practices will be followed.

### 2.0 TABLE OF CONTENTS

- 1.0 Purpose and Summary
- 2.0 Table of Contents
- 3.0 Responsibility Matrix
  - 3.1 Procedure Responsibility
  - 3.2 Action/Approval Responsibilities
- 4.0 Definitions
- 5.0 Text
  - 5.1 Inspection
    - 5.1.1 Stepladders
    - 5.1.2 Straight and Extension Ladders
  - 5.2 Storage
  - 5.3 Setup
    - 5.3.1 Stepladders
    - 5.3.2 Straight and Extension Ladders
  - 5.4 Use
    - 5.4.1 Stepladders
    - 5.4.2 Straight and Extension Ladders
  - 5.5 Training
- 6.0 Exception Provisions
- 7.0 Cross References
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### 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).

## 5.0 TEXT

This procedure establishes the minimum safety standards required for the inspection, setup, and use of portable step, straight, and extension ladders. It is not intended to address the requirements for fixed ladders as specified in 29 CFR 1910.25 *Fixed Ladders*, or for scaffolds as specified in Subpart L of 1926.

### 5.1 Inspection

The ladder user is required to perform an inspection of the ladder prior to use and after any event that could result in ladder damage. Ladders which have been determined to be defective will be tagged "out of service" and will either be repaired to a condition meeting their original design or destroyed. A supervisor will be immediately informed of the condition of any defective ladder. The following guidelines will be followed during ladder inspections.

#### 5.1.1 Stepladders

- The joint between the steps and side rails must be tight and movable parts must operate freely without binding or undue play.
- Verify that all rivets, nuts, and bolts are tight and that the spreader mechanism and pail shelf function properly.
- Wood stepladders will not be coated with any opaque covering, except for identification or warning labels which may be placed on the outside face of a side rail.
- Stepladders with broken or missing steps, side rails, or other faulty components are not to be used.
- Stepladders are to be clean, free from grease, oil, mud, snow, wet paint, and other slippery materials.



### 5.1.2 Straight and Extension Ladders

- Make sure all rivets, joints, rungs, nuts, and bolts are tight. Ladder extension locks and slip-resistant feet will be in good condition and functioning properly.
- Ropes, cables, and pulleys will be checked to ensure that they operate properly and will be replaced if they are worn or defective.
- Wood ladders will not be coated with any opaque covering, except for identification or warning labels which may be placed on only one face of a side rail.
- Inspect for damaged or bent rungs, side rails, and extension locks.
- Ladders are to be clean, free from grease, oil, mud, snow, wet paint, and other slippery materials.

### 5.2 Storage

Ladders will be stored in such a manner as to provide for ease of access or inspection, and to prevent danger of an accident when withdrawing a ladder for use. Ladders are to be stored on racks designed to protect the ladder from damage. These racks must have sufficient support points to prevent any possibility of excessive sagging. Wood ladders will be stored in a location where there is good ventilation, but where they will not be exposed to the elements. Ladders carried on vehicles will be adequately supported to avoid sagging and securely fastened in position to minimize chafing and the effects of road vibration.

### 5.3 Setup

#### 5.3.1 Stepladders

- Make sure ladder is fully open, spreaders are secure, and pail shelf is in position.
- Do not place ladder in front of door opening.
- Place on firm, level, non-slippery surface that provides a secure footing. Do not place on boxes, unstable bases, or on scaffolds to gain additional height.
- Portable metal ladders are not to be used in places where they may come in contact with energized parts.

#### 5.3.2 Straight and Extension Ladders



- The correct angle for using straight and extension ladders is for the foot of the ladder to be placed from the wall a distance equal to one-fourth (1/4) the effective length of the ladder. (Effective length = length of ladder from base to point of support.)
- A ladder is not to be used to gain access to a roof or other elevated working surface unless the top of the ladder extends at least three (3) feet above the point of support at eaves, gutter, edge, or roof line.
- Ladders must not be placed on boxes, barrels, or other unstable bases to obtain additional height.
- Secure ladder base when raising and never set up a ladder when it is extended. Top section should only be extended from the ground level. Where possible, use second employee to hold the ladder while it is being extended. Ladders will not be repositioned or extended while occupied.
- Place on a firm level surface with a secure footing. Do not use on slippery surfaces. Do not place on boxes, unstable bases, or on scaffolds to gain additional height. Do not place ladder in front of door opening.
- The ladder must be positioned with both top rails supported unless equipped with a single support attachment.
- On two-section extension ladders, the minimum overlap for the two sections is to be at least three (3) feet.
- Portable metal ladders are not to be used in places where they may come in contact with energized parts.

#### 5.4 Use

Only employees who have been trained in accordance with Section 4.5 of this procedure will be permitted to use portable step, straight, or extension ladders. Only Type 1 "Industrial" and Type 1A "Heavy Duty Industrial" wooden, composite, or metal ladders will be authorized for use. The following operational rules will be observed by company employees.

##### 5.4.1 Stepladders

- Follow all manufacturer hazard warnings and safety use instructions affixed to ladder.
- Do not use stepladders in high winds.
- The top two steps of stepladders are not to be used as steps.



- Personnel using stepladders must:
  - Face the ladder while climbing up or down and keep body centered between side rails.
  - Work only within arm's length of the ladder.
  - Use both hands when ascending or descending while maintaining a firm grip.
  - Allow no other person on the ladder.
  - Use rope to raise or lower materials and tools.
- A portable stepladder is designed as a one-person working ladder. The ladder base sections are to be placed with a secure footing.

#### 5.4.2 Straight and Extension Ladders

- Follow all manufacturer hazard warnings and safety use instructions affixed to ladder.
- Ladders must be attended by either another employee, or tied off when in use.
- Do not use ladders in high winds.
- Employees using ladders must:
  - Face the ladder while climbing up or down and keep body centered between side rails.
  - Work only within arm's length of the ladder.
  - Use both hands when ascending or descending while maintaining a firm grip.
  - Allow no other person on the ladder.
  - Use rope to raise or lower materials and tools.
- Portable ladders are designed as a one-person working ladder. The ladder base section is to be placed with a secure footing. Safety shoes or feet of good substantial design are to be installed on all ladders.



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### 5.5 Training

Employees will be trained to recognize hazards related to ladder use and the procedures to follow to minimize these hazards. Training on the safe use of ladders will be conducted prior to an employee being allowed to use a ladder. This training will be conducted by a local health and safety representative or supervisor familiar with safe ladder use and will consist of a review of this procedure, applicable OSHA standards, and a demonstration of correct ladder usage. The evaluation of correct usage will be tailored to the employee's anticipated work situation. The employee will have to demonstrate that he/she knows and understands how to safely use a ladder, is familiar with the content of this procedure, and can demonstrate overall ladder use skills. Employees will acknowledge receiving this training by signing the ladder training record provided as Attachment 2.

### 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 Employee and Subcontractor Training Requirements  
29 CFR 1910.25 *Portable Wood Ladders*  
29 CFR 1910.26 *Portable Metal Ladders*  
29 CFR 1926.1053 *Ladders*  
ANSI A14.1, A14.2, A14.3, and A14.5

### 8.0 ATTACHMENTS

1. Responsibility Matrix
2. Employee Training Record, Ladder Training



**ATTACHMENT 1**  
**LADDER SAFETY**  
**RESPONSIBILITY MATRIX**

Action	Procedure Section	Responsible Party		
		Ladder User	Local Health and Safety Representative or Supervisor	Vice President Health and Safety
Issuance, Revision, and Maintenance of Procedure	3.1			X
Ladder Inspection	5.1	X		
Inform Supervisor of Defective Ladder	5.1	X		
Properly Store Ladder After Use	5.2	X		
Provide Ladder Training	5.5		X	
Receive Ladder Training	5.5	X		
Acknowledge Receipt of Training	5.5	X		
Forward Copy of Attachment 2 to Knoxville Health and Safety Training Office	5.5		X	



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**ATTACHMENT 2**

**EMPLOYEE TRAINING RECORD:  
LADDER TRAINING\***

NAME \_\_\_\_\_ EMPLOYEE NUMBER \_\_\_\_\_

LOCATION \_\_\_\_\_ SUPERVISOR \_\_\_\_\_

1. I have reviewed, understand, and agree to abide by the ladder procedures described in Procedure HS302.
2. I acknowledge that it is my responsibility to inspect ladders prior to their use and after any event that could result in ladder damage.

SIGNATURE \_\_\_\_\_ DATE \_\_\_\_\_

1. I have observed a demonstration of the ladder usage skills for the above employee and feel that he or she understands how to correctly use a ladder; is familiar with safety rules and regulatory requirements; and has demonstrated satisfactory ladder skills.

INSTRUCTOR SIGNATURE \_\_\_\_\_ DATE \_\_\_\_\_

**\* Place original completed form in the project health and safety file and forward a copy to the Knoxville Health and Safety Training Office.**



## PROCEDURE

**Subject: COMPRESSED GAS CYLINDERS**

### 1.0 PURPOSE AND SUMMARY

This procedure prescribes the steps to be taken while handling, using, and storing known compressed gases contained within cylinders. Cylinders containing unknown compressed gases will be handled in accordance with Shaw Environmental & Infrastructure, Inc. (Shaw E & I) Procedure HS 306: Handling of Unknown Compressed Gas Cylinders.

### 2.0 TABLE OF CONTENTS

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  - 5.1 Cylinder Handling
  - 5.2 Cylinder Use
  - 5.3 Cylinder Storage
- 6.0 Exception Provisions
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### 3.0 RESPONSIBILITY MATRIX

- 3.1 **Procedure Responsibility**  
The National Director of 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 DISCUSSION

There are numerous government and industry documents which have established regulations and guidelines for the handling, storage, and use of compressed gases contained within cylinders. These documents include those developed by the American National Standards Institute, Inc., Compressed Gas Association, Inc., U.S. Department of Labor, and U.S. Department of



Transportation. This procedure has been developed to merge the requirements of these organizations into one concise procedure applicable to all of Shaw E & I's compressed gas cylinder activities. Other documents developed by Shaw E & I's clients may have precedence as long as they met or exceed the requirements contained within this procedure. One example of such a document is the U.S. Army Corps of Engineers Safety and Health Requirements Manual 385-1-1 which contains specific requirements not necessarily contained within this procedure.

## 5.0 TEXT

The following guidelines for the handling, use, and storage of compressed gas cylinders have been based upon accident prevention experience and established industrial and governmental standards. It should not be assumed that every acceptable safety precaution is contained herein, or that unusual circumstances may not require further or additional procedures. In the event that revisions to this procedure are thought to be required the National Director of Health and Safety will be informed of the recommended changes and may issue a revision.

### 5.1 Cylinder Handling

- Prior to the acceptance of a compressed gas cylinder it will be verified that the content has been identified by either labels or stencils. Never accept a cylinder if the contents are not clearly identified. Color coding must not be relied on to identify the contents of a cylinder since universal color coding standards have not been established. Each cylinder must meet the U.S. Department of Transportation requirements published in 49 CFR Part 178, Subpart C.
- Unless cylinders are firmly secured on a special carrier intended for this purpose, pressure regulators will be removed with valve protection caps in place prior to movement. The preferred equipment for the transport of cylinders is either a hand or fork truck equipped with an appropriate chain or belt for securing the cylinder(s). In the event that a hand or fork truck is not available the cylinder(s) will be moved by tilting and rolling them on their bottom edges.
- Ropes, chains, or slings will not be used to lift cylinders unless provisions have been made at the time of manufacture for appropriate lifting attachments, such as lugs. Where lifting attachments have not been provided, suitable cradles or platforms to hold the cylinders will be used for lifting.
- Personnel should never carry, slide, roll, or drag compressed gas cylinders. Cylinders will not be manually lifted higher than six inches or longer than the time required to properly place them into position. Shaw E & I's sixty pounds per person lifting limit will be adhered to during this activity.



## 5.2 Cylinder Use

- Cylinders will be secured in the immediate area in which they will be used prior to the removal of protective cylinder caps. These caps will be kept in place during all handling and storage activities regardless if the cylinder is full or empty.
- Suitable pressure relief and regulating devices will be used to protect systems that have a pressure ratio greater or less than the compressed gas supply source. If these devices appear to be damaged or defective in any way, their use will be discontinued until their condition is evaluated. Modification, alteration, and repair of all regulators and pressure relief devices will be done only by qualified personnel.
- Connections that do not fit will not be forced. Threads on regulator connections or other ancillary equipment will match those on cylinder valve outlets. Connections to piping, regulators, and other apparatus will be kept tight to prevent leakage. Where hose is used, it will be kept in good condition.
- Where compressed gas cylinders are connected to a manifold, the manifold and its related equipment will be of proper design for the product they are to contain. Regulators, gauges, hoses and other appliances provided for use with a particular gas, or group of gases, will not be used on cylinders containing gases having different chemical properties unless information obtained from the supplier indicates that this can be done safely.
- All cylinder valves will be opened slowly while keeping the valve outlets pointed away from personnel and sources of ignition. On valves without hand wheels, the wrenches recommended by the gas supplier will be used. On valves with hand wheels, wrenches will not be used. Valve wheels will not be hammered in attempts to open and close the valve.
- Compressed gas will not be used to dust off clothing. This could result in serious injury to the eyes or body, or create a fire hazard.
- When withdrawing a nonliquified gas from a cylinder, the pressure will not be reduced below 20 pounds per square inch gauge (psig) so as to preclude the backflow of atmospheric air or other contaminants into the cylinder.
- When using cylinders in conjunction with a cutting or burning activity they will be placed so that sparks, hot slag, or flames will not reach them. Electrodes will not be struck against a cylinder to strike an ark.



- Before a pressure regulator is removed from a cylinder, the cylinder valve will be closed and the regulator drained of gas pressure.
- Cylinders containing oxygen or combustible gases will not be taken into confined spaces.
- Cylinders used to supply fixed process equipment will never be connected in a rigid manner. Flexible tubing bent in a loop will be used to allow some movement of the cylinder or process equipment.

### 5.3 Cylinder Storage

- Cylinders will be stored in an upright position and secured with chains or straps to prevent them from falling over. The chains or straps should be of sufficient strength and placed high enough on the cylinder to prevent them from tipping over.
- Incompatible gases will never be stored together. Where gases of different types are stored at the same location, the cylinders will be grouped by types of gases, and the groups arranged to take into account the compatibility of the gases. Oxygen cylinders in storage will be separated from fuel-gas cylinders or combustible materials by a minimum distance of twenty feet or by a noncombustible barrier at least five feet high having a fire-resistance rating of at least one-half hour.
- Full and empty cylinders will be stored separately so that older containers can be removed first with a minimum handling of other cylinders.
- Cylinders will be stored away from heat sources (never above 125 degrees F), including steam or hot water pipes, and away from areas where they might be subject to mechanical damage or contact with electrical circuits.
- Cylinders will not be stored near salt or other corrosive chemicals or fumes. Corrosion may compromise the integrity of the cylinders and will likely cause the valve caps to stick.
- Acetylene cylinders will always be stored and used in the upright position to minimize the possibility of solvent being discharged.
- Cylinders may be stored outdoors but should be protected from the ground beneath to prevent bottom corrosion. They may also be stored in the sun except in localities where extreme temperatures prevail. If a supplier recommends storage in the shade for a particular gas, such recommendation will be followed.



Storage of cylinders in indoor locations will occur only in areas where cylinders will not be subject to damage by passing or falling objects, where cylinders could not be knocked over, or subject to tampering by unauthorized personnel. Indoor areas will be well ventilated, well-protected, dry, and at least 20 feet from combustible materials such as oil or gasoline. Cylinders will not be kept in unventilated enclosures such as lockers or cupboards.

## 6.0 EXCEPTION PROVISIONS

Variances may be requested as described in procedure HS013; Health and Safety Procedure Variances.

## 7.0 CROSS REFERENCES

Shaw E & I Procedure HS 306: Handling of Unknown Compressed Gas Cylinders  
Compressed Gas Association, Inc., Pamphlets and Technical Bulletins  
American National Standards Institute, Inc., Guidance Documents  
OSHA 29 and 49 Code of Federal Regulations

## 8.0 ATTACHMENTS

1. Responsibility Matrix



**ATTACHMENT I  
COMPRESSED GASSES**

**Responsibility Matrix**

Action	Procedure Section	Affected Associate	HS Representative	National Director of HS
Issuance, revision and maintenance of this procedure	3.1			X
Review and understand procedure	5.0	X	X	
Ensure compliance with Shaw E & I, cylinder supplier, and client requirements	5.0	X	X	



## PROCEDURE

Subject: **EXCAVATION AND TRENCHING**

### 1.0 PURPOSE AND SUMMARY

The purpose of this procedure is to describe the company requirements for excavation and trenching safety. These requirements are based on the federal Occupational Safety and Health Administration (OSHA) excavation standard found in 29 Code of Federal Regulations (CFR) 1926, Subpart P.

Some company activities are likely to occur in states or localities that either currently 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.

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5.2.13 Fall Protection

- 6.0 Exception Provisions
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**3.0 RESPONSIBILITY MATRIX**

**3.1 Procedure Responsibility**

The Vice 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**

**Accepted Engineering Practices**

Those requirements or practices which are compatible with standards required by a registered professional engineer.

**Angle of Repose**

The greatest angle above the horizontal plane at which a material will lie without sliding.

**Benching**

A method of protecting employees from cave-ins by excavating the sides of an excavation to form one or a series of horizontal levels of steps, usually with vertical or near-vertical surfaces between levels.

**Competent Person**

An employee who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous or dangerous to employees and who has the authority to take prompt corrective measures to eliminate them.

**Company**

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

**Excavation**

Any man-made cut, cavity, trench or depression in an earth surface, including its sides, walls, or faces, formed by earth removal.



### **Registered Professional Engineer**

An individual currently registered as a professional engineer (preferably civil) in the state where work is to be performed.

### **Sheeting**

Members of a shoring system that retain the earth in position and in turn are supported by other members of the shoring system.

### **Shield**

A structure that is able to withstand the forces imposed on it by a cave-in and thereby protect employees within the structure. Shields can be permanent structures or can be designed to be portable and moved along as work progresses. Shields may be pre-manufactured or job-built in accordance with 1926.652(c)(3) or (c)(4). Shields used in trenches are usually referred to as "trench boxes" or "trench shields".

### **Shoring**

Structure such as a metal hydraulic, mechanical, or timber shoring system that supports the sides of an excavation and which is designed to prevent cave-ins.

### **Sloping**

A method of protecting employees from cave-ins by excavating to form sides of an excavation that are inclined away from the excavation so as to prevent cave-ins. The angle of incline required to prevent a cave-in varies with differences in such factors as the soil type, environmental conditions of exposure, and application of surcharge loads.

### **Support System**

A structure such as underpinning, bracing, or shoring, which provides support to an adjacent structure, underground installation, or the sides of an excavation.

### **Tabulated Data**

Tables and charts approved by a registered professional engineer and used to design and construct a protective system.

### **Trench**

A narrow (in relation to its length) excavation made below the surface of the ground. In general, the depth is greater than the width at the bottom, but the width of a trench at the bottom is not greater than 15 feet.

### **Type A Soil**

Cohesive soils with an unconfined compressive strength of 1.5 ton per square foot (tsf) (144kPa) or greater. Examples of cohesive soils are: clay, silty clay, sandy clay, clay loam and, in some cases, silty clay loam and sandy clay loam. Cemented soils such as caliche and hardpan are also considered Type A. However, soil is NOT Type A if:

- The soil is fissured;
- The soil is subject to vibration from heavy traffic, pile driving, or similar effects;



- The soil has been previously disturbed;
- The soil is part of a sloped, layered system where the layers dip into the excavation on a slope of four horizontal to one vertical (4H:1V) or greater; or
- The material is subjected to other factors that would require it to be classified as a less stable material.

#### **Type B Soil**

This classification refers to:

- Cohesive soil with an unconfined compressive strength greater than 0.5 tsf (48 kPa) but less than 1.5 tsf (144 kPa)
- Granular cohesionless soils including: angular gravel (similar to crushed rock), silt, silt loam, sandy loam, and, in some cases, silty clay loam and sandy clay loam.
- Previously disturbed soils except those which would otherwise be classified Type C soil;
- Soil that meets the unconfined compressive strength or cementation requirements for Type A, but is fissured or subjected to vibration;
- Dry rock that is not stable; or
- Material that is part of a sloped, layered system where the layers dip into the excavation on a slope less steep than four horizontal to one vertical (4H:1V), but only if the material would otherwise be classified as Type B.

#### **Type C Soil**

This classification refers to:

- Cohesive soil with an unconfined compressive strength of 0.5 tsf (48 kPa) or less;
- Granular soils including gravel, sand, and loamy sand;
- Submerged soil or soil from which water is freely seeping;
- Submerged rock that is not stable; or
- Material in a sloped, layered system where the layers dip into the excavation on a slope of four horizontal to one vertical (4H:1V) or steeper.

## **5.0 TEXT**

### **5.1 Pre-Excavation Requirements**

- 5.1.1 Underground Utilities.** Prior to opening an excavation, the estimated location of underground utilities such as sewer, telephone, fuel, electric, water, or any other underground installation that may be reasonably expected to be encountered during the excavation work shall be determined.



Utility companies or a utility location service shall be contacted within the established pre-notification time, advised of the proposed work, and asked to delineate the location of all underground utilities. Employees should be careful to protect and preserve the utility markings until they are no longer required for safe excavation. At least 3 feet of clearance between any underground utility and the cutting edge or point of powered excavation equipment will be maintained until the precise location of the utility is determined. Initial excavation within this 3 foot area will be conducted manually.

**5.1.2 Surface Encumbrances.** All surface encumbrances (trees, poles, boulders, etc.) that may create a hazard to employees shall be removed or supported.

**5.1.3 Vehicular Traffic.** Employees exposed to vehicular traffic shall be provided with, and shall wear, warning vests or other suitable garments marked with or made of reflectorized or high-visibility material. Traffic control devices (i.e., barricades, signs, cones, flagpersons; etc.) shall be specified and used in accordance with regulations applicable to the roadway or area in which excavation activities are occurring.

**5.1.4 Training.** Those who supervise the entry of personnel into an excavation must have completed a training course that included instruction in:

- Types of hazards associated with excavation operations;
- Safe work practices and techniques;
- A review of applicable Federal, state and local regulations; and
- A review of this procedure.

Employees who enter excavations are required to complete a site-specific training session to enable them to recognize unsafe conditions in and around the excavation. This training can be conducted during a tailgate safety meeting that emphasizes the specific excavation hazards that may be encountered.

Training documentation shall be maintained in the project file with a copy forwarded to the Knoxville Training Department.

As part of standard employee supervision process, training shall be complemented with on-the-job instruction and reinforcement of accepted practices to the extent necessary to assure compliance with this procedure and all other applicable regulations.



## 5.2 Excavation Work Practices

**5.2.1 General.** Each employee working within an excavation shall be protected from cave-ins by an adequate protective system designed in accordance with 29 CFR 1926 Subpart P, except when the excavation is made entirely in stable rock or when the excavation is less than 5 feet deep and examination of the ground by a competent person provides no indication of a potential cave-in. A competent person shall ensure that protective systems, when required, are installed and maintained per the design specifications.

No employees shall be permitted to enter an excavation unless it is absolutely essential to do so and all requirements of this procedure are met.

**5.2.2 Supervision.** Work in an excavation shall at all times be supervised by a competent person. This individual will remain outside of the excavation at all times, and will be responsible for identifying any unusual developments above ground which may warn of impending earth movement.

**5.2.3 Soil Classification.** Based on the results of tests described in Attachment 3, the competent person will classify each soil/rock deposit as stable rock, Type A, Type B, or Type C. When layers of soil/rock exist, the weakest layer will be classified; however, each layer may be classified individually when a more stable layer lies under a less stable layer. If the properties or conditions of a soil/rock deposit change in any way, re-evaluation will be required.

**5.2.4 Access and Egress.** Structural ramps that are used solely by employees as a means of access or egress from excavations shall be designed by a competent person. Structural ramps used for access or egress of equipment shall be designed by a competent person qualified in structural design, and shall be constructed in accordance with the design.

A stairway, ladder, ramp or other safe means of egress shall be located in trench excavations that are 4 or more feet in depth so as to require no more than 25 feet of lateral travel for employees.

**5.2.5 Protective Systems.** Protective systems shall be designed in accordance with 29 CFR 1926.652(b) or (c) and shall have the capacity to resist without failure all loads that are intended or could reasonably be expected to be applied or transmitted to the system.

**5.2.6 Exposure to Falling Loads.** No employees shall be permitted underneath loads handled by lifting or digging equipment. Employees shall be required to stand away from any vehicle being loaded or unloaded to avoid being struck by spillage or falling materials. Operators may remain in the cabs of vehicles being



loaded or unloaded provided the vehicles are equipped with a cab shield and/or canopy adequate to protect the operator from shifting or falling materials.

**5.2.7 Warning System for Mobil Equipment.** When mobile equipment is operated adjacent to an excavation, and the operator does not have a clear and direct view of the edge of the excavation, a warning system shall be utilized such as barricades, hand or mechanical signals, or stop logs.

**5.2.8 Hazardous Atmospheres.** Where an oxygen deficient (less than 19.5% O<sub>2</sub>) or hazardous atmosphere exists, or could reasonably be expected to exist, the excavation shall be tested before employees enter. Testing shall be conducted as often as necessary to ensure that the atmosphere remains safe. Some excavations may be considered confined spaces which require compliance with Shaw E & I Procedure HS300.

Adequate precautions shall be taken to prevent employee exposure to oxygen deficient or hazardous atmospheres. As appropriate, ventilation and/or respiratory protective devices shall be used.

**5.2.9 Water Accumulation Hazards.** Employees shall not work in excavations in which there is accumulated water, or in excavations in which water is accumulating, unless adequate precautions have been taken to protect employees against the hazards posed by water accumulation. If water is controlled or prevented from accumulating by the use of water removal equipment, the process shall be monitored by a competent person to ensure proper operation.

If the excavation work interrupts the natural drainage of surface water (streams, run-off channels), diversion ditches, dikes, or other suitable means shall be used to prevent surface water from entering the excavation and to provide adequate drainage of the area adjacent to the excavation. Excavations subject to run-off from heavy rains shall be regularly inspected by a competent person.

**5.2.10 Stability of Adjacent Structures.** Structures adjoining an excavation shall be evaluated to assess their stability. Excavation below the level of the base or footing of any foundation or retaining wall that could reasonably be expected to pose a hazard to employees shall only be permitted when:

- A support system (underpinning) is provided to ensure the safety of employees and the stability of the structure;
- The excavation is in stable rock;
- A registered professional engineer has determined that the structure will be unaffected by the excavation; or
- A registered professional engineer has determined that such excavation will not pose a hazard to employees.



Sidewalks, pavements and other surface structures shall not be undermined unless a support system or another method of protection is provided to protect employees from the possible collapse of such structures.

**5.2.11 Protection from Loose Rock or Soil.** Employees shall be protected from loose rock or soil which could fall or roll from the excavation face or edge. Such protection could consist of scaling to remove loose materials, or the installation of protective barriers. All spoil shall be placed at least 2 feet from the edge of the excavation. It is strongly recommended that spoil be placed 4 or more feet from the excavation edge so as not to cover surface indicators of subsidence (such as fissures or cracks).

**5.2.12 Inspections.** The competent person shall make daily inspections of excavations, adjacent areas, and protective systems for evidence of conditions that could result in a cave-in, indications of failure of protective systems, hazardous atmospheres, or other hazardous conditions. The inspection shall be made prior to start of work, and as needed throughout the shift. Inspections shall be made after each rainstorm or other hazard-increasing event and will be documented using Attachment (2).

Where the inspection finds evidence of any hazardous condition, exposed employees shall be immediately removed from the hazardous area until necessary precautions have been taken.

**5.2.13 Fall Protection.** Where employees or equipment are permitted to cross over excavations, walkways or bridges shall be provided. Standard guardrails shall be provided where walkways are 6 feet or more above lower levels.

Adequate barriers or other types of physical protection shall be provided at all remotely located excavations. All wells, pits, shafts, etc., shall be barricaded or covered and shall be backfilled as soon as possible.

## **6.0 EXCEPTION PROVISIONS**

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



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**7.0 CROSS REFERENCES**

HS013 Health and Safety Procedure Variances  
HS050 Training Requirements  
HS051 Tailgate Safety Meetings  
HS300 Confined Spaces  
29 CFR 1926 Subpart P - Excavations

**8.0 ATTACHMENTS**

1. Responsibility Matrix
2. Excavation Inspection
3. Soil Classification Worksheet
4. Selection of Protective Systems for Excavations 20 Feet or Less in Depth
5. Sloping Options
6. Shoring or Shielding Options



## ATTACHMENT 1 EXCAVATION AND TRENCHING

### Responsibility Matrix

Action	Procedure Section	Responsible Party					
		Employee	Supervisor	Registered Professional Engineer	MP Health and Safety	Local H&S Representative	Competent Person
Incorporate state, local, or client-specific excavation requirements into project plans.	1.0					X	
Issue, revise, and maintain procedure	3.1				X		
Coordinate identification of underground utilities.	5.1.1		X				
Line need for traffic control devices.	5.1.3		X				
Participate in excavation training.	5.1.4	X	X			X	X
Ensure that protective systems are installed and maintained.	5.2.1						X
Classify Soil Type	5.2.3						X
Design Structural Ramps	5.2.4						X
Selection and design of protective system(s)	5.2.5			X			
Determine stability of adjacent structures.	5.2.10			X			
Inspecting excavation for hazardous conditions	5.2.12	X	X				X



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**ATTACHMENT 2  
 EXCAVATION INSPECTION**

**THIS INSPECTION IS TO BE COMPLETED BY THE COMPETENT PERSON  
 EACH DAY THAT EMPLOYEES WILL BE ENTERING AN EXCAVATION.**

Project Name: \_\_\_\_\_ Project No.: \_\_\_\_\_

Date: \_\_\_\_\_ Time: \_\_\_\_\_ Competent Person: \_\_\_\_\_

Soil Classification (see Soil Classification Worksheet): \_\_\_\_\_

Excavation Depth: \_\_\_\_\_ Excavation Width: \_\_\_\_\_

Type of Protective System Used: \_\_\_\_\_

<input checked="" type="checkbox"/>		
YES	NO	N/A

**1 GENERAL:**

Surface encumbrances removed or supported			
Employees protected from loose rock or soil that could pose a hazard by falling or rolling into the excavation.			
Hard hats, steel-toed boots, and safety glasses worn by all employees.			
Spoils, materials, and equipment set back at least 2 feet from the edge of the excavation.			
Walkways over excavations 6 feet or more above lower levels are equipped with standard guardrails.			
Warning vest or other highly visible clothing provided and worn by all employees exposed to public.			
Employees required to stand away from vehicles being loaded or unloaded.			
Warning system established and utilized when mobile equipment is operating near excavation edge.			
Employees prohibited from going under suspended loads.			

**2 UTILITIES:**

Utility companies contacted and/or utility locations delineated.			
Underground installations protected, supported, or removed while excavation is open.			

**3. MEANS OF ACCESS AND EGRESS:**

Lateral travel to means of egress no greater than 25 feet in trench excavations 4 feet or more in depth.			
Ladders used in excavations secured and extended 3 feet above the edge of the trench.			
Structural ramps used by employees designed by a competent person.			
Structural ramps used for equipment designed by a registered professional engineer.			

**4. WET CONDITIONS:**

Precautions taken to protect from the accumulation of water.			
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Water removal equipment monitored by a competent person.			
Surface water or runoff diverted or controlled to prevent accumulation in the excavation.			
Inspections made after every rainstorm or other hazard-increasing occurrence.			

**5. HAZARDOUS ATMOSPHERE:**

Atmosphere within the excavation tested where there is a reasonable possibility of an oxygen deficient, combustible, or otherwise hazardous atmosphere.			
Adequate precautions taken to protect employee from exposure to a hazardous atmosphere.			
Testing conducted to ensure that the atmosphere remains safe.			
Emergency equipment, such as breathing apparatus, safety harness and line, and basket stretcher readily available where hazardous atmosphere does exist.			

**6. SUPPORT SYSTEMS:**

Materials and/or equipment for support systems selected based on soil analysis, trench depth, and expected loads.			
Materials and equipment used for protective systems inspected and in good condition.			
Damaged materials and equipment used for protective systems inspected by a Registered Professional Engineer after repairs and before being placed back into service.			
Protective systems installed without exposing employees to the hazards of cave-ins, collapses, or from being struck by materials or equipment.			
Members of support systems securely fastened to prevent failure.			
Support systems provided to insure stability of adjacent structures, buildings, roadways, sidewalks, walls, etc.			
Excavations below the level of the base or footings approved by a registered professional engineer.			
Removal of support systems progresses from the bottom, and members are released slowly as to note any indication of possible failure.			
Excavation of material to a level of greater than 2 feet below the bottom of the support system and only if the system is designed to support the loads calculated for the full depth.			
Shield system placed to prevent lateral movement.			
Employees are prohibited from remaining in shield system during vertical movement.			

**7. REMARKS:**

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**ATTACHMENT 3  
SOILS CLASSIFICATION WORKSHEET**

The following worksheet outlines the visual and manual tests that the competent person must perform at least once, and each time soil conditions change. At least one visual and one manual test must be performed; however, performing several tests is recommended so that the condition of the excavation is thoroughly examined.

Project Name: \_\_\_\_\_ Project Number: \_\_\_\_\_  
Date: \_\_\_\_\_ Time: \_\_\_\_\_

Where was the sample taken from? \_\_\_\_\_

**I. VISUAL TESTS: One or more visual tests are required for each classification and each time conditions change.**

1. Estimate range of particle sizes:	a. primarily fine-grained = cohesive material b. primarily coarse-grained = granular material	
2. Observe excavated soil:	a. clumps = cohesive material b. breaks up easily = granular material	
3. Observe sides and adjacent surface area of opened excavation:	a. crack like openings = fissured material b. soil spalls off vertical sides = possible fissured material	
4. Previous excavation activities:	a. previously disturbed soil	b. not previously disturbed soil
5. Observe opened side of excavation:	a. layered systems c. estimate degree of slope of layers:	b. layers sloped towards excavation
6. Water condition:	a. evidence of surface water c. depth of water table:	b. water seeping from sides
7. Vibration present:	a. area adjacent to excavation	b. area within excavation

**II. MANUAL TESTS- One or more manual tests are required for classification and each time soil conditions change.**

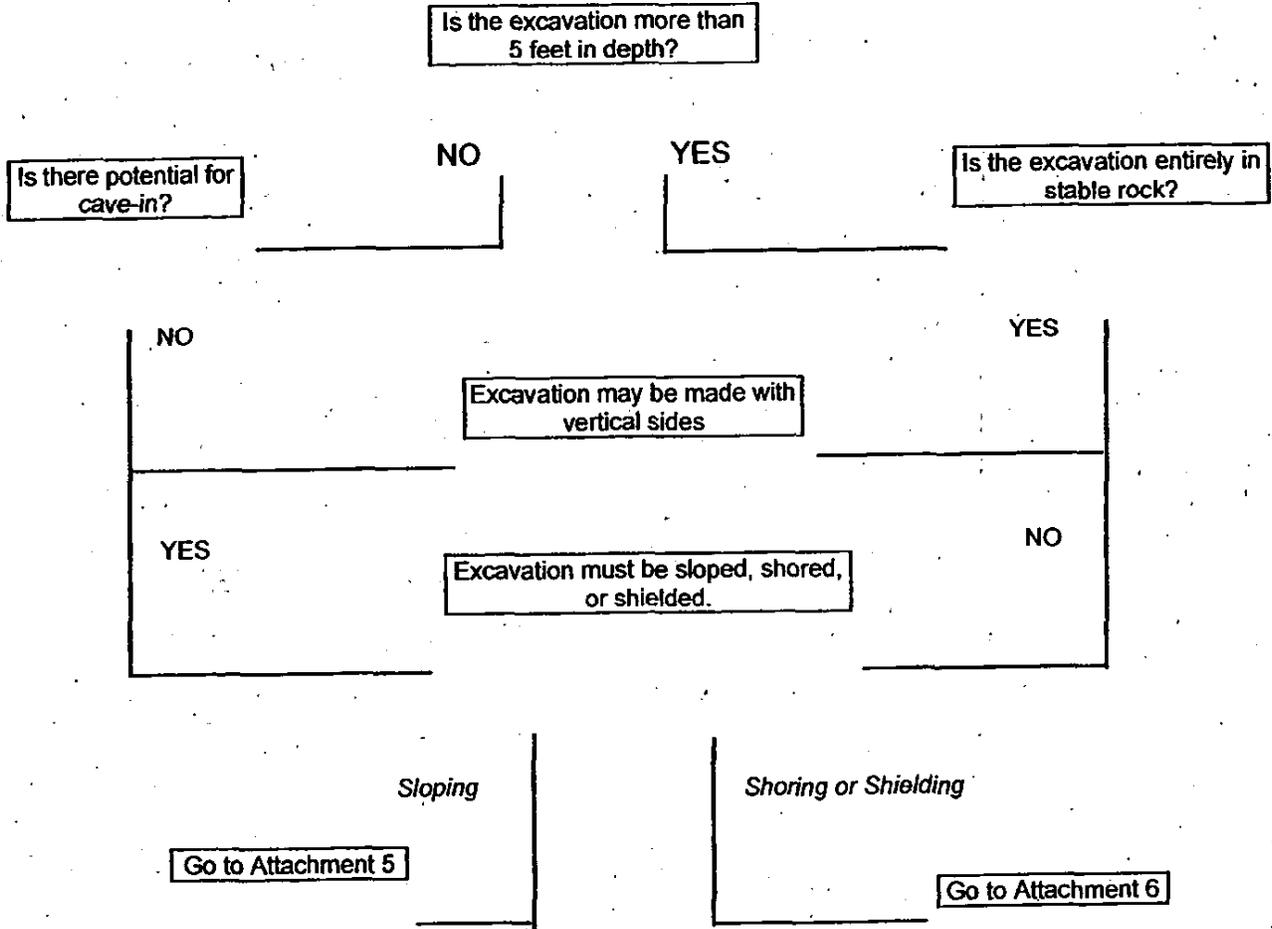
1. Plastically- soil is cohesive if following is true:	a. mold soil samples into a small ball b. roll ball into thread $\approx$ diameter c. pick up 2" length of $\approx$ thread by one end without breaking
2. Dry Soil Strength:	a. crumbles on its own or with moderate pressure = granular b. falls into clumps which break into smaller clumps that are only broken with difficulty = clay with gravel, sand, or silt. c. breaks into clumps which do not break into smaller clumps and can only be broken with difficulty with no visual indication of fissures = unfissured.
3. Thumb penetration test: (These tests are to be run on a large clump of material as soon as it is excavated.)	a. can be easily indented by the thumb but penetrated by thumb only with great effort = Type A b. easily penetrated several inches by thumb and molded by light finger pressure = Type C
4. Unconfined Compressive Strength: (Saturated Soil Needed)	a. Pocket Penetrometer reading (take 10 readings and average) 0 - 0.5 = Type C, 0.5 - 1.5 = Type B, 1.5 - 2.0 = Type A b. Shear Vane reading X2: 0 - 0.5 = Type C, 0.5 - 1.5 = Type B, 1.5 - 2.0 = Type A
5. Drying Test: (A dry soil sample 1" thick X 6" diameter is needed)	a. develops cracks = fissured material b. dries without cracks and breaks by hand with considerable force significant cohesive content = unfissured cohesive material. c. sample breaks easily by hand = fissured cohesive or granular material d. easily pulverize dry clumps by hand or by stepping on them = granular e. don't pulverize easily = fissured cohesive.

SOIL CLASSIFICATION: \_\_\_\_\_  
COMPETENT PERSON: \_\_\_\_\_  
Type A      Type B      Type C      Stable Rock      Other \_\_\_\_\_  
Print Name      Signature      Date

**ATTACHMENT 4**



### SELECTION OF PROTECTIVE SYSTEMS FOR EXCAVATIONS 20 FEET OR LESS IN DEPTH



For excavations greater than 20 feet in depth, design by a registered professional engineer in compliance with 1926.652 (b) and (c) is required.



### ATTACHMENT 5 OPTIONS

#### SLOPING

YES

NO

Sloping selected as the method of protection

Excavation must comply with one of the following three options:

EITHER

Option 1:  
1926.652(b)(2) which requires following Appendices A or B.

OR

Option 2:  
1926.652(b)(3) which requires other tabulated data (see Def.) to be followed.

OR

Option 3:  
1926.652(b)(4) which requires the excavation be designed by a registered professional engineer.

Will soil classification be made in accordance with 1926.652(b)?

Excavation must comply with 1926.652(b)(1) which requires a slope of 1.5H:1V (34°)



**ATTACHMENT 6  
SHORING OR SHIELDING OPTIONS**

Shoring or shielding selected as the method of protection.

Soil Classification is required. The excavation must comply with one of the four options below.

**EITHER**

Option 1:  
1926.652(c)(1) which requires Appendices A and C to be followed (Timber Shoring).

**OR**

Option 2:  
1926.652(c)(2) which requires manufacturer's data to be followed (trench jacks, etc.).

**OR**

Option 3:  
1926.652(c)(3) which requires tabulated data (see Def.) to be followed.

**OR**

Option 4:  
1926.652(c)(4) which requires the excavation be designed by a registered professional engineer.



## PROCEDURE

**Subject: HOT WORK**

### 1.0 PURPOSE AND SUMMARY

The purpose of this procedure is to establish guidelines for company hot work activities. The type of hot work activities covered by this procedure include all spark- or flame-producing operations capable of initiating a fire or explosion. These activities may include welding, braising, cutting, grinding, etc.

Some clients may have requirements that differ from those contained in this procedure. In such circumstances, the more protective requirements will be followed.

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  - 5.3 Preparation for Hot Work
  - 5.4 Hot Work Permit
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### 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).

#### 5.0 TEXT

##### 5.1 Supervisor Responsibilities

Based on fire/explosion potentials, project/location supervisors are to establish approved areas for welding, cutting, and other types of hot work. The supervisor will be aware of the hazards involved and familiar with the provisions of this procedure, and may delegate his/her responsibilities to a qualified employee.

The supervisor will ensure that cutters or welders are properly trained in the safe operation of their equipment, the safe use of the process, the requirements of this procedure, and emergency procedures. Only approved apparatus, such as torches, manifolds, regulators or pressure-reducing valves, and acetylene generators will be used by company employees and contractor personnel.

Only those contractors who have suitably qualified personnel to perform welding, cutting, and other types of hot work will be utilized. These contractors will be advised about specified hot work areas and hazardous locations where special procedures for hot work are necessary.

##### 5.2 Fire Prevention Precautions

Hot work will only be permitted in areas that are or have been made firesafe. This can be achieved by using a specific area designed or approved for such work, such as a maintenance shop or a detached outside location which will be of noncombustible or fire-resistive construction, essentially free of combustible and flammable contents, and suitably segregated from adjacent areas. When work cannot be relocated, the area will be made firesafe by removing combustibles or protecting combustibles from ignition sources.

Hot work will NOT be permitted in the following situations unless specific approval is given by a health and safety representative:

- In the presence of a potentially explosive atmosphere (mixtures of flammable gases, vapors, liquids, or dusts with air), or inside drums, tanks, or other containers, and equipment in which an explosive atmosphere may develop.
- In any area where combustible gases are in excess of ten percent (10%) of the lower explosive limit (LEL).
- On storage or process vessels or lines which contain or have contained flammable or combustible liquids, gases, vapors, or solids.



### 5.3 Preparation for Hot Work

Before hot work is permitted, the area will be inspected by a supervisor to ensure that the following requirements have been met:

- Equipment will be in safe operating condition and in good repair.
- Where practical, all combustible material will be relocated at least 35 feet horizontally from the area of work. Where relocation is impractical, combustibles will be protected with flame-proofed covers or otherwise shielded.
- Openings or cracks in walls, floors, or ducts within 35 feet of the area of hot work will be tightly covered to prevent the passage of sparks to adjacent areas.
- Where cutting or welding is to be done near walls, partitions, ceiling, or roof of combustible construction, fire-resistant shields or guards will be provided to prevent ignition. If welding is to be done on a metal wall, partition, ceiling, or roof, precautions will be taken to prevent ignition of combustibles on the other side, due to conduction or radiation.
- Fully charged and operable fire extinguishers, appropriate for the type of possible fire, will be available at the work area. Where fire hose lines are available, they will be connected and ready for use.
- Fire watchers will be required whenever hot work is performed in hazardous locations or when specified by the supervisor.
- Combustible gas readings will be taken in areas where combustible gases and vapors may exist.
- The work area is free of toxic contaminants at concentrations in excess of established threshold limit values, or all personnel who will work in the area have been provided respiratory protective devices and protective apparel appropriate for the degree of exposure.
- Prior to performing hot work on painted surfaces, a lead-based paint survey will be conducted.
- If hot work requires entry into a confined space, all provisions of Procedure HS300, Confined Spaces, will be met.
- When hot work is to be performed on tanks or other vessels that contain or have contained flammable or combustible liquids, the vessel will be properly isolated, purged, or inerted, as appropriate, to reduce the concentrations of flammable and toxic air contaminants to safe levels.



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- When hot work is to be performed on the bottoms of tanks or other vessels that are not supported above grade, special procedures will be followed due to the possible entrapment of flammable liquids or vapors beneath the tank. For vessels that have at one time contained flammable materials, refer to "Preparing Tank Bottoms for Hot Work," Petroleum Safety Data 2207, American Petroleum Institute. Work will be performed on stationary tank bottoms only when personnel have become familiar with this reference and are prepared to follow the outlined procedures.

#### 5.4 Hot Work Permit

When the supervisor is satisfied that all the requirements in the preceding section have been met, the Hot Work Permit (Attachment 2) will be completed, reviewed with employees who will perform the hot work, and maintained near the work area. The Hot Work Permit is good only for the date issued, and is valid only for the shift for which it is issued.

If at any time during the hot work operation a change in conditions at the work area is suspected, such as release of flammable gases or vapors, work will be stopped immediately and the supervisor will be notified. Such work stoppage invalidates the Hot Work Permit, and a new permit will be completed after inspections and tests have been performed by a supervisor.

#### 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  
HS300 Confined Spaces

#### 8.0 ATTACHMENTS

1. Responsibility Matrix
2. Hot Work Permit



**ATTACHMENT 1**  
**HOT WORK**

**Responsibility Matrix**

Action	Procedure Section	Responsible Party		
		Project/Location Supervisor	Health and Safety Representative	Vice President Health and Safety
Issuance, Revision, and Maintenance of Procedure	3.1			X
Establish Approved Areas for Hot Work	5.1	X		
Ensure Employees Conducting Hot Work are Qualified	5.1	X		
Approve Hot Work in Hazardous Locations	5.2		X	
Inspect Hot Work Areas	5.3	X		
Complete Hot Work Permit	5.4	X		



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### ATTACHMENT 2 HOT WORK PERMIT

Project Name \_\_\_\_\_ Project No. \_\_\_\_\_  
 Good for This Date Only \_\_\_\_/\_\_\_\_/\_\_\_\_ Time: From \_\_\_\_\_ AM/PM To \_\_\_\_\_ AM/PM  
 Hot Work Area \_\_\_\_\_  
 Specific Work to be Done \_\_\_\_\_  
 Personal Protective Equipment Required: \_\_\_\_\_

Emergency Equipment Required: \_\_\_\_\_

CHECKLIST	INITIAL:	
	YES	DOES NOT APPLY
Area personnel have been informed of work to be performed.		
All tanks, lines, valves are disconnected, blinded, or blocked out.		
Electrical service has been locked out and tagged.		
Equipment and all attached piping has been cleaned and purged with (check blank): Water _____ Steam _____ Inert Gas _____ Air _____		
All grounding/bonding wire in place.		
Surrounding equipment and operations are safe for hot work.		
No open vessels, lines, or combustible items within 35 feet of hot work area.		
Fully charged and appropriate fire extinguisher easily accessible.		
Fire watch has been provided.		
No flammable gases greater than 10% LEL in hot work area.		
Compressed gas cylinders kept upright and secured.		
Air monitoring required.		

AIR MONITORING (If Required)						
EXACT LOCATION OF TEST	TIME	% LOWER EXPLOSIVE LIMIT	% OXYGEN	OTHER TEST	OTHER TEST	INITIAL

Special Instructions: \_\_\_\_\_

Completed By: \_\_\_\_\_  
Printed Name
Signature
Date



## PROCEDURE

**Subject: CONTROL OF HAZARDOUS ENERGY AND HAZARDOUS MATERIAL SOURCES (LOCKOUT/TAGOUT)**

### 1.0 PURPOSE AND SUMMARY

This procedure establishes the minimum requirements for the lockout and tagout of energy and hazardous material sources and must be used to:

- Ensure that all machinery, equipment, or confined spaces are isolated from all potential hazard sources (mechanical, electric, chemical hazards, etc.) and are locked out and tagged out prior to employees performing any servicing, maintenance, or entry activities.
- Ensure that field projects where hazardous energy/material sources are present develop a site-specific Lockout/Tagout procedure.
- Ensure that equipment can accommodate locks. Additional means such as a tagout program may be used to ensure safety when locks are not used.
- Establish procedures for release of the Lockout/Tagout that include machine inspections, notification and safe positioning of workers, and removal of the Lock/Tag.
- Ensure the use of standardized locks and tags that identify the worker using them, making sure that locks and tags are of sufficient quality and durability to ensure their effectiveness.
- Provide the necessary employee training.

For a basic overview of the Lockout/Tagout System refer to the "Flow Diagram - Overview: Lockout/Tagout System" (Attachment 2).

### 2.0 TABLE OF CONTENTS

- 1.0 Purpose and Summary
- 2.0 Table of Contents
- 3.0 Responsibility Matrix
- 4.0 Definitions
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  - 5.1 Scope and Application
    - 5.1.1 Exclusions
    - 5.1.2 References
  - 5.2 Responsibility
  - 5.3 Procedures for Lockout/Tagout



- 5.3.1 Lockout/Tagout Overview
- 5.3.2 Removal of Lockout/Tagout
- 5.3.3 Preparation for Confined Space Entry
- 5.4 Safety Audit
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  - 5.4.2 Follow-up Audit
  - 5.4.3 Documentation
- 5.5 Training
- 5.6 Shift or Personnel Changes
- 5.7 Troubleshooting
- 5.8 Group Lockout/Tagout
- 5.9 Outside Personnel (Contractors, etc.)
- 5.10 Special Situations
- 6.0 Exception Provisions
- 7.0 Cross Reference
- 8.0 Attachments

### 3.0 RESPONSIBILITY MATRIX

#### 3.1 Procedures Responsibility

The Corporate Director 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

**Affected Employee** - An employee whose job requires him/her to operate or use a machine or equipment on which servicing or maintenance is being performed under lockout and tagout, or whose job requires the employee to work in an area in which isolation of hazards is necessary to provide a safe workplace.

**Authorized Employee** - A person who locks out or tags out machines or equipment in order to perform servicing or maintenance on that machine or equipment. An affected employee becomes an authorized employee when that employee's duties include performing servicing or maintenance.

**Blanking or Blinding** - The absolute closure of a pipe, line, or duct by the fastening of a solid plate (such as a spectacle blind or skillet blind) that completely covers the bore, and that is capable of withstanding the maximum pressure of the pipe, line, or duct with no leakage beyond the plate.



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**Capable of Being Locked Out** - An energy/hazard isolating device is capable of being locked out if it has a hasp or other means of attachment to which, or through which, a lock can be affixed, or it has a locking mechanism built into it. Other energy isolating devices are capable of being locked out, if lockout can be achieved without the need to dismantle, rebuild, or replace the energy/hazard isolating device or permanently alter its energy control capability.

**Double Valve and Vent** - A valve arrangement in a piping system in which three valves are arranged in conjunction with a vent line. One valve is upstream of the vent, another downstream, and one is on the vent itself. To isolate the downstream system, the vent valve is opened, the other two are closed, and all three valves are locked in this position.

**Energized** - Connected to an energy source or containing residual or stored energy.

**Energy Isolating Device** - A mechanical device that physically prevents the transmission or release of energy, including but not limited to the following: A manually operated electrical circuit breaker, a disconnect switch, a manually operated switch by which the conductors of a circuit can be disconnected from all ungrounded supply conductors and, in addition, no pole can be operated independently; a line valve; a block; and any similar device used to block or isolate energy. Push buttons, selector switches and other control circuit type devices are not energy isolating devices.

**Energy Source** - Any source of electrical, mechanical, hydraulic, pneumatic, chemical, thermal, or other energy.

**Group Lock Box** - A device capable of holding and securing the key or other release mechanism for a group lock, which can accommodate the individual locks from all members of the work crew.

**Hot Tap** - A procedure used in repair, maintenance, and service activities which involves welding on a piece of equipment (pipeline, vessel or tank) under pressure, in order to install connections or appurtenances. It is commonly used to replace or add sections of pipeline without the interruption of service for air, gas, water, steam, and petrochemical distribution systems.

**Lockout** - The placement of an energy/hazard isolating device, in accordance with an established procedure, which ensures that the equipment being controlled cannot be operated until the device is removed.

**Lockout Device** - A device that utilizes a positive means such as a lock, either key or combination type, to hold an energy/hazard isolating device in the safe position and prevent the energization of a machine or equipment. This includes blank flanges and bolted slip blinds.

**Normal Production Operations** - The utilization of a machine or equipment to perform its intended production function.



**Qualified Employee** - An employee whose skills and training meet or exceed 29 CFR 1910.332(b)(3) for work on or near exposed energized parts must, at a minimum, be trained in and familiar with the skills and techniques necessary to distinguish exposed live parts from other parts of electric equipment; to determine the nominal voltage of exposed lines; and the clearance distances to which the qualified persons will be exposed.

**Servicing and/or Maintenance** - Workplace activities such as constructing, installing, setting up, adjusting, inspecting, modifying, and maintaining and/or servicing machines or equipment. These activities include lubrication, cleaning or unjamming machines or equipment, making adjustments or tool changes, where the employee may be exposed to an unexpected energization or start-up of the equipment, or release of hazardous energy/or material.

**Setting-up** - Any work performed to prepare a machine or equipment to perform its normal production operation.

**Tagout** - The placement of a tagout device on an energy/hazard isolation device, in accordance with an established procedure, to indicate that the device and the equipment being controlled may not be operated until the tagout device is removed.

**Tagout Device** - A prominent warning device, such as a tag and a means of attachment, which can be securely fastened to an energy isolation device in accordance with an established procedure, that indicates that the device and the equipment being controlled may not be operated until the tagout device is removed.

## 5.0 TEXT

### 5.1 Scope/Application

This procedure covers any activity which requires isolation of a source of energy or hazardous material, such as, the servicing and maintenance of equipment and confined space entry. It outlines methods to prevent the *unexpected energization or start-up of the equipment, or release of stored energy or material that could cause injury to employees.* For any projects planned for more than 30 days with lockout/tagout planned for more than seven calendar days or when locking/tagging out specialized equipment having its own lockout requirements, a site-specific/equipment specific plan must be developed and incorporated as part of the Site-Specific Health and Safety Plan. Otherwise Attachments 4-7 (discussed later in text) must be utilized to document lockout/tagout.

In situations where our client has specific lockout/tagout requirements, Shaw Environmental & Infrastructure, Inc. (Shaw E & I) personnel can follow client procedures after an Shaw E & I health and safety professional has approved them as being at least as protective as Shaw E & I procedures. In such cases, the client procedures shall be incorporated into the Shaw E & I health and safety plan and all affected employees trained on these procedures.



- 5.1.1 Exclusions.** Normal operations including repetitive, routine minor adjustments that do not require removal of equipment guarding.

When work is conducted on equipment where an employee has direct control over the cord(s) or plug(s) connected to the associated equipment.

- 5.1.2 References.** OSHA General Industry Standard, 29 CFR 1910.147, The Control of Hazardous Energy (Lockout/Tagout), 29 CFR 1910.146, Permit-Required Confined Spaces, and 29 CFR 1910.331-335, Safety-Related Work Practices.

**5.2 Responsibility**

Each new, transferred, authorized or affected employee and other employees whose work operations are or may be in an area where lockout/tagout procedures are utilized must be instructed in the purpose and use of this lockout/tagout procedure.

- **All Personnel**  
All site personnel will be responsible for continuous adherence to the health and safety procedures during the performance of assigned work. In no case may work be performed in a manner that conflicts with the intent of this procedure.
- **Authorized Employee**  
The authorized employee, or his/her designee, is responsible for reviewing the planned activities prior to commencement of work and confirming that the maintenance manager or his designee of the particular facility where the work is to be accomplished is made aware of the nature and extent of the work and when it is to commence.
- **Site Supervisor**  
The site supervisor is responsible for verifying that all proper lockout/tagout procedures have been followed. The site supervisor must ensure that the power disconnects, appropriate attachment of locks and tags, and proper documentation of the procedure are implemented. He/she is also the designated custodian and controller for all locks, tags, and group lock boxes issued to authorized employees.
- **Subcontractors, Visitors and Other On-Site Personnel**  
Subcontractors are responsible for the health and safety of their employees and for complying with the requirements established by the site Health & Safety Plan. All Shaw E & I subcontractors and visitors are responsible to the Shaw E & I site supervisor.



■ **Site Health and Safety Coordinator**

The health and safety coordinator will assist in compliance with the other applicable company policies and procedures, and the Health and Safety Plan.

**5.3 Procedures for Lockout/Tagout**

Lockout and tagout devices must be capable of withstanding the environment to which they are exposed for the maximum period of time that exposure is expected.

Locks are to be used when a machine, equipment, or piping system is capable of being locked out. All locks must be accompanied by a tag to indicate the name of the employee applying the lockout device and warn against the hazard if the valve is opened, or the machine/equipment is energized. A legend such as "This lock and tag to be removed only by authorized personnel" with an additional message: "Do Not Start," "Do Not Open," "Do Not Close," "Do Not Energize," or "Do Not Operate" must be utilized.

All tags and their means of attachment must be sturdy enough to prevent inadvertent removal. The tag attachment will be attachable by hand, self-locking, non-releasable, and non-reusable, with a minimum unlocking strength of not less than 50 pounds. Tags must be durable and not deteriorate from exposure to weather conditions and corrosive environments or cause the message on the tag (hand-written or pre-existing) to become illegible. Lockout and tagout devices must be singularly identified; must be the only device(s) used for controlling energy; and must not be used for other purposes.

All equipment must be designed with a hazardous energy/material isolating device as a means of protection for the employee against injury during repairs. **All new equipment installed must be designed to accept a lockout device.**

Authorized padlocks will be assigned to each authorized employee. Each group's lock will be individually keyed and the supervisor on each shift will maintain possession of the master key for these padlocks. The specific project must provide a sufficient number of locks for each employee on site.

All tags must contain the authorized employee name, date of application of the lock, equipment name or number and the reason for lockout. The tag must be attached to the lockout device.

On any equipment that can start automatically, the main disconnect must be switched to the "off" position, locked, and tagged by the authorized employee. This switch must be turned off before opening the main power disconnect and remain off until the disconnect is closed. Locking out 220v, 440v and other equipment must always be done at the main feed or starter panel.

All hazardous material lines must be blanked, blinded, or double valve and vent locked to prevent release of hazardous material.



Blanking or blinding of hazardous material lines are preferable to the double valve and vent technique. All blanks and blinds must be identified with tags in the same manner as locks.

A "Lockout Log" (Attachment 3) must be maintained by the site supervisor. This log must be included in the Health and Safety Plan.

### 5.3.1 Lockout/Tagout Overview

- Check equipment file for specific lockout/tagout procedures.
- Determine the requirements for lockout. If there is more than one energy source to the equipment, document each source.
- Conduct a survey to locate and identify all energy isolation devices that apply to the equipment.
- Use the equipment type-specific procedures as outlined in Attachments 4-7, if applicable. Complete the "Lockout/Tagout Procedure for Specific Equipment" form (Attachment 8) logging all data and return to the site-supervisor.
- Shut off energy source(s) to affected equipment.
- Affix lock(s) and tag(s) to each energy source controlling device.
- Identify work on process lines or vessels and determine isolation requirements.
- Blind, blank, disconnect, or double valve and vent all hazardous material lines, including steam, and identify the isolation points with tags.
- When only tag is used because machine or equipment can't be locked out, the following steps must be taken: Remove fuses, block machine, etc. and complete the "Lockout/Tagout Procedure for Specific Equipment" form (Attachment 8) and give to the site supervisor for the record.
- Stored energy - Relieve all stored energy from capacitor banks, springs, compressed air, hydraulic, steam, etc.
- Verify isolation of energy has occurred by attempting to activate equipment by using the on/off switch.
- Return control switch to "off" position before proceeding with work.

### 5.3.2 Removal of Lockout/Tagout



- Ensure that nonessential items, such as tools, etc., are removed from equipment.
- Ensure that equipment components are intact.
- Check work area to ensure that all employees are safely positioned or removed from the area.
- Notify all affected employees and site supervisor before re-energizing the equipment.
- Remove lockout/tagout device.
- Re-energize equipment or open valves and restore flow in process line, place back in into service.

### 5.3.3 Preparation for Confined Space Entry

1. Refer to Shaw E & I Procedures HS300, HS301, or HS302 for Confined Space Entry.
2. Blank or blind piping, identify with tags.
3. Misalign or remove sections of lines, pipes, or ducts, identify with tags.
4. Double valve and vent system, identify with tags.
5. Lockout or tagout all sources of energy.
6. Block or disconnect all mechanical linkages.

If it is impossible or impractical to lockout a piece of equipment, the site supervisor, H&S Professional, and the Maintenance Engineer of the facility must approve a method to make the equipment safe before any activities beyond normal operations of the equipment are performed. This can be done by disconnecting wiring, removing fuses, disconnecting or blanking supply lines, etc. "Danger - Do Not Operate" tags must be used to describe the condition.

The practice of permitting a person to place or remove a lock for someone else is prohibited. No employee can be sure he/she is safe until he/she places their own lock correctly.

## 5.4 Safety Audit

- 5.4.1 Verification Audit.** A periodic audit of the lockout/tagout system must be performed to ensure that the requirements of this procedure are being implemented. The audit will be conducted by authorized and qualified employees other than the ones(s) utilizing the procedure being inspected. Any deficiencies that are observed must be corrected immediately. For each project, the site-supervisor will be responsible for daily audits of lockout/tagout systems to



ensure proper installation of locks and tags to the equipment and adherence to the appropriate procedures.

Where lockout or tagout is used for energy control, the periodic inspection must include a review, between the inspector and each authorized employee, of that employee's responsibilities under the energy control procedure being inspected.

**5.4.2 Follow-up Audit.** A follow-up audit must be conducted to ensure that all deficiencies noted have been corrected.

**5.4.3 Documentation.** Audit documentation must identify the machine or equipment on which the lockout procedure is being utilized, the date of the inspection, employees interviewed and employee(s) performing the inspection. The audit results must be provided to the Health & Safety Department to be documented as being performed.

## **5.5 Training**

Training must be provided to ensure that the purpose and function of the energy control program are understood by employees, and that the knowledge and skills required for the safe application, usage, and removal of the energy controls are acquired by employees.

- Each authorized employee must receive training in the recognition of applicable hazardous energy/material sources, the type and magnitude of the energy available in the workplace, and the methods and means necessary for isolation and control.
- All affected employees must be instructed in the purpose and use of the lock and tag system.
- All other employees (including new hires) whose work operations are or may be in an area where lockout/tagout may be utilized, must be instructed about the procedure, and the prohibition relating to attempts to restart or re-energize machines or equipment that are locked out or tagged out.
- Retraining must be conducted for all authorized and affected employees whenever there is a change in job assignment, change in equipment, changes in a process that presents a new hazard or there is a change in the lockout/tagout procedure. Retraining must also be conducted whenever there is significant evidence, based on the periodic audits, indicating employee deviation from, or lack of understanding of, the lockout/tagout procedure.



- Employee site-specific training must be documented to ensure that it has been accomplished and is being kept up to date. The documentation must contain each employee's name and dates of training.

Documentation of employee training and retraining must be maintained and kept up to date by the Shaw E & I H&S representative and forwarded to the Shaw E & I Training Department.

#### 5.6 Shift or Personnel Changes

Specific procedures must be utilized during shift or personnel changes to ensure the continuity of lockout or tagout protection. These must include provision for the orderly transfer of lockout or tagout device protection between off-going and oncoming employees to minimize exposure to hazards from the unexpected energization or start-up of the machine or equipment or the release of stored energy. All site-specific locks in place must be covered in the tailgate safety meetings on each shift.

All individual lock(s) of the outgoing shift working on equipment will be removed and replaced by the on-coming shift's individual lock(s). The authorized employees of the on-coming shift must inspect and "try" the system to ensure de-energization.

The site supervisor must re-audit the system as necessary.

#### 5.7 Troubleshooting

Special precautions must be observed when the authorized employee must perform maintenance troubleshooting tasks with energized equipment. This function requires added caution and communications between all other affected employees to ensure employee protection.

An authorized employee must identify all start-stop locations and circuit breakers for disconnecting equipment. All other affected employees must be kept informed throughout the testing and troubleshooting. If the job is left incomplete, the authorized employee must install his/her individual lock and tag before leaving the job.

The following sequence must be followed when troubleshooting any equipment:

- Written approval including detailed work plan, must be obtained from the site supervisor and H&S Professional to ensure that troubleshooting can be performed safely.
- Inspect and clear machine or equipment of all tools and unnecessary materials.
- Ensure that all affected employees are positioned out of the way of machine activation. Instruct all affected employees in the procedures that must be followed, the potential hazards that may exist, and the safety precautions that have been taken. Document this training on the Tailgate Safety meeting form.
- Remove the lockout and tagout devices.



5. Energize and proceed with the troubleshooting, testing or positioning of the machine or equipment.
6. De-energize, reapply all lockout and tagout devices and "try" the system to ensure de-energization or place machine back into service.

#### 5.8 Group Lockout/Tagout

When servicing and/or maintenance is performed by a crew, craft, department or other group, the work crew must use a procedure which affords the employees a level of protection equivalent to that provided by the implementation of a personal lockout or tagout device.

- Primary responsibility is vested in an authorized employee for a set number of employees working under the protection of a group lockout or tagout device.
- Provision for the authorized employee to ascertain the exposure status of individual group members with regard to the lockout or tagout of the machine or equipment; and
- When more than one crew, craft, department, etc. is involved, assignment of overall job-associated lockout or tagout control responsibility to an authorized employee to coordinate affected work forces and ensure continuity of protection; and
- Each authorized employee must affix a personal lockout or tagout device to the group lockout device, group lockbox, or comparable mechanism when he or she begins work, and must remove those devices when he or she stops working on the machine or equipment being serviced or maintained.

The following procedure applies to distribution and utilities systems. The employee authorized to "Group Lockout" will lock and tag out the system. Using the "group lockout" locks and tags. The "Group Lockout" must be signed by the authorized employee.

1. Use of personal tags and locks on the "Group Lock Box" must follow the normal lockout/tagout procedure.
2. The authorized employee must verify that all energy sources are in a neutral state.
3. The authorized employee places the group lock and tags on the hazard isolation device.



4. The authorized employee then places the "Group Lock Key" in the "Group Lock Box", and tag the box with a "DANGER DO NOT OPERATE" tag stating which system is locked out and why.
5. Each employee, prior to working on the "Group Lockout" system, must attach his/her personal tag and lock to the "Group Lockout Box."
6. Upon completion of work, all employees must remove their personal lock and tag.
7. The authorized employee must then remove the "Group Lock" locks and tags and follow normal procedures for restoring energy.
8. If repairs take more than the initiating shift, and the authorized employee is not remaining on the job for the completion, he/she may transfer "Authorization" to another employee by stating so on the "DANGER DO NOT OPERATE" tag. The employee identified then becomes the authorized employee. He/she is now authorized to remove the "Group Lockout" locks and tags installed by the original authorized employee if the work is completed on that shift. The follow-up shift must then follow normal procedures for "Group Lock/Tagout."

#### 5.9 Outside Personnel (Contractors, etc.)

Whenever outside servicing personnel are to be engaged in activities covered by the scope and application of this standard, the on-site employer and the outside employer must inform each other of their respective lockout or tagout procedures.

All subcontractor's lockout/tagout procedures must be reviewed and approved by Shaw E & I prior to the project.

#### 5.10 Special Situations

If lockout/tagout lasts for more than one shift, the appropriate protection must not be interrupted. No lock is to be removed until the next shift is ready to lockout the equipment.

When the employee(s) who originally applied a lock(s) is not at the site to remove it, the lock can be removed only in an emergency and only under the direction of an authorized employee, the site-supervisor, and if applicable the site-safety and health coordinator. Such actions and associated personnel safeguards shall be documented on the Field Activity Daily Log and the Lockout Log.



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## 6.0 EXCEPTION PROVISIONS

Variances to this procedure shall be requested in accordance with procedure HS013 Health and Safety Procedure Variances.

## 7.0 CROSS REFERENCE

HS050 Training Requirements  
HS052 Health and Safety Plans  
HS300 Confined Spaces  
HS301 Confined Spaces, Marine  
HS302 Confined Spaces, Leaded Product  
HS310 Hazardous Waste Operations  
HS311 Emergency Response Operations  
HS312 Hazardous Waste Operations at TSD Facilities

## 8.0 ATTACHMENTS

1. Responsibility Matrix
2. Flow Diagram - Overview: Lockout/Tagout System
3. Lockout Log
4. Lockout/Tagout for Electrical Equipment
5. Lockout/Tagout for Compressed Air and Gases
6. Lockout/Tagout for Steam, Water, and Fluid Lines
7. Lockout/Tagout for Hydraulic Equipment
8. Lockout/Tagout Procedure for Specific Equipment



**ATTACHMENT 1**  
**CONTROL OF HAZARDOUS ENERGY SOURCE (LOCKOUT/TAGOUT)**

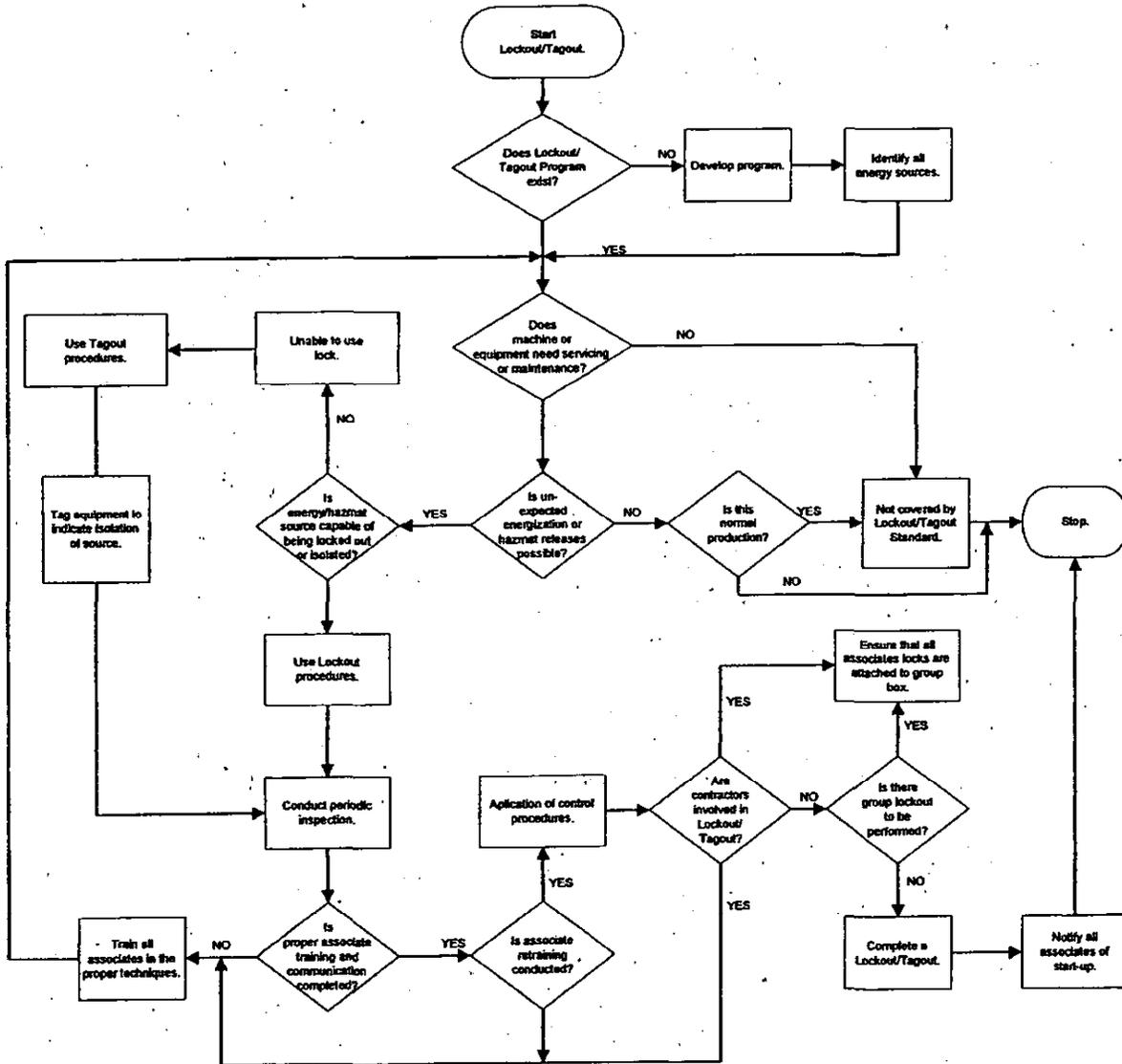
**Responsibility Matrix**

Action	Procedure Section	Responsible Party						
		Location Mgr.	Authorized Associate	Site Supervisor	Sub-contractor	HS	All	Training Dept.
Comply with procedure	5.2				X		X	
Review plan & notify maintenance	5.2		X					
Verify proper procedures followed	5.2	X		X		X		
Verification audit - daily	5.4.1			X				
Provide training to associates	5.5	X						
Attend appropriate training	5.5						X	
Maintain training records	5.5							X
Write/approve location lockout plan, if required	5.1		X			X		



ATTACHMENT 2

FLO DIAGRAM:  
OVERVIEW of the LOCKOUT/TAGOUT SYSTEM







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## ATTACHMENT 4 LOCKOUT/TAGOUT FOR ELECTRICAL EQUIPMENT

Job: \_\_\_\_\_

Device: \_\_\_\_\_

Location: \_\_\_\_\_

Authorized Person: \_\_\_\_\_

Site Supervisor: \_\_\_\_\_

### PREPARATION FOR SHUTDOWN

1. Determine power type and shutoff location
2. Determine if there is more than one energy source
3. Determine magnitude of power (voltage)
4. Notify affected employees in the area that equipment will be under lockout for maintenance.
5. Shutoff power sources to machine.

### LOCKOUT/TAGOUT

6. Lock and tag main power switches in the OFF position, remove fuses.
7. Verify that no power is available to the equipment using a voltmeter, if necessary.
8. Drain devices such as capacitor banks.
9. Verify that these devices have no stored energy by use of the voltmeter.
10. Repair equipment.

### RETURN TO SERVICE

11. Be sure all connections are made and any unused tools and equipment are removed.
12. Remove lock if necessary to verify machine is repaired. The maintenance employee, while verifying the machine is repaired cannot leave the immediate area.
13. Remove tag from machine.
14. Notify employees in the area that the equipment is available.

Signature: \_\_\_\_\_

Authorized Person: \_\_\_\_\_

Site Supervisor: \_\_\_\_\_



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**ATTACHMENT 5  
LOCKOUT/TAGOUT FOR COMPRESSED AIR AND GASES**

Job: \_\_\_\_\_

Device: \_\_\_\_\_

Location: \_\_\_\_\_

Authorized Person: \_\_\_\_\_

Site Supervisor: \_\_\_\_\_

**PREPARATION FOR SHUTDOWN**

1. Determine types and shutoff location
2. Determine if there is more than one energy source
3. Determine magnitude of compressed air, gas, steam, water, or fluids.
4. Notify affected employees in the area that equipment will be locked out for maintenance.
5. Shutoff main supply to machine.

**LOCKOUT/TAGOUT**

6. Lock and tag main supply in the OFF position.
7. Bleed line and verify that no air or gases remain in the equipment.
8. Repair equipment.

**RETURN TO SERVICE**

9. Be sure all connections are made and any unused tools and equipment are removed.
10. Remove lock if necessary to verify proper operation.
12. Remove tag.
13. Notify employees in the area that the equipment is available.

Signature: \_\_\_\_\_

Authorized Person: \_\_\_\_\_

Site Supervisor: \_\_\_\_\_



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## ATTACHMENT 6 LOCKOUT/TAGOUT FOR STEAM, WATER, AND FLUID LINES

Job: \_\_\_\_\_

Device: \_\_\_\_\_

Location: \_\_\_\_\_

Authorized Person: \_\_\_\_\_

Site Supervisor: \_\_\_\_\_

### PREPARATION FOR SHUTDOWN

1. Determine types and shutoff location
2. Determine if there is more than one energy source
3. Determine magnitude of compressed air or gas.
4. Notify affected employees in the area that equipment will be under lockout for maintenance.
5. Disconnect/shutoff main steam, water or fluid lines to equipment.

### LOCKOUT/TAGOUT

6. Lock and tag main supply (i.e. chaining through valve handle with lock) in the OFF position with a bleeder open on the load side.
7. Drain fluids from shutoff valves to equipment.
8. Repair equipment.

### RETURN TO SERVICE

9. Be sure all connections are made and any unused tools and equipment are removed.
10. Remove lock if necessary to verify machine is repaired. The maintenance employee cannot leave the immediate area, while verifying the machine is repaired.
11. Remove tag from machine.
12. Notify employees in the area that the equipment is available.

Signature: \_\_\_\_\_

Authorized Person: \_\_\_\_\_

Site Supervisor: \_\_\_\_\_



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## ATTACHMENT 7 LOCKOUT/TAGOUT FOR HYDRAULIC EQUIPMENT

Job: \_\_\_\_\_

Device: \_\_\_\_\_

Location: \_\_\_\_\_

Authorized Person: \_\_\_\_\_

Site Supervisor: \_\_\_\_\_

### PREPARATION FOR SHUTDOWN

1. Determine types and shutoff location
2. Determine if there is more than one energy source
3. Determine magnitude of energy (pressure).
4. Notify affected employees in the area that equipment will be under lockout for maintenance.
5. Shutoff main hydraulic to equipment.

### LOCKOUT/TAGOUT

6. Lock and tag main supply in the OFF position.
7. Drain fluids from shutoff valves to equipment.
8. Verify that the hydraulic fluid is disconnected.
9. Block ram or items controlled by the hydraulic system using the appropriate blocking.
10. Repair equipment.

### RETURN TO SERVICE

11. Be sure all connections are made and any unused tools and equipment are removed.
12. Remove lock if necessary to verify machine is repaired. Maintenance employee cannot leave the immediate area, while verifying the machine is repaired.
13. Remove tag from machine.
14. Notify employees in the area that the equipment is available.

Signature: \_\_\_\_\_

Authorized Person: \_\_\_\_\_

Site Supervisor: \_\_\_\_\_



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**ATTACHMENT 8  
LOCKOUT/TAGOUT PROCEDURE FOR SPECIFIC EQUIPMENT**

Equipment:

Cat. No. and Location:

Serial Number (if available):

Electrical:                      Voltage:                      Location:

Describe:

Air (Type):    Location:

Describe:

Gases (Type):    Location:

Describe:

Steam (Type):    Location:

Describe:

Water:    Location:

Describe:

Fluids:    Location:

Describe:

Hydraulic:    Location:

Describe:

Stored Energy- Capacitors, Springs, Etc.:

Describe:

**LOG DATA AND RETURN TO SITE SUPERVISOR**



## PROCEDURE

Subject: **DRILL RIG OPERATIONS**

### 1.0 PURPOSE AND SUMMARY

This procedure describes the general requirements for the safe operation of conventional drilling equipment. It includes provisions for training, inspections, and the general work practices necessary to safely conduct drilling activities. Site-specific hazards, controls, and work practices are to be addressed in the Health and Safety Plan (HASP) required to be developed for each project.

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  - 5.2 Inspection
  - 5.3 Set Up
  - 5.4 Hoisting Operations
  - 5.5 Cat Line Operations
  - 5.6 Pipe Handling
  - 5.7 Working Near overhead Energized Lines
  - 5.8 Direct Push Sampling
- 6.0 Exception Provisions
- 7.0 Cross References
- 8.0 Attachments

### 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).

#### 5.0 TEXT

The company currently subcontracts the majority of its drilling work to qualified drilling contractors. Therefore, the primary responsibility for safety, maintenance, and operation of the drill rig rests with the subcontractors lead driller. He/She is responsible for the safe operation of the drill rig as well as the drill crews adherence to the requirements of the HASP and this procedure. In cases where the company owns and operates drilling equipment, these responsibilities are to be that of the company designated lead driller.

##### 5.1 Training

All members of drilling crews must possess required state or local licenses necessary to perform such work. The drill crew must also receive site-specific health and safety training prior to beginning work and must participate in daily tailgate safety meetings. Prior to arriving at a project site, the drilling crew must be familiar with the operation, inspection, and maintenance requirements of the equipment as well as its safety features and emergency procedures.

##### 5.2 Inspections

Before being placed into service, the drilling equipment will be inspected, by the lead driller, in accordance with the manufacturer's guidelines. The Shaw E & I site supervisor will accompany the lead driller during this initial inspection. Inspections shall be documented in the field activity daily log and shall demonstrate that all installed safety equipment is functional.

##### 5.3 Set Up

The drill rig must be properly blocked and leveled prior to raising the derrick. The wheels which remain on the ground will be chocked, if necessary, and the parking brake set. The rig can only be moved after the derrick has been lowered.

General preparatory drilling requirements include:

- Before drilling, the existence and location of underground utilities will be determined and marked by the appropriate underground utility identification service. All drilling should occur a minimum of 5 feet from any known or suspected location of an underground structure or utility. A hand auger or posthole digger must be utilized to positively identify utilities when drilling is anticipated to occur within 5 feet of an underground utility.
- If drilling is conducted in the vicinity of overhead power lines, the distance as specified in Section 5.7 must be maintained between the lines and any point on the drilling equipment.



- Work area access must be restricted from vehicular/pedestrian traffic by utilizing temporary fencing or warning tape.
- If lubrication fittings are not accessible with guards in place, machinery must be stopped and lockout/tagout procedures applied before oiling and greasing. Fuel, hydraulic fluid, oil, or lubrication fittings will not be refilled unless the drill rig engine has been turned off.
- Rigging equipment for material handling must be inspected prior to use on each shift and as often as necessary to ensure it is safe. Defective rigging must be removed from service immediately.
- Lifting and transporting of drums should be completed using the appropriate equipment and following safe loading and unloading practices.

#### 5.4 Hoisting Operations

- Drillers must never engage the rotary clutch without watching the rotary table and ensuring it is clear of personnel and equipment.
- Unless the drawworks is equipped with an automatic feed control, the brake must not be left unattended without first being tied down.
- Drillers will not add or remove pipe from the drill stem without assistance of the driller's helper.
- Drill pipe must not be hoisted until the driller is sure that the pipe is latched and the drilling assistant has signaled that he/she may safely hoist the load.
- During instances of unusual loading of the derrick or mast, such as when making an unusually hard pull, only the driller will be on the rig floor and no one will be on the rig or derrick.
- The brakes on the drawworks of every drilling rig must be tested at the beginning of each shift to determine whether they are in good order.
- A hoisting line with a load imposed will not be permitted to be in direct contact with any derrick member or stationary equipment unless it has been specifically designed for line contact.
- Hoisting control stations must be kept clean and controls labeled as to their functions.
- Under no circumstances will personnel be permitted to ride the traveling block or elevators, nor will the cat line be used as a personnel carrier.



5.5

### **Cat Line Operations**

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- Only experienced drillers will be allowed to operate the cathead controls. The kill switch must be clearly labeled and operational prior to operation of the cat line.
- The cathead area must be kept free of obstruction and entanglements.
- The operator will not use more wraps than necessary to pick up the load. More than one layer of wrapping is not permitted.
- Personnel must not stand near, step over, or go under a cable or cat line which is under tension.
- Employees rigging loads on cat lines must:
  - Keep out from under the load
  - Keep fingers and feet where they will not be crushed
  - Be sure to signal clearly when the load is being picked
  - Use standard visual signals only, and not depend on shouting to coworkers
  - Make sure that the load is properly rigged, since a sudden jerk in the cat line may shift or drop the load.

### **5.6 Pipe Handling**

- Pipe must be loaded and unloaded, layer by layer, with the bottom layer pinned or blocked securely on all four corners. Each successive layer must be effectively blocked or chocked.
- Workers will not be permitted to top off the load during loading, unloading, or transferring of pipe or rolling stock.
- Employees must be instructed never to try to stop rolling pipe or casing; they must be instructed to stand clear of rolling pipe.
- When pipe is being hoisted, personnel will use a sling to control the bottom end of the pipe. After the pipe is off the stockpile, personnel will control the end by hand.

### **5.7 Working Near Overhead Energized Lines**

Any vehicle or mechanical equipment capable of having parts of its structure elevated near energized overhead lines shall be operated so that a clearance of 10 feet (305 cm) is maintained. If the voltage is higher than 50kV, the clearance will be increased 4 inches for every 10kV over that voltage. However, under any of the following conditions, the clearance may be reduced.

- If the vehicle is in transit with its structure lowered, the clearance may be reduced to 4 feet.



- If insulating barriers are installed to prevent contact with the lines, and if the barriers are rated for the voltage of the line being guarded and are not a part of or an attachment to the vehicle or its raised structure, the clearance may be reduced to a distance within the designed working dimensions of the insulating barrier.

### 5.8 Direct Push Sampling

Many subsurface sampling activities are now conducted using a direct push method. This method involves using a hydraulic hammer press to drive hollow steel rods vertically into the subsurface to obtain samples. The hazards associated with the use of this technique are somewhat similar to those of conventional drilling. The main difference is that percussion rather than rotational forces are used to reach sample depths.

## 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
HS051	Tailgate Safety Meetings
HS052	Health and Safety Plans
HS315	Control of Hazardous Energy Sources

## 8.0 ATTACHMENTS

1. Responsibility Matrix



**ATTACHMENT 1  
 DRILL RIG OPERATIONS**

**Responsibility Matrix**

Action	Procedure Section	Responsible Party			
		Lead Driller	Site Supervisor	HS Representative	Vice President Health and Safety
Issue, revise and maintain procedure	3.1				X
Responsible for safe operation of drill rig	5.0	X			
Conduct/participate in training	5.1	X	X	X	
Inspect drilling equipment	5.2	X			



## PROCEDURE

**Subject: HEAT STRESS**

### 1.0 PURPOSE AND SUMMARY

This procedure establishes the guidelines to protect employees from the effects of heat related illness. It describes the four major types of heat-induced illnesses, methods of prevention, types of treatment, and includes discussions on the monitoring of heat stress situations.

Some clients may have monitoring requirements that differ from those contained in this procedure. In such circumstances, the more protective monitoring requirements will be followed.

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  - 5.1 Signs, Symptoms, and Treatment
    - 5.1.1 Heat Rash
    - 5.1.2 Heat Cramps
    - 5.1.3 Heat Exhaustion
    - 5.1.4 Heat Stroke
  - 5.2 Prevention
  - 5.3 Monitoring
    - 5.3.1 Wet Bulb Globe Temperature
    - 5.3.2 Physiological
  - 5.4 Training
- 6.0 Exception Provisions
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### 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

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**Acclimatization** - Series of physiological and psychological adjustments that occur in an employee during initial exposures to hot environmental conditions that increase the employee's tolerance to elevated work environment temperature.

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

**Maximum Heart Rate** - Amount of work (beats) per minute a healthy person's heart can be expected to safely deliver. Maximum heart rate (MHR) is calculated by subtracting an employee's age from 200.

## 5.0 TEXT

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

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

### 5.1 Signs, Symptoms, and Treatment

#### 5.1.1 Heat Rash

Heat rash can be caused by continuous exposure to hot and humid air and skin abrasion from sweat soaked clothing.

Signs and Symptoms: The condition is characterized by a localized red skin rash and reduced sweating. Aside from being a nuisance, the ability to tolerate heat is reduced.

Treatment: Keep skin hygienically clean and allow it to dry thoroughly after using chemical protective clothing.



#### 5.1.2 Heat Cramps

Heat cramps are caused by profuse perspiration with inadequate electrolytic fluid replacement. This often robs the larger muscle groups (stomach and quadriceps) of blood which can cause painful muscle spasms and pain.

Signs and Symptoms: Muscle spasms and pain in the extremities and abdomen.

Treatment: Remove employee to a cool place and give sips of water or an electrolytic drink. Watch for signs of heat exhaustion or stroke.

#### 5.1.3 Heat Exhaustion

Heat exhaustion is a mild form of shock caused by increased stress on various organs to meet increased demand to cool the body. Onset is gradual and symptoms should subside within one hour.

Signs and Symptoms: Weak pulse; shallow breathing; pale, cool, moist skin; profuse sweating; dizziness; fatigue.

Treatment: Remove employee to a cool place and remove as much clothing as possible. Give sips of water or electrolytic solution and fan the person continually to remove heat by convection. CAUTION: Do not allow the affected person to become chilled or treat for shock if necessary.

#### 5.1.4 Heat Stroke

Heat stroke is the most severe form of heat stress; the body must be cooled immediately to prevent severe injury and/or death. **THIS IS A MEDICAL EMERGENCY!**

Signs and Symptoms: Red, hot, dry skin (skin may be wet from previous perspiration particularly when evaporation-preventing clothing is worn); body temperature of 105 degrees Fahrenheit (°F) or higher; no perspiration; nausea; dizziness and confusion; strong, rapid pulse.

Treatment: Heat stroke is a true medical emergency. Transportation of the victim to a medical facility must not be delayed. Prior to transport, remove as much clothing as possible and wrap the victim in a sheet soaked with water. Fan vigorously while transporting to help reduce body temperature. Apply cold packs, if available; place under the arms, around the neck, or any other place where they can cool large surface blood vessels. If transportation to a medical facility is delayed, reduce body temperature by immersing victim in a cool water bath (however, be careful not to over-chill the victim once body temperature is reduced below 102°F). If this is not possible, keep victim wrapped in a sheet and continuously douse with water and fan.



## 5.2 Prevention

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

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

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

All employees shall be informed of the importance of adequate rest and proper diet in the prevention of heat stress and the harmful effects of excessive alcohol and caffeine consumption.

## 5.3 Monitoring

The initiation of heat stress monitoring will be required when employees are working in environments exceeding 90 degree F ambient air temperature. If employees are wearing impermeable clothing, this monitoring will begin at 78 degree F. There are two general types of monitoring that the health and safety representative can designate to be used: wet bulb globe temperature (WBGT) and physiological. Attachment 2 will be used to record the results of heat stress monitoring.

### 5.3.1 Wet Bulb Globe Temperature

The WBGT index is the simplest and most suitable technique to measure the environmental factors which most nearly correlate with core body temperature and other physiological responses to heat. When WBGT exceeds 25.9 degree C (78 degree F), the work regimen in Table 2 of the section "Heat Stress" in the latest edition of the American Conference of Governmental Industrial Hygiene (ACGIH) Threshold Limit Value (TLV) Booklet should be followed.

### 5.3.2 Physiological

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



- Heart Rate - Each individual will count his/her radial (wrist) pulse as early as possible during each rest period. If the heart rate of any individual exceeds 75 percent of their calculated maximum heart rate (MHR = 200 - age) at the beginning of the rest period, then the work cycle will be decreased by one-third. The rest period will remain the same. An individual is not permitted to return to work until his/her sustained heart rate is below 75 percent of their calculated maximum heart rate.
  
- Temperature - Each individual will measure his/her oral temperature with a disposable thermometer for one minute as early as possible in the first rest period. If the temperature exceeds 99.6 degrees F at the beginning of the rest period, then the work cycle will be decreased by one-third. The rest period will remain the same.
  
- An individual is not permitted to return to work if his/her temperature exceeds 100.4 degrees F

#### 5.4 Training

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

#### 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  
HS051 Tailgate Safety Meetings

#### 8.0 ATTACHMENTS

1. Responsibility Matrix
2. Heat Stress Monitoring Record



**ATTACHMENT 1  
HEAT STRESS**

**Responsibility Matrix**

Action	Procedure Section	Responsible Party		
		Vice President, Health and Safety	Project Supervisor	Health and Safety Representative
Issuance, Revision, and Maintenance of Procedure	3.1	X		
Conduct Monitoring	5.3			X
Inform Employees About Procedure	5.4		X	X





## 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.

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  - 5.4 Respiratory Protection
  - 5.5 Hearing Protection
  - 5.6 Body Protection
  - 5.7 Providing Personal Protective Equipment to Non-Company Personnel
  - 5.8 Management Duties
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### 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

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.



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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 prohibited 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 and to ensure that any employee provided protective equipment is adequate, properly maintained and in a sanitary condition.



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## 6.0 EXCEPTION PROVISIONS

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

## 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			
		EHS Operations Manager	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



## PROCEDURE

**Subject:** RESPIRATORY PROTECTION PROGRAM

### 1.0 PURPOSE AND SUMMARY

The purpose of this procedure is to prescribe the requirements of the company Respiratory Protection Program (RPP). This procedure provides information and guidance on the proper selection, medical evaluation, training, use, and care of respiratory protective equipment and complies with the requirements of 29 CFR 1910.134 (1998).

All operations which require the use of respiratory protection are subject to the provisions of this procedure.

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### 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

Program responsibilities are detailed throughout this procedure. The Responsibility Matrix summarizes these items and can be found as Attachment 1.

### 4.0 DEFINITIONS

**Action Level (AL)** - Airborne contaminant concentration which is one-half of the Permissible Exposure Guideline (PEG).

**Air Purifying Respirator (APR)** - Negative pressure respirator (also referred to as a cartridge respirator) which filters contaminated air through chemical or mechanical filter elements. APRs include: cartridge, canister, gas masks, and single-use respirators (single-use respirators are not approved for use by the company).

**Approved Respirator** - Any respirator, identified by manufacturer and model, that has been approved by NIOSH 42 CFR Part 84 and has been incorporated into the List of Approved Respiratory Protective Equipment (Attachment 2).

**Assigned Protection Factor (APF)** - A term that is reserved in the OSHA Standard 1910.134 (January, 1998). Attachment 3 provided PFs for the respiratory protective equipment based upon type of device and method of fit testing. The company will continue to use the PFs established by NIOSH until OSHA issues their definition of APF.

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

**Contractor Personnel** - A group of persons hired to perform a specific activity based on their expertise and ability to operate independent of direct supervision. Contractor personnel are supervised by their management group which reports to an employee of the company for project direction.

**End-of-Service-Life Indicator (ESLI)** - A system that warns the respirator user of the approach of the end of adequate respiratory protection, for example, that the sorbent is approaching saturation or is no longer effective.



**Emergency** - Emergency means any occurrence such as, but not limited to, equipment failure, rupture of containers, or failure of control equipment that may or does result in an uncontrolled significant release of an airborne contaminant.

**Exposure Limit** - Several published airborne contaminant concentration values exist which are used in establishing acceptable personnel exposures to contaminants. OSHA publishes the Permissible Exposure Limit (PEL), NIOSH publishes the Recommended Exposure Limit (REL), and the ACGIH publishes the Threshold Limit Value (TLV). All of these exposure limits are based on an 8-hour work shift, 40-hour work week, and 40-year work life. The values may vary from contaminant to contaminant as well as between publishing bodies.

**Field Office** - Any office or satellite office performing field activities which may require the use of respiratory protection.

**Filtering Facepiece (Dust Mask)** - A negative pressure particulate respirator with a filter as an integral part of the facepiece or with the entire facepiece composed of the filtering medium.

**Fit Factor (FF)** - This term means a quantitative estimate of the fit of a particular respirator to a specific individual and typically estimates the ratio of the concentration of a substance in ambient air to its concentration inside the respirator when worn. The FF incorporates a safety factor of 10 because protection factors in the workplace tend to be much lower than the fit factors achieved during fit testing. Acceptable fit factors are 100 for a tight-fitting half facepiece and 500 for a tight-fitting full facepiece respirators.

**HASP** - Health and Safety Plan.

**Health and Safety Representative** - A member of the company Health and Safety Functional Resource Group who, through credentials, training, or experience, has the necessary qualifications and authority to specify respiratory protection and evaluate respiratory protection program elements.

**Immediately Dangerous to Life or Health (IDLH)** - An atmosphere that poses an immediate threat to life, would cause irreversible adverse health effects, or would impair an individual's ability to escape from a dangerous atmosphere.

**Labor Pool Personnel** - Temporary personnel hired for a given expertise or ability. Labor pool personnel report directly to an employee of the company.

**Nuisance Level** - Level of airborne contaminants which is below one-half the action level for that contaminant and presents no other health or safety hazard.

**Permissible Exposure Guideline (PEG)** - This term designates a specific exposure limit and is based on the best available information. The PEG will be the lower (more protective) of the values for the PEL and TLV. However, the REL shall take precedence for Hazardous Waste Operations (subject to 29 CFR 1910.120 or 1926.65) if no PEL exists, or for contaminants where no PEL or TLV exists. If there is no PEL, TLV, or REL, a Health and Safety Representative shall determine an appropriate permissible exposure guideline.



**Permissible Exposure Limit (PEL)** - An occupational exposure index promulgated by OSHA which carries the force of law. This value represents the allowable concentration to which it is believed an employee may be exposed to 8 hours a day, 40 days a week, for a 40-year working life without experiencing adverse health effects.

**Positive Pressure Respirator** - A respirator in which the pressure inside the respirator exceeds the ambient air pressure outside the respirator.

**Powered Air Purifying Respirator (PAPR)** - A positive pressure APR which incorporates a fan and a battery pack unit. The system pulls contaminated air through the filter elements before delivery to the facepiece under positive pressure. Air pressure in the mask must remain above ambient pressure.

**Qualitative Fit Test** - A procedure for assuring that the respirator provides adequate protection based on a pass/fail fit test that relies on the individual's response to the test agent. Standard fit test protocol will utilize the irritant smoke methods as described in Attachment 4.

**Quantitative Fit Test** - A fit test that provides an assessment of the adequacy of respirator fit by numerically measuring the amount of leakage into the respirator.

**Respiratory Protection Program Coordinator (RPP Coordinator)** - A person designated by the Health and Safety Representative to administer and supervise the respiratory program at a local facility or project location. This person will have the necessary training or credentials to execute this task.

**Recommended Exposure Limit (REL)** - An occupational exposure index published by NIOSH which is a recommended guideline for employee protection. This value represents the allowable concentration to which it is believed an employee may be exposed to 10 hours a day, 40 hours a week, for a 40-year working life without experiencing health effects.

**Supplied Air Respirator (SAR)** - Positive pressure respirator which supplies an independent source of breathing air to the user. Two types of SARs are available: self-contained breathing apparatus (SCBA) and airline.

**Threshold Limit Value (TLV)** - An occupational exposure index published by ACGIH which is recognized as an industry guideline and represents the concentration to which it is believed that nearly all employees may be exposed to 8 hours a day, 40 hours a week without experiencing adverse health effects.

## 5.0 TEXT

The company will employ engineering controls (e.g., enclosure, ventilation, material substitution, etc.) as the primary method to limit employee exposure. However, for those situations where engineering and administrative controls are ineffective at controlling employee exposure, the use of respiratory protective equipment may be required.



This RPP provides specific requirements for selection, assignment, training, and medical evaluation for persons expected to wear respiratory protection.

### 5.1 Assignment of Equipment to Contractor/Labor Pool Personnel

Contractor personnel shall provide their own respiratory protective equipment and shall also confirm meeting all other requirements of their own RPP and that of the company's RPP (i.e., medical clearance, training, etc.).

The company may provide the following respiratory protective equipment to Contractor Personnel:

- Disposable equipment such as filter elements.
- Hardware for airline systems (up to, but not including, the airline and facepiece) which employees are sharing.

The company will not provide the following respiratory protective equipment to Contractor Personnel:

- APR or PAPR facepieces.
- SCBAs, SAR respirators, or airline.

The company may provide respiratory protective equipment to Labor Pool Personnel if the following have been established:

- The labor pool personnel have successfully completed training as required by 29 CFR 1910.134 and other applicable regulations.
- The labor pool personnel have been fit tested in relation to projected exposure levels and contaminants to be encountered.
- The labor pool personnel have been medically approved to wear respirators.
- All other RPP requirements have been met.

### 5.2 Approval, Selection, and Purchase of Respiratory Protective Equipment

The following requirements are designed to guide correct selection of respiratory protective equipment.

**5.2.1 Approval.** The Vice President, Health and Safety has approved respirators manufactured by Survivair as the primary respirators for use by employees. For employees who cannot achieve a satisfactory fit or comfort factor in Survivair respirator, Mine Safety Appliance (MSA) respirators will be selected. The list of approved model respirators is included in Attachment 2. Contractor personnel may select any respiratory protective equipment that has received approval from NIOSH.



**5.2.2 Selection.** The Health and Safety Representative shall base the selection of respiratory protective equipment upon an assessment of potential respiratory hazards that may be encountered. This assessment may utilize a variety of written information such as the NIOSH Pocket Guide to Chemical Hazards, Material Safety Data Sheets, analytical data, air monitoring results, or other applicable information. The selection process shall incorporate the following guidelines:

- Respiratory protection is to be selected by Health and Safety Representatives only. Full facepiece respirators are the usual preference because of superior protection factor and the face/eye protection afforded. Half facepiece respirators can only be used in situations where less than one-half the PEG is expected. The type of respirator selected will be documented in the Project HASP.
- Selection of the appropriate respiratory protective equipment shall include factors such as the chemical state and physical form of the chemical contaminant, atmospheric concentration during routine and emergency events, potential physical hazards, expected job task requirements, and the performance of the respirator in providing the appropriate level of protection against these hazards.
- Consideration shall be given to the nature of the hazardous operation, location of the hazardous area relative to nonhazardous breathing air supply, duration of wear, activities to be performed, and characteristics and function of the respiratory protective equipment to be worn.
- Selected respirators (i.e., Survivair or MSA) shall be NIOSH certified and used in compliance with the conditions of its certification when employees are exposed to toxic materials or other hazardous atmospheres.
- Respirators must provide adequate face and eye protection for the expected task.
- If an APR or PAPR is used, the respirator shall be equipped with an end-of-service life-indicator (ESLI) certified by NIOSH for the contaminant. If an ESLI is not available for the contaminant, a cartridge element change schedule shall be implemented which is based on objective information or data that will ensure that canisters and cartridges are changed before the end of their service life. This information will be described in the HASP.
- The PF for the respirator selected (Attachment 3) shall be used according to the following relationship with the PEG to establish justification for selection:

$$PF \times PEG > \text{Maximum anticipated contaminant concentration}$$



If this equation is false, a respirator with a greater PF must be selected. Also review Attachment 3 to determine the required fit testing for the expected maximum anticipated contaminant concentration. The Health and Safety Representative may determine that a more conservative approach (e.g., 50 percent PF) may be needed. Decision to do so should be documented in the Project HASP.

- Manufacturer-established limitations of the APR filter elements relative to the contaminants of concern shall be used to establish further justification for the selected respirator should the APR's PF not disqualify its use (e.g., maximum anticipated contaminant concentration).

**5.2.3 Purchase.** The purchase request of respiratory protective equipment (including cartridges, airlines, compressed air) should be reviewed by a Health and Safety Representative to indicate that the ordered material meets established requirements. **Under no circumstances may anyone (purchasing, warehouse, project manager, etc.) purchase or provide other than the specific respiratory protection equipment selected by the Health and Safety Representative.**

### 5.3 Medical Evaluation

No employee shall be assigned to a task that requires the use of a respirator unless it has been determined that he/she is physically able to perform the work while using the required respirator. The medical evaluation must be conducted prior to fit testing and work requiring the use of respiratory equipment.

The medical evaluation shall be performed by a physician typically in conjunction with a physical examination meeting the requirements of 29 CFR 1910.120 (f) *Medical Surveillance*. The physician will be informed of the type of work expected of the employee, the types of respiratory protection and personal protective equipment required, and other information indicating the expected stresses of the task. The company medical director shall be given a copy of the company RPP and a copy of 1910.134 (e) *Medical Evaluation*.

The company medical director shall provide a written recommendation regarding the employee's ability to use respiratory protection. The company shall ensure that the company medical director supplies the employee with a copy of this recommendation.

Additional medical evaluations will be provided to the employee if:

- Any medical signs or symptoms due to respirator use are reported by the employee, supervisory, or health and safety personnel.
- A change in workplace conditions (e.g., physical work effort, protective clothing, temperature) that may result in a substantial increase in the physiological burden placed on an employee.



## 5.4 General Program Requirements

**5.4.1 Responsibilities.** The following information describes the responsibilities for the selection, use, and maintenance of respiratory protective equipment based upon job function:

### Management

- Management shall take necessary and cost-effective measures to reduce, where possible, the need for respiratory protective equipment (e.g., enclosed cabs on heavy equipment to reduce airborne dust, operations performed upwind, etc.)
- Respiratory protective equipment shall be provided by management whenever it is determined that such equipment is necessary to protect the health of the employee or when requested by an employee and approved by the Health and Safety Representative.
- Management shall assign work tasks requiring the use of respiratory protective equipment to only those employees who are medically qualified to wear respiratory protective equipment.
- Management shall ensure that employees are trained in the use of respiratory protection prior to being assigned to an activity that requires its use.
- Management shall provide the means for the maintenance of respiratory protection as required.

### Health and Safety Representative

- Health and Safety Representatives shall determine appropriate respiratory protection for each job. The decision logic for this selection shall be documented in the Project HASP.
- Health and Safety Representatives shall monitor compliance with the various aspects of this program, provide technical assistance regarding respirator selection and use, evaluate the effectiveness of the RPP, and support respirator training and fit testing at locations under their control.
- Health and Safety Representatives shall conduct regular audits to determine compliance with this procedure. This audit can include a review of maintenance, training, medical and air monitoring records, and review the status of this procedure with regard to current regulatory requirements.



- Health and Safety Representatives shall maintain or oversee maintenance of all other records required by this RPP and shall provide for the training and fit testing of personnel assigned respiratory protective equipment.
- Health and Safety Representatives shall appoint a RPP Coordinator for each location which uses or may have a need to use respiratory protection. The Health and Safety Representative must assure the RPP Coordinator has the necessary training to fulfill his/her responsibilities.

#### RPP Coordinator

- The RPP Coordinator shall be responsible for cleaning, maintenance, and storage of all respirators not routinely used or not individually assigned.
- The RPP Coordinator shall maintain respirator supplies, including spare parts; submit purchase requests for new equipment; and assure that sufficient quantities of cartridges are available for each field office/project.
- The RPP Coordinator shall assure that air supply and emergency respiratory protection is properly inspected and maintained.
- Respirators shall be repaired by either qualified personnel under the direction of the RPP Coordinator, or by contracted supplier.
- The RPP Coordinator shall maintain models and sizes of respirators available for selection and fitting.
- The RPP Coordinator shall conduct fit testing.

#### Training Department

- Records pertaining to training and fit testing will be maintained by the Training Department.

#### Employee

- The employee shall use the provided respiratory protective equipment when instructed to do so in accordance with training received.
- The employee shall clean, disinfect, and properly store the assigned respirator, unless other arrangements are made on a project level.
- The employee shall guard against damage to the assigned respirator.
- The employee shall inspect the respirator before each use and after cleaning.



- The employee shall report any malfunction of the respirator immediately to their supervisor and/or the RPP Coordinator.
- The employee shall report to their supervisor any change in their medical status that may impact their ability to wear a respirator safely.

**5.4.2 Use of Corrective Lens Eyewear.** In general, contact lenses are permitted to be worn when respiratory protection is used. Although in certain instances, client- or project-specific rules may not allow for their use.

If an employee chooses not to wear contact lenses, management shall assure that the appropriate frames or ophthalmic device attachments are obtained and provided at no cost to the employee.

**5.4.3 Obstruction of Face Seal.** Employees who wear respirators are required to be clean shaven to the extent that there is no obstruction between the wearer's skin and the facepiece. Trimmed mustaches and facial hair which does not interfere with the seal are allowable.

In addition, respirators shall not be worn when conditions prevent a good face-to-facepiece seal such as corrective lenses or goggles, or other personal protective equipment.

## **5.5 Instruction, Training, and Fit Test**

**5.5.1 Instruction and Training.** The Training Department shall provide a standard respiratory protective equipment training program for use by qualified personnel such as the Health and Safety Representative or RPP Coordinator. The Training Department will support training at the project location if the project does not have the qualified personnel and/or the equipment to support its own program. As an alternative, the project location may use a respiratory manufacturer's training program if the program meets company requirements, a competent person conducts the training, adequate equipment is available for demonstration, and fit testing is conducted along guidelines established in this procedure. The Training Department must approve all alternative training methods.

The basic respirator training program shall include, as a minimum, the following:

- Training and annual retraining of employees in the selection, use, maintenance, and limitation of each respirator type used.
- Instruction on the nature of the respiratory hazards and potential health effects resulting from exposure.
- Opportunity for "hands on" experience with the respiratory protective equipment.



- Proper fitting, including demonstrations and practice in wearing, adjusting, and determining the fit of the respirator. A selection of respirators shall be available to determine the most comfortable respirator and the best fit.
- Instruction on how to test the face-to-facepiece seal.
- A familiarization period of wear in ambient air.
- For APRs, wearing the respirator in a test atmosphere (typically irritant smoke) for qualitative fit testing. The qualitative fit test shall follow the guidelines outlined in Section 5.5.2.
- Training to recognize and cope with emergency situations (including respirator failure)
- Training and fit testing shall be repeated annually, unless specific OSHA regulations require a more frequent time period (e.g., asbestos, lead operations). Each person receiving training shall complete the Respirator Fit Test Form (Attachment 5).
- Training records will be maintained by the Training Department and the location Health and Safety Representative. On-site records of training and fit testing will be maintained as required by specific regulation (e.g., asbestos work) (refer to Section 5.8).
- It is the responsibility of the RPP Coordinator to verify that all project personnel meet the requirements of this RPP.

**5.5.2 Fit Testing.** Prior to the use of any negative or positive pressure tight-fitting facepiece, the employee must be fit tested.

- All employees assigned to operations requiring the use of respiratory protective equipment shall have been fit tested within 12 months, or as required by specific regulations (e.g., asbestos, lead operations). Fit test and qualification cards (or a copy of the completed Attachment 5) must be available during operations.
- The employee shall be fit tested with the same size and model as they are expected to wear.
- Qualitative fit test (QLFT) shall be used when a protection factor of 10 or less is required for a negative pressure respirator.
- Quantitative fit test (QNFT) shall be used when a protection factor of greater than 10 is required for a negative pressure respirator. When



executing the QNFT, the acceptable test result is 100 for tight fitting half-facepiece respirators and 500 for full-facepiece respirators.

- Fit testing for tight-fitting atmosphere supplying respirators and tight-fitting APRs shall be in a negative pressure mode regardless of the mode of operation that is used for respiratory protection.
- Assessment of comfort shall be made after allowing adequate time for this evaluation. This evaluation shall include reviewing the following points with the employee: positioning of the mask on nose, room for eye protection if required, room to talk, and positioning of the mask on the face and cheeks.
- The following criteria shall be used to help determine the adequacy of the respirator fit: chin properly placed, strap tension, fit across the nose bridge, and tendency to slip.
- If physical obstruction (e.g., facial hair, eyeglasses) interferes with the face-to-facepiece seal, then it shall be altered or removed so as to eliminate any interference and allow for a satisfactory fit. If the employee refuses to alter the physical obstruction, then they shall be denied a satisfactory fit report and referred to his/her supervisor for consideration.
- The fit test protocol (Attachment 4) shall be followed. The Health and Safety Representative and Training Department shall determine which fit test protocol shall be followed depending upon the situation.

#### 5.6 Maintenance Program

Each RPP Coordinator is responsible for verifying the respirator maintenance program is implemented in an effective manner for the facility or project site, the working conditions, and the potential hazards involved. As a minimum, the following aspects must be implemented:

- Inspection
- Cleaning and sanitizing
- Repair
- Respirator storage
- Inspection and repair documentation, as required
- Compliance with manufacturer recommendations.

Detailed information regarding cleaning, inspection, maintenance, and storage is found in Attachment 7. The RPP Coordinator shall verify compliance with the maintenance program by periodic inspections and field audits.



### 5.6.1 Inspection

- All respiratory protective equipment systems shall be inspected by the wearer for defects and/or deterioration immediately prior to and after each use.
- Any defects shall be reported to their supervisor immediately and the respirator removed from use until it can be repaired or replaced.
- Respiratory protective equipment systems not used routinely (including all SCBAs and equipment designated only for emergency use) shall be inspected before and after each use and at least every 30 days. Cylinders shall be recharged whenever the pressure falls below 90 percent of the manufacturer's recommended pressure level. This inspection shall be documented by some method on the unit (i.e., tag). Records of inspections shall be kept through appropriate documentation. Attachment 6 provides an example of inspection documentation for SCBAs. At a minimum, these records will include: date, inspector, and any unusual finding or condition. Any repairs or modifications shall be documented in detail.
- General field inspection shall include a check of the following: tightness of all connections, facepiece, valves, and any connecting tubes or filtering elements.
- Employees who are manufacturer-qualified repair technicians shall be used for all maintenance beyond field inspections, tests, and user-performed cleaning.
- Air supplied respiratory systems shall be inspected by a manufacturer's authorized representative at the manufacturer's recommended schedule. Manufacturers typically require an annual flow test and a complete overhaul every 5 to 7 years.
- **Specific inspection procedures are outlined in Attachment 7.**

**5.6.2 Cleaning and Sanitizing.** Employees maintaining their own respirators shall be thoroughly briefed on how to clean and disinfect them. On projects where employees clean their own respirator, the generally accepted procedure involves washing with detergent and warm water using a soft brush, submersion in sanitizing agent, thoroughly rinsing in clean water, drying in a clean place, and storage in sealed plastic bags or equivalent. Precautions to be taken to prevent damage from rough handling during this procedure are detailed in Attachment 7.

At locations where employees share respirators, a centralized cleaning and maintenance facility with specialized equipment and/or materials and personnel



trained in respirator maintenance must be established. Cleaning and inspection is primarily the responsibility of the user.

**5.6.3 Repair.** The company will only use respiratory protective equipment that is physically sound.

- If defects are found during any inspection, two remedies are possible. If parts and trained personnel are available, repair and/or adjustment may be made immediately. If parts or trained repair people are unavailable, the device shall be removed from service until it can be repaired. Under no circumstances shall a device that is known to be defective remain in service.
- Replacement or repair shall be done by adequately trained personnel. For negative pressure respirators, the Health and Safety Representative or RPP Coordinator may train or supervise personnel in the replacement of items such as inhalation/exhalation valves, head harness, cartridge adapters, and lenses. For air-supplied respirators, field repairs are limited to replacement of head harness and lenses. All other work must be completed by a factory-certified repair person.

Repair shall only be made with parts designed for the respirator. Substitution of parts from a different brand or type invalidates the respirator's approval and is prohibited.

**5.6.4 Storage.** Respirators must be stored to protect against dust, sunlight, heat, extreme cold, excessive moisture, damaging chemicals, and mechanical damage.

- Respirators shall be stored in such a manner that the facepiece, exhalation valve, and straps are not distorted.
- Respirators shall be stored in sealable containers (e.g., ziplock bags) after cleaning and disinfecting.
- The storage location of emergency respiratory protection shall be readily accessible and prominently identified.
- Respirators shall be stored in an area free of contamination.

## **5.7 Field Use**

The following guidelines for the use of respirators (or equivalent) shall be incorporated into the Project HASP as appropriate. Additional guidelines may be required based on working conditions and hazards involved. Each location where respiratory protective equipment is required or worn shall include in the Project HASP justification for the selected respiratory protective equipment systems worn as outlined in Section 5.2 of this procedure.



**5.7.1 General Requirements.** The following general requirements shall be followed whenever respiratory protection is used:

- Employees shall be allowed to leave the regulated area to readjust the facepiece or to wash their faces and to wipe clean the facepieces of their respirators in order to minimize potential skin irritation associated with respirator use.
- Respiratory protective equipment shall not be passed on from one person to another until it has been cleaned and sanitized, per program requirements.
- Respirators will be inspected, and a positive/negative pressure test performed prior to each use.
- Entry into, oxygen-deficient (< 19.5 percent O<sub>2</sub>) atmospheres, Immediately Dangerous to Life and Health (IDLH) atmospheres, or areas requiring EPA Level A protection is prohibited without the prior approval of the Vice President, Health and Safety or the CIH assigned to the business line.
- Head coverings such as Tyvek hoods shall not be allowed to pass between the face-to-facepiece seal.
- The harness straps of tight-fitting respirators shall not be positioned or worn over hard hats.

**5.7.2 Specific Requirements.** The following information details specific requirements by respirator class:

#### Air Purifying Systems

- When APRs are worn, new filter elements shall be installed at the beginning of operations. The filter elements shall be changed whenever the ESLI (color indicators) indicates that cartridge life has expired (e.g., mercury cartridges). When no ESLIs are available, filter replacement will be based on the calculations performed by the Health and Safety Representative. Additionally, the cartridges will be replaced if "breakthrough" is perceived or whenever an increase in breathing resistance is detected. In most cases, the cartridges will be replaced a minimum of once daily, usually at the end of the work shift.

#### Powered Air Purifying Systems

- When PAPRs are worn, employees shall change filter elements after each day's activities. The filter elements shall be changed whenever the ESLI (color indicators) indicates that cartridge life has expired (e.g., mercury



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cartridges). When no ESLIs are available, filter replacement will be based on the calculations performed by the Health and Safety Representative. Additionally, the cartridges will be replaced if "break-through" is perceived or when airflow through filter elements decreases to an unacceptable level as indicated by the manufacturer's test device.

#### Compressed Air

- Compressed air used for breathing shall meet at least the requirements of the specification for Grade D breathing air or better (D, E, or G; not A, K, or L) as described in the American National Standard Commodity Specification for Air, ANSI/CGA G-7.1-1989. Further information is provided in Attachment 7, Guide to Respiratory Protective Equipment Cleaning, Inspection, Maintenance, and Storage.
- Breathing air suppliers must provide certification of analysis stating conformance, as a minimum, to Grade D breathing air standards as previously referenced for each cylinder and/or air lot.
- Air delivered in bulk, e.g., tube trailers, shall have each tube or unit, or a representative number of tubes or units verified as to oxygen content prior to using that tube.
- Pure oxygen shall NOT be used at any time in open-circuit SCBAs or airline respirators.
- Breathing air cylinders shall be legibly identified with the word "AIR" by means of stenciling, stamping, or labeling as near to the valve end as practical.
- Breathing air cylinders may be stored on their sides provided the valve caps are in place.

#### Supplied Air Breathing Systems

- Airline couplings shall be incompatible with outlets for other gas systems to prevent inadvertent servicing of airline respirators with nonrespirable gases or oxygen.
- Standard airline couplings for breathing air systems are Foster quick connect fittings with locking dots. Hansen quick connect fitting may also be used, but must not be used where they can be inadvertently actuated and disconnected. For example, Hansen fittings could be used at the regulator connection, but not on the airline unless protected from disconnection by some other means.



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- The hose line length shall not exceed 300 feet from the air bank regulator to the user.
- No more than three connections, excluding the connection to the regulator and final connection to the respirator, shall be between the breathing air cylinders and the user.
- Breathing air hose shall be protected from direct contact with chemical materials which may permeate the hose. Acceptable methods of protection include suspension of the hose from the surface or covering with a commercially available sleeve or visqueen. Breathing air hose which has become contaminated will be removed from service and disposed of properly.
- The breathing air regulator shall be adjusted to provide air pressure as per the manufacturer's recommendations. For Survivair units, this pressure shall be between 80 to 125 psi pressure.
- Cascade systems shall be equipped with low pressure warning alarms or similar warning devices to indicate air pressure in the manifold below 500 psi.
- When a cascade system is used to supply breathing air, a worker outside the Exclusion Zone shall be assigned as safety standby within audible range of the low pressure alarm.
- When a cascade system is used to recharge SCBA air cylinders, it shall be equipped with a high-pressure supply hose and coupling rated at a capacity of at least 3,000 psi. The supply hose and coupling shall be relatively short ( $\leq 3$  feet) and secured to prevent whipping when pressurized.
- Large supplied air cylinders shall be stored and handled to prevent damage to the cylinder or valve. Cylinders shall be stored upright with the protective valve cover in place and in such a way (e.g., supported with substantial rope or chain in the upper one-third of the cylinder, or in racks designed for the purpose) as to prevent the cylinder from falling. Cylinders shall not be dropped, dragged, rolled, or allowed to strike each other or to be struck violently. Cylinders shall never be exposed to temperatures exceeding 125 degrees F. Cylinders with visible external damage, evidence of corrosion, or exposure to fire shall not be accepted or used.
- Only cylinders within current hydrostatic test periods shall be used. For fiber wrapped bottles designated by the DOT-E label, hydrostatic testing shall be completed every 3 years. Maximum service life for these cylinders is 15 years. Steel or aluminum cylinders shall be



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hydrostatically tested every 5 years. No maximum service life is established for steel or aluminum cylinders.

- SCBAs shall only be used in the positive pressure mode when in the Exclusion Zone.
- Standby SCBA equipment must be present when air supply systems are used in IDLH or potentially IDLH atmospheres.

#### Escape/Egress Units

- These respirators are intended for use in areas where escape with a short-term (5 minute) air supply is necessary. They may be used as adjuncts to airline respirators as a backup air supply, or as independent emergency devices in areas where respiratory protective equipment is not normally required.
- Appropriate training shall be accomplished and documented prior to assigning employees to tasks or locations subject to the use of these respirators.
- *Escape/egress units (5-minute air supply) shall never be used as primary standby respirators for confined space entry.*
- *Escape/egress units shall never be used to enter, or continue working in, a hazardous atmosphere.*

#### **5.7.3 IDLH Atmospheres.** For all IDLH atmospheres, the company shall ensure that:

- One employee or, when needed, more than one employee is located outside the IDLH atmosphere.
- Visual, voice, or signal line communication is maintained between the employee(s) in the IDLH atmosphere and the employee(s) located outside the IDLH atmosphere.
- The employee(s) located outside the IDLH atmosphere are trained and equipped to provide effective emergency rescue.
- The employer or designee is notified before the employee(s) located outside the IDLH atmosphere enter the IDLH atmosphere to provide emergency rescue.
- The employer or designee authorized to do so by the employer, once notified, provides necessary assistance appropriate to the situation.
- Employee(s) located outside the IDLH atmosphere are equipped with:



- Pressure demand or other positive pressure SCBAs, or a pressure demand or other positive pressure supplied air respirator with escape/egress unit.
- Appropriate retrieval equipment for removing the employee(s) who enter(s) these hazardous atmospheres where retrieval equipment would contribute to the rescue of the employee(s) and would not increase the overall risk resulting from entry. Equivalent means of rescue can be considered.

#### 5.8 Recordkeeping

The following documents must be part of the site recordkeeping program:

- Employees' medical clearances for respirator use
- Respirator training and fit testing forms.

#### 5.9 Program Evaluation

This RPP shall be reviewed annually at the direction of the Vice President, Health and Safety.

### 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

Title 29, Code of Federal Regulations, Section 1910.134.

AIHA, *Respiratory Protection; A Manual and Guideline*, 1980.

American National Standards Institute Practices for Respiratory Protection Z88.2-1992 (or most recent publication)

NIOSH, *Certified Equipment List* (most recent version)

#### Company Health and Safety Procedures:

- HS013 Health and Safety Procedure Variances
- HS040 Stop Work Authority
- HS050 Training Requirement
- HS052 Health and Safety Plans
- HS102 Management of Employee Exposure and Medical Records
- HS104 Employee Notification of Industrial Hygiene Monitoring Records
- HS300 Confined Spaces
- HS304 Compressed Gas Cylinders
- HS600 Personal Protective Equipment



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## 8.0 ATTACHMENTS

1. Responsibility Matrix
2. List of Approved Respiratory Protective Equipment
3. Respirator Type, Protection Factor, and Fit Testing Method
4. Mandatory Respirator Fit Test Protocol
5. Respirator Fit Test Form
6. Emergency Respiratory Protective Equipment Monthly Inspection Checklist
7. Guide to Respiratory Protective Equipment Cleaning, Inspection, Maintenance, and Storage



**ATTACHMENT 1**  
**RESPIRATORY PROTECTION PROGRAM**

**Responsibility Matrix**

Action	Procedure Section	Responsible Party					
		Employee	Health and Safety Representative	Project Location Management	VP Health and Safety	Training	RPP Coordinator
Issue, Revise, and Maintain Procedure	3.1				X		
Assure Proper Selection of Respirators	5.2.2		X				
Review Purchase Requests for Respiratory Equipment	5.2.3		X				
Conduct Fit Testing	5.4		X				X
Assure Compliance with RPP	5.4		X	X			X
Assure Training	5.4		X	X			X
Audit Program Compliance	5.4		X		X		X
Assist/Approve Local Training Program	5.4					X	
Maintenance Program	5.6	X	X	X			X
Field Use	5.7	X	X	X			X
Recordkeeping	5.8	X	X			X	X
Program Evaluation	5.9				X		



ATTACHMENT 2

LIST OF APPROVED RESPIRATORY PROTECTIVE EQUIPMENT

AIR PURIFYING RESPIRATORS (APR)					
Respirator Class	Respirator Type	Respiratory Performance	Manufacturer	Model Name	Model Number
Standard APR	Half-Face	Negative Pressure	Survivair	Blue 1	2100-10 S 2200-10 M 2300-10 L
			MSA	Comfo II	479529 S 479428 M 479530 L
	Full-Face	Negative Pressure	Survivair	20/20	202062 S 202072 M 202082 L
			MSA	Ultra Twin	480263 S 480259 M 480267 L
Powered APR	Hood	Continuous Positive Pressure	Survivair	PAPR	5200-15
			MSA	Optimair 6	480251 S 480247 M 480255 L

SUPPLIED AIR RESPIRATORS (SAR)					
Respirator Class	Respirator Type	Respiratory Performance	Manufacturer	Model Name	Model Number
Airline SAR	Full-Face	Positive Pressure Demand	Survivair	Panther	P968455
			MSA	Premaire	497291
SCBA SAR	Full-Face	Positive Pressure Demand	Survivair	Cougar	P 9643310
			MSA	MMR WorkMask 2216	Varies on Components
Emergency	Escape/Egress Unit	Continuous Flow	Survivair	5 min. EEGA	9750870
			MSA	Custom Air V	484353



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ATTACHMENT 3

RESPIRATOR TYPE, PROTECTION FACTOR, AND FIT TESTING METHOD

Respirator Type	Protection Factor	Q1 FT	Q1 FT
Half-Face, Negative Pressure (<100 Fit Factor) <sup>1</sup>	10	Yes	Yes
Full-Face, Negative Pressure (<100 Fit Factor) Used in Atmosphere up to 10 Times the PEG	10	Yes	Yes
Full-Face, Negative Pressure (>100 Fit Factor) Used in Atmospheres Over 10 Times the PEG <sup>2</sup>	50	No	Yes
PAPR	100	Yes	Yes
SCBA/SAR Used in Positive Pressure (Pressure Demand Mode)	10,000	Yes	Yes

Footnotes:

1. If quantitatively fit tested, the device must demonstrate a fit factor of at least 100.
2. If quantitatively fit tested, the device must demonstrate a fit factor of at least 500.



## ATTACHMENT 4

### MANDATORY RESPIRATOR FIT TEST PROTOCOL

#### OSHA-Accepted Fit Test Protocols

##### A. Fit Testing Procedures - General Requirements

The company shall conduct fit testing using the following procedures. The requirements in this attachment apply to all OSHA-accepted fit test methods, both QLFT and QNFT. There are several OSHA-accepted fit test protocols for QLFT. This procedure includes only the irritant smoke protocol since it requires less equipment and is more practical for field use.

1. The test subject shall be allowed to pick the most acceptable respirator from a sufficient number of respirator models and sizes so that the respirator is acceptable to, and correctly fits, the user.
2. Prior to the selection process, the test subject shall be shown how to put on a respirator, how it should be positioned on the face, how to set strap tension, and how to determine an acceptable fit. A mirror shall be available to assist the subject in evaluating the fit and positioning of the respirator. This instruction may not constitute the subject's formal training on respirator use, because it is only a review.
3. The test subject shall be informed that he/she is being asked to select the respirator that provides the most acceptable fit. Each respirator represents a different size and shape, and if fitted and used properly, will provide adequate protection.
4. The test subject shall be instructed to hold each chosen facepiece up to the face and eliminate those that obviously do not give an acceptable fit.
5. The more acceptable facepieces are noted in case the one selected proves unacceptable; the most comfortable mask is donned and worn at least five minutes to assess comfort. Assistance in assessing comfort can be given by discussing the points in the following Item A.6. If the test subject is not familiar with using a particular respirator, the test subject shall be directed to don the mask several times and to adjust the straps each time to become adept at setting proper tension on the straps.
6. Assessment of comfort shall include a review of the following points with the test subject and allowing the test subject adequate time to determine the comfort of the respirator:
  - a. Position of the mask on the nose;
  - b. Room for eye protection;
  - c. Room to talk; and
  - d. Position of mask on face and cheeks.
7. The following criteria shall be used to help determine the adequacy of the respirator fit:
  - a. Chin properly placed;
  - b. Adequate strap tension, not overly tightened;
  - c. Fit across nose bridge;
  - d. Respirator of proper size to span distance from nose to chin;
  - e. Tendency of respirator to slip; and
  - f. Self-observation in mirror to evaluate fit and respirator position.



8. The test subject shall conduct a user seal check, either the negative and positive pressure seal checks. Before conducting the negative and positive pressure checks, the subject shall be told to seat the mask on the face by moving the head from side-to side and up and down slowly while taking in a few slow deep breaths. Another facepiece shall be selected and retested if the test subject fails the user seal check tests.
9. The test shall not be conducted if there is any hair growth between the skin and the facepiece sealing surface, such as stubble beard growth, beard, mustache, or sideburns which cross the respirator sealing surface. Any type of apparel which interferes with a satisfactory fit shall be altered or removed.
10. If a test subject exhibits difficulty in breathing during the tests, he/she shall be referred to a physician or other licensed health care professional, as appropriate, to determine whether the test subject can wear a respirator while performing his/her duties.
11. If the employee finds the fit of the respirator unacceptable, the test subject shall be given the opportunity to select a different respirator and to be retested.
12. *Exercise Regimen:* Prior to the commencement of the fit test, the test subject shall be given a description of the fit test and the test subject's responsibilities during the test procedure. The description of the process shall include a description of the test exercises that the subject will be performing. The respirator to be tested shall be worn for at least 5 minutes before the start of the fit test.
13. The fit test shall be performed while the test subject is wearing any applicable safety equipment that may be worn during actual respirator use which could interfere with respirator fit.
14. *Test Exercises:* The following test exercises are to be performed for all fit testing methods prescribed in this attachment, except for the controlled negative pressure (CNP) method. A separate fit testing exercise regimen is contained in the CNP protocol.

Each test exercise shall be performed for one minute, except for the grimace exercise which shall be performed for 15 seconds. The test subject shall be questioned by the test conductor regarding the comfort of the respirator upon completion of the protocol. If it has become unacceptable, another model of respirator shall be tried. The respirator shall not be adjusted once the fit test exercises begin. Any adjustment voids the test, and the fit test must be repeated.

The test subject shall perform exercises, in the test environment, in the following manner:

- a. *Normal Breathing:* In a normal standing position, without talking, the subject shall breathe normally.
- b. *Deep Breathing:* In a normal standing position, the subject shall breathe slowly and deeply, taking caution so as not to hyperventilate.
- c. *Turning Head Side to Side:* Standing in place, the subject shall slowly turn his/her head from side to side between the extreme positions on each side. The head shall be held at each extreme momentarily so the subject can inhale at each side.



- d. *Moving Head Up and Down:* Standing in place, the subject shall slowly move his/her head up and down. The subject shall be instructed to inhale in the up position (i.e., when looking toward the ceiling).
- e. *Talking:* The subject shall talk out loud slowly and loud enough so as to be heard clearly by the test conductor. The subject can count backward from 100, recite a memorized poem or song or read from a prepared text such as the Rainbow Passage.

Rainbow Passage:

When the sunlight strikes raindrops in the air, they act like a prism and form a rainbow. The rainbow is a division of white light into many beautiful colors. These take the shape of a long round arch, with its path high above, and its two ends apparently beyond the horizon. There is, according to legend, a boiling pot of gold at one end. People look, but no one ever finds it. When a man looks for something beyond reach, his friends say he is looking for the pot of gold at the end of the rainbow.

- f. *Grimace:* The test subject shall grimace by smiling or frowning. (This applies only to QNFT testing; it is not performed for QLFT.)
- g. *Bending Over:* The test subject shall bend at the waist as if he/she were to touch his/her toes. Jogging in place shall be substituted for this exercise in those test environments such as shroud type QNFT or QLFT units that do not permit bending over at the waist.
- h. *Normal Breathing:* Same as Item A.14.a.

**B. Qualitative Fit Test (QLFT) Protocols**

1. General:

- a. The employer shall ensure that persons administering QLFT are able to perform tests properly, recognize invalid tests, and ensure that test equipment is in proper working order.
- b. The employer shall ensure that QLFT equipment is kept clean and well maintained so as to operate within the parameters for which it was designed.

2. Irritant Smoke (Stannic Chloride) Protocol: This qualitative fit test uses a person's response to the irritating chemicals released in the "smoke" produced by a stannic chloride ventilation smoke tube to detect leakage into the respirator.

a. General Requirements and Precautions:

- 1. The respirator to be tested shall be equipped with high efficiency particulate air (HEPA) or P100 series filter(s).
- 2. Only stannic chloride smoke tubes shall be used for this protocol.
- 3. No form of test enclosure or hood for the test subject shall be used.



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4. The smoke take precautions to minimize the test subject's exposure to irritant smoke. Sensitivity varies, and certain individuals may respond to a greater degree to irritant smoke. Care shall be taken when performing the sensitivity screening checks that determine whether the test subject can detect irritant smoke to use only the minimum amount of smoke necessary to elicit a response from the test subject.
  5. The fit test shall be performed in an area with adequate ventilation to prevent exposure of the person conducting the fit test or the buildup of irritant smoke in the general atmosphere.
- b. Sensitivity Screening Check: The person to be tested must demonstrate his/her ability to detect a weak concentration of the irritant smoke.
1. The test operator shall break both ends of a ventilation smoke tube containing stannic chloride, and attach one end of the smoke tube to a low flow air pump set to deliver 200 milliliters per minute, or an aspirator squeeze bulb. The test operator shall cover the other end of the smoke tube with a short piece of tubing to prevent potential injury from the jagged end of the smoke tube.
  2. The test operator shall advise the test subject that the smoke can be irritating to the eyes, lungs, and nasal passages and instruct the subject to keep his/her eyes closed while the test is performed.
  3. The test subject shall be allowed to smell a weak concentration of the irritant smoke before the respirator is donned to become familiar with its irritating properties and to determine if he/she can detect the irritating properties of the smoke. The test operator shall carefully direct a small amount of the irritant smoke in the test subject's direction to determine that he/she can detect it.
- c. Irritant Smoke Fit Test Procedure:
1. The person being fit tested shall don the respirator without assistance, and perform the required user seal check(s).
  2. The test subject shall be instructed to keep his/her eyes closed.
  3. The test operator shall direct the stream of irritant smoke from the smoke tube toward the face seal area of the test subject, using the low flow pump or the squeeze bulb. The test operator shall begin at least 12 inches from the facepiece and move the smoke stream around the whole perimeter of the mask. The operator shall gradually make two more passes around the perimeter of the mask, moving to within 6 inches of the respirator.
  4. If the person being tested has not had an involuntary response and/or detected the irritant smoke, proceed with the test exercises.
  5. The exercises identified in Item A.14 of this attachment shall be performed by the test subject while the respirator seal is being continually challenged by the smoke, directed around the perimeter of the respirator at a distance of six inches.
  6. If the person being fit tested reports detecting the irritant smoke at any time, the test is failed. The person being retested must repeat the entire sensitivity check and fit test procedure.



7. Each test subject passing the irritant smoke test without evidence of a response (involuntary cough, irritation) shall be given a second sensitivity screening check, with the smoke from the same smoke tube used during the fit test, once the respirator has been removed, to determine whether he/she still reacts to the smoke. Failure to evoke a response shall void the fit test.

8. If a response is produced during this second sensitivity check, then the fit test is passed.

### C. Quantitative Fit Test (QNFT) Protocols

The following quantitative fit testing procedures have been demonstrated to be acceptable: quantitative fit testing using a nonhazardous test aerosol (such as corn oil, polyethylene glycol 400 [PEG 400], di-2-ethyl hexyl sebacate [DEHS], or sodium chloride) generated in a test chamber, and employing instrumentation to quantify the fit of the respirator; quantitative fit testing using ambient aerosol as the test agent and appropriate instrumentation (condensation nuclei counter) to quantify the respirator fit; quantitative fit testing using controlled negative pressure and appropriate instrumentation to measure the volumetric leak rate of a facepiece to quantify the respirator fit.

#### 1. General:

- a. The employer shall ensure that persons administering QNFT are able to calibrate equipment and perform tests properly, recognize invalid tests, calculate fit factors properly, and ensure that test equipment is in proper working order.
- b. The employer shall ensure that QNFT equipment is kept clean, and is maintained and calibrated according to the manufacturer's instructions so as to operate at the parameters for which it was designed.

2. Ambient Aerosol Condensation Nuclei Counter (CNC) Quantitative Fit Testing Protocol: The ambient aerosol CNC quantitative fit testing (Portacount<sup>®</sup>) protocol quantitatively fit tests respirators with the use of a probe. The probed respirator is only used for quantitative fit tests. A probed respirator has a special sampling device, installed on the respirator, that allows the probe to sample the air from inside the mask. A probed respirator is required for each make, style, model, and size that the employer uses and can be obtained from the respirator manufacturer or distributor. The CNC instrument manufacturer, TSI Inc., also provides probe attachments (TSI sampling adapters) that permit fit testing in an employee's own respirator. A minimum fit factor pass level of at least 100 is necessary for a half-mask respirator and a minimum fit factor pass level of at least 500 is required for a full facepiece negative pressure respirator. The entire screening and testing procedure shall be explained to the test subject prior to conducting the screening test.

#### a. Portacount<sup>®</sup> Fit Test Requirements:

1. Check the respirator to make sure the sampling probe and line are properly attached to the facepiece and that the respirator is fitted with a particulate filter capable of preventing significant penetration by the ambient particles used for the fit test (e.g., NIOSH 42 CFR 84 Series 100, Series 99, or Series 95 particulate filter) per manufacturer's instruction.
2. Instruct the person to be tested to don the respirator for five minutes before the fit test starts. This purges the ambient particles trapped inside the respirator and permits the



wearer to make certain the respirator is comfortable. This individual shall already have been trained on how to wear the respirator properly.

3. Check the following conditions for the adequacy of the respirator fit: chin properly placed; adequate strap tension, not overly tightened; fit across nose bridge; respirator of proper size to span distance from nose to chin; tendency of the respirator to slip; and self-observation in a mirror to evaluate fit and respirator position.
4. Have the person wearing the respirator do a user seal check. If leakage is detected, determine the cause. If leakage is from a poorly fitting facepiece, try another size of the same model respirator, or another model of respirator.
5. Follow the manufacturer's instructions for operating the Portacount<sup>b</sup> and proceed with the test.
6. The test subject shall be instructed to perform the exercises in Item A.14 of this attachment.
7. After the test exercises, the test subject shall be questioned by the test conductor regarding the comfort of the respirator upon completion of the protocol. If it has become unacceptable, another model of respirator shall be tried.

b. Portacount<sup>b</sup> Test Instrument:

1. The Portacount<sup>b</sup> will automatically stop and calculate the overall fit factor for the entire set of exercises. The overall fit factor is what counts. The Pass or Fail message will indicate whether or not the test was successful. If the test was a Pass, the fit test is over.
  2. Since the pass or fail criterion of the Portacount<sup>b</sup> is user programmable, the test operator shall ensure that the pass or fail criterion meet the requirements for minimum respirator performance in this attachment.
  3. A record of the test needs to be kept on file, assuming the fit test was successful. The record must contain the test subject's name; overall fit factor; make, model, style, and size of respirator used; and date tested.
3. **Controlled Negative Pressure (CNP) Quantitative Fit Testing Protocol** - The CNP protocol provides an alternative to aerosol fit test methods. The CNP fit test method technology is based on exhausting air from a temporarily sealed respirator facepiece to generate and then maintain a constant negative pressure inside the facepiece. The rate of air exhaust is controlled so that a constant negative pressure is maintained in the respirator during the fit test. The level of pressure is selected to replicate the mean inspiratory pressure that causes leakage into the respirator under normal use conditions. With pressure held constant, air flow out of the respirator is equal to air flow into the respirator. Therefore, measurement of the exhaust stream that is required to hold the pressure in the temporarily sealed respirator constant yields a direct measure of leakage air flow into the respirator. The CNP fit test method measures leak rates through the facepiece as a method for determining the facepiece fit for negative pressure respirators. The CNP instrument manufacturer, Dynatech Nevada, also provides attachments (sampling manifolds) that replace the filter cartridges to permit fit testing in an employee's own respirator. To perform the test, the test subject closes his/her mouth and holds his/her breath, after which an air pump removes air from the respirator facepiece at a pre-selected constant pressure. The facepiece fit is expressed as the leak rate through the facepiece, expressed as milliliters per minute. The quality and validity



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of the CNP fit tests are determined by the degree to which the in-mask pressure tracks the test pressure during the system measurement time of approximately five seconds. Instantaneous feedback in the form of a real-time pressure trace of the in-mask pressure is provided and used to determine test validity and quality. A minimum fit factor pass level of 100 is necessary for a half-mask respirator and a minimum fit factor of at least 500 is required for a full facepiece respirator. The entire screening and testing procedure shall be explained to the test subject prior to conducting the screening test.

a. CNP Fit Test Requirements:

1. The instrument shall have a non-adjustable test pressure of 15.0 mm water pressure.
2. The CNP system defaults selected for test pressure shall be set at 15 mm of water (-0.58 inches of water) and the modeled inspiratory flow rate shall be 53.8 liters per minute for performing fit tests.

(Note: CNP systems have built-in capability to conduct fit testing that is specific to unique work rate, mask, and gender situations that might apply in a specific workplace. Use of system default values, which were selected to represent respirator wear with medium cartridge resistance at a low-moderate work rate, will allow inter-test comparison of the respirator fit.)

3. The individual who conducts the CNP fit testing shall be thoroughly trained to perform the test.
4. The respirator filter or cartridge needs to be replaced with the CNP test manifold. The inhalation valve downstream from the manifold either needs to be temporarily removed or propped open.
5. The test subject shall be trained to hold his/her breath for at least 20 seconds.
6. The test subject shall don the test respirator without any assistance from the individual who conducts the CNP fit test.
7. The QNFT protocol shall be followed according to Item C.1 of this attachment with an exception for the CNP test exercises.

b. CNP Test Exercises:

1. Normal Breathing: In a normal standing position, without talking, the subject shall breathe normally for 1 minute. After the normal breathing exercise, the subject needs to hold head straight ahead and hold his/her breath for 10 seconds during the test measurement.
2. Deep Breathing: In a normal standing position, the subject shall breathe slowly and deeply for 1 minute, being careful not to hyperventilate. After the deep breathing exercise, the subject shall hold his/her head straight ahead and hold his/her breath for 10 seconds during test measurement.
3. Turning Head Side to Side: Standing in place, the subject shall slowly turn his/her head from side to side between the extreme positions on each side for 1 minute. The head shall be held at each extreme momentarily so the subject can inhale at each side. After the



turning head side to side exercise, the subject needs to hold head full left and hold his/her breath for 10 seconds during test measurement. Next, the subject needs to hold head full right and hold his/her breath for 10 seconds during test measurement.

4. **Moving Head Up and Down:** Standing in place, the subject shall slowly move his/her head up and down for 1 minute. The subject shall be instructed to inhale in the up position (i.e., when looking toward the ceiling). After the moving head up and down exercise, the subject shall hold his/her head full up and hold his/her breath for 10 seconds during test measurement. Next, the subject shall hold his/her head full down and hold his/her breath for 10 seconds during test measurement.

5. **Talking:** The subject shall talk out loud slowly and loud enough so as to be heard clearly by the test conductor. The subject can read from a prepared text such as the Rainbow Passage, count backward from 100, or recite a memorized poem or song for 1 minute. After the talking exercise, the subject shall hold his/her head straight ahead and hold his/her breath for 10 seconds during the test measurement.

6. **Grimace:** The test subject shall grimace by smiling or frowning for 15 seconds.

7. **Bending Over:** The test subject shall bend at the waist as if he/she were to touch his/her toes for 1 minute. Jogging in place shall be substituted for this exercise in those test environments such as shroud-type QNFT units that prohibit bending at the waist. After the bending over exercise, the subject shall hold his/her head straight ahead and hold his/her breath for 10 seconds during the test measurement.

8. **Normal Breathing:** The test subject shall remove and re-don the respirator within a one-minute period. Then, in a normal standing position, without talking, the subject shall breathe normally for 1 minute. After the normal breathing exercise, the subject shall hold his/her head straight ahead and hold his/her breath for 10 seconds during the test measurement. After the test exercises, the test subject shall be questioned by the test conductor regarding the comfort of the respirator upon completion of the protocol. If it has become unacceptable, another model of a respirator shall be tried.

c. **CNP Test Instrument:**

1. The test instrument shall have an effective audio warning device when the test subject fails to hold his/her breath during the test. The test shall be terminated whenever the test subject failed to hold his/her breath. The test subject may be refitted and retested.

2. A record of the test shall be kept on file, assuming the fit test was successful. The record must contain the test subject's name; overall fit factor; make, model, style, and size of respirator used; and date tested.





ATTACHMENT 6

EMERGENCY RESPIRATORY PROTECTIVE EQUIPMENT  
 MONTHLY INSPECTION CHECKLIST

INSPECTED BY (Print): \_\_\_\_\_

DATE: \_\_\_\_\_

BACKPACK#: \_\_\_\_\_

AIR CYLINDER#: \_\_\_\_\_

			PASS	FAIL
A. Backpack and Harness Assembly	1. Straps	Inspect for complete set Inspect for damaged straps	<input type="checkbox"/>	<input type="checkbox"/>
	2. Buckles	Inspect for mating ends Check locking function	<input type="checkbox"/>	<input type="checkbox"/>
	3. Backplate and Cylinder Lock	Inspect backplate for cracks, missing screws/rivets Inspect cylinder hold down strap Inspect strap tightener	<input type="checkbox"/>	<input type="checkbox"/>
B. Cylinder and Cylinder Valve Assembly	1. Cylinder	Cylinder tight to backplate Current Hydrostatic Test Inspect cylinder for dents, gouges Is cylinder at least 90% filled?	<input type="checkbox"/>	<input type="checkbox"/>
	2. Head and Valve Assembly	Inspect cylinder valve lock for presence Inspect cylinder gauge for condition Proper function of cylinder valve lock Test for cylinder leakage	<input type="checkbox"/>	<input type="checkbox"/>
C. Regulator and High Pressure Hose	1. High Pressure Hose and Connector	Leakage in hose Leakage in hose to cylinder connector	<input type="checkbox"/>	<input type="checkbox"/>
	2. Regulator and Low Pressure Alarm	Read regulator gauge (at least 1,000 psi) Low pressure alarm sounds at 500 psi Test integrity of diaphragm Test for positive pressure Test bypass system	<input type="checkbox"/>	<input type="checkbox"/>
D. Facepiece and Corrugated Breathing Tube	1. Facepiece	Inspect harness for deterioration Inspect facepiece body for deterioration Inspect lens Inspect exhalation valve	<input type="checkbox"/>	<input type="checkbox"/>
	2. Breathing Tube and Connector	Inspect breathing tube for deterioration Inspect connector for threads and gasket	<input type="checkbox"/>	<input type="checkbox"/>
	3. Leak Test and Cleaning	Perform negative pressure test on facepiece/ breathing tube Clean and sanitize facepiece	<input type="checkbox"/>	<input type="checkbox"/>

Note: Any item marked - Fail - will place the equipment out of service until repaired or replaced.



## ATTACHMENT 7

### GUIDE TO RESPIRATORY PROTECTIVE EQUIPMENT: CLEANING, INSPECTION, MAINTENANCE, AND STORAGE

A program for the maintenance of respirators shall include the following:

- Cleaning and sanitizing
- Inspection for defects
- Maintenance and repair
- Storage
- Assurance of breathing air quality.

The following maintenance, inspection, and storage program is recommended.

#### 1. Cleaning and Sanitizing

Respirators issued to an individual shall be cleaned and sanitized regularly. Each respirator shall be cleaned and sanitized before being worn by different individuals. Respirators intended for emergency use shall be cleaned and sanitized after being used. The following shall be completed in addition to the manufacturer's instruction for cleaning:

- a. Remove, when necessary, the following components of respiratory inlet covering assemblies before cleaning and sanitizing:
  1. Filters, cartridges, canisters
  2. Speaking diaphragms
  3. Valve assemblies
  4. Any components recommended by the respirator manufacturer.
- b. Wash respiratory inlet covering assemblies in warm (43 degrees C or 110 degrees F maximum temperature) cleaner sanitizer solution. A stiff bristle (not wire) brush may be used to facilitate removal of dirt or other foreign material.
- c. Rinse the respirator inlet covering assemblies in clean, warm (43 degrees C or 110 degrees F maximum temperature) water.
- d. Drain all water, and air dry the respiratory inlet covering assemblies.
- e. Clean and sanitize all parts removed from the respiratory inlet covering assemblies as recommended by the manufacturers
- f. If necessary to remove foreign material, hand wipe respiratory inlet covering assemblies, all parts, and all gasket- and valve-sealing surfaces with damp, lint-free cloth.
- g. Inspect parts and replace any that are defective.



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- h. Reassemble parts on respirator inlet covering assemblies.
- i. Visually inspect and, where possible, test parts and respirator assemblies for proper function.
- j. Place assembled respirators in appropriate containers for storage.

Machines may be used to expedite the cleaning, sanitizing, rinsing, and drying of large numbers of respirators. Extreme care shall be taken to ensure against tumbling, agitation, or exposure to temperatures above those recommended by the manufacturer (normally 43 degrees C or 100 degrees F maximum), as these conditions are likely to result in damage to the respirators.

Ultrasonic cleaners, clothes washing machines, dishwashers, and clothes dryers have been specially adapted and successfully used for cleaning and drying respirators.

Cleaner sanitizers that effectively clean the respirator and contain a bactericidal agent are commercially available. The bactericidal agent frequently used is a quaternary ammonium compound. Strong cleaning and sanitizing agents and many solvents can damage rubber or elastomeric respirator parts. These materials must be used with caution.

Alternatively, respirators may be washed in a detergent solution and then sanitized by immersion in a sanitizing solution. Some sanitizing solutions that have proven effective are: (a) a hypochlorite (bleach) solution (50 parts per million chlorine), 2-minute immersion; (b) an aqueous iodine solution (50 parts per million of iodine), 2-minute immersion; or (c) a quaternary ammonium solution (200 parts per million of quaternary ammonium compounds in water with less than 500 parts per million total hardness), 2-minute immersion.

Inflammation of the skin of the respirator user (dermatitis) may occur if the quaternary ammonium compounds are not completely rinsed from the respirator. The hypochlorite and iodine solutions are unstable and break down with time; they may cause deterioration of rubber or other elastomeric parts and may be corrosive to metallic parts. Immersion times should not be extended beyond the mentioned time periods, and the sanitizers shall be thoroughly rinsed from the respirator parts.

Respirators may become contaminated with toxic materials. If the contamination is light, normal cleaning procedures should provide satisfactory decontamination; otherwise, separate decontamination steps may be required before cleaning.

## 2. **Inspection**

The user shall inspect the respirator immediately prior to each use to ensure that it is in proper working condition. After cleaning and sanitizing, each respirator shall be inspected to determine if it is in proper working condition, if it needs replacement parts or repairs, or if it should be discarded. Each respirator stored for emergency or rescue use shall be inspected at least monthly.



Respirator inspection shall include a check for tightness of connections; for the condition of the respiratory inlet covering, head harness, valves, connecting tubes, harness assemblies, hoses, filters, cartridges, canisters, end-of-service indicators, electrical components, and shelf-life date(s); and for the proper function of regulators, alarms, and other warning systems. Each rubber or other elastomeric part shall be inspected for pliability and signs of deterioration. Each air and oxygen cylinder shall be inspected to ensure that it is fully charged according to the manufacturer's instructions.

A record of inspection dates shall be kept for each respirator maintained for emergency or rescue use. Respirators that do not meet applicable inspection criteria shall be immediately removed from service (a temporary replacement assigned) and repaired or permanently replaced.

Inspection of hoop-wrapped air cylinders will follow the recommendations set forth in the Compressed Gas Association, Inc. publication CGA C-6.2-1988, "Guidelines for Visual Inspection & Requalification of Fiber Reinforced High Pressure Cylinders," and will be examined for the following five types of damage:

- Abrasion is damage caused by wearing, grinding, or rubbing away by friction. Abrasions less than 0.005 inch (0.127 mm) deep are acceptable and should have no adverse effects on the safety of the cylinder. Abrasions with isolated groups of fibers exposed or flat spots with a depth greater than 0.005 inch (0.127 mm) but less than 0.0075 inch (0.191 mm) are acceptable if the damage is repaired. Cylinders abraded in excess of 0.0075 inch (0.191 mm) should be taken out of service until professionally inspected.
- Cuts are damage inflicted by a sharp object. Cuts or scratches less than 0.005 inch (0.127 mm) deep are acceptable regardless of length, number, or direction. For cuts greater than 0.005 inch (0.127 mm) deep and up to a depth of 0.015 inch (0.038 mm) with a maximum 1- or 2-inch (25.4 mm or 50.8 mm) length transverse to the fiber direction, the cylinder should be removed from service until repaired. Cylinders with cuts greater than 0.015 inch (0.038 mm) with a maximum greater than 2 inches (50.8 mm) length transverse to the fiber direction or with bare metal showing through must be condemned.
- Impact damage is caused by a cylinder striking or being struck by another object. Impact damage is considered slight if a frosted area is noted in the impact area. These cylinders may be returned to service. Impact damage is severe if evidence of fiber cutting, delamination, and possible structural damage is apparent. Cylinders sustaining severe impact damage should be evaluated using the guidelines for cuts and structural damage.
- Structural damage is damage which causes a visual change in original cylinder configuration. This change can include any evidence of bulges, a cocked end fitting, concave areas on the domes or on the cylinder section, or, if by visual inspection of the cylinder interior, there is evidence of damage involving deformation of the liner. Structurally damaged cylinders must be immediately removed from service and condemned.



- Heat or fire damage to a cylinder is evident by discoloration, charring, or burning of the composite, labels, paint, or plastic components of the valve. Such damage would cause a cylinder to be removed from service and condemned. Note: If the cylinder is only soiled from smoke or other debris and is found to be intact underneath, it may be returned to service.

### 3. Maintenance and Repair

Replacement of parts or repairs shall be done only by persons trained in proper respirator maintenance and assembly. Replacement parts shall be only those designated for the specific respirator repaired. Reducing or admission valves, regulators, and alarms shall be adjusted or repaired by the respirator manufacturer or a technician trained by the manufacturer. Instrumentation for valve, regulator, and alarm adjustments and tests should be calibrated to a standard traceable to the National Institute of Standards and Technology (NIST), at a minimum of every 3 years.

### 4. Storage

Respirators shall be stored in a manner that will protect them against physical and chemical agents such as vibration, shocks, sunlight, heat, extreme cold, excessive moisture, or damaging chemicals. Respirators shall be stored to prevent distortion of rubber or other elastomeric parts. Respirators shall not be stored in such places as lockers and tool boxes, unless they are protected from contamination, distortion, and damage. Emergency and rescue respirators that are placed in the work areas shall be quickly accessible at all times, and the storage cabinet or container in which they are stored shall be clearly marked.

### 5. Assurance of Breathing Air Quality

Compressed gaseous air, compressed gaseous oxygen, liquid air, and liquid oxygen used for respiration shall be of high purity. Compressed gaseous air shall meet at least the requirements of the specification for Type I-Grade D breathing air, and liquid air shall meet at least the requirements for Type II-Grade B breathing air as described in ANSI/CGA G-7.1-1989.

The CGA designation for Grade D and Grade E breathing air is as follows:

- Grade D breathing air, as per ANSI/CGA G-7.1-1989, shall contain between 19.5 and 23.5 percent oxygen with the balance predominantly nitrogen, a maximum of 5 mg/m<sup>3</sup> oil (condensed), a maximum of 10 ppm carbon monoxide, no pronounced odor, and a maximum of 1,000 ppm carbon dioxide.
- Grade E breathing air, as per ANSI/CGA G-7.1-1989, shall contain between 20 and 22 percent oxygen with the balance predominantly nitrogen, a maximum of 5 mg/m<sup>3</sup> oil (condensed), a maximum of 10 ppm carbon monoxide, no pronounced odor, a maximum of 500 ppm carbon dioxide, and 25 ppm total hydrocarbon content (as methane).
- Note: The quality verification for oil is not required for synthesized air whose oxygen and nitrogen components are produced by air liquefaction. Carbon monoxide quality verification is not required for Grade D breathing air if synthesized air when nitrogen component was previously analyzed and meets National Foundry (NF) specification and



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when the oxygen component was produced by air liquefaction and meets United States Pharmacopeia (USP) specification.

Compressed gaseous air may contain low concentrations of oil introduced from equipment during processing or normal operation. If high-pressure oxygen passes through an oil- or grease-coated orifice, an explosion or fire may occur. Therefore, compressed gaseous oxygen shall not be used in supplied air respirators or in open-circuit type self-contained breathing apparatus that have previously used compressed air. Oxygen concentrations greater than 23.5 percent shall be used only in equipment designed for oxygen service or distribution.

The dew point of air used to recharge self-contained breathing apparatus shall be -65 degrees F or lower (less than 25 ppm water vapor). The driest air obtainable (dew point of -100 degrees F or lower) should be used for recharging SCBA cylinders to be used in environments with ambient temperatures below -25 degrees F. The dew point of breathing air used with supplied air respirators should be lower than the lowest ambient temperature to which any regulator or control valve on the respirator or air-supplied system will be exposed.

Breathing air couplings shall be incompatible with outlets for nonrespirable plant air or other gas systems to prevent inadvertent servicing of supplied air respirators with nonrespirable gases. It is recommended that Foster or Hansen fittings be reserved for breathing air systems. Breathing air outlets shall be labeled.

Breathing air may be supplied to supplied air respirators from cylinders or air compressors. Cylinders shall be tested and maintained in accordance with applicable DOT specifications for shipping containers (49 CFR 173 and 178). Breathing gas containers shall be marked in accordance with ANSI/CGA C-4-1990. Specific test recommendations for purchased breathing air are given in the following table.

Method of Preparation	Analysis Recommended
Compression: Supplier does not fill cylinders with any other gases.	Check 10% of cylinders from each lot for ppm CO and odor.
Compression: Supplier fills cylinders with gases other than air.	Analyze all cylinders for percent oxygen. Check 10% of cylinders from each lot for ppm CO and odor.
Reconstitution.	Analyze all cylinders for percent oxygen. Check 10% of cylinders from each lot for ppm CO and odor.

A compressor shall be constructed so as to avoid entry of contaminated air. For all air compressors, including portable types, the air intake location shall be carefully selected, and monitored closely to ensure continued quality of air supply to the compressor. The system shall be equipped as necessary with a suitable in-line air-purifying sorbent bed and filter to further assure breathing air quality. Maintenance and replacement/refurbishment of compressor and associated air-purifying/filter media shall be performed periodically, by trained personnel following manufacturer's recommendations and instructions.



As part of acceptance testing, and prior to initial use, representative sampling of the compressor air output shall be performed to ensure that it complies with the requirements in Paragraph 1 of this section. To ensure a continued high-quality air supply, and to account for any distribution system contaminant input, a representative sample should be taken at distribution supply points. Samples should be collected on a periodic basis, as directed by the Program Coordinator. Specific test recommendations are given in the following table.

Type/Sample	Oil Lubricated	Non-Oil Lubricated	Combustion Engine Powered
Water Vapor	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Carbon Monoxide	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
Condensed Hydrocarbon	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
Carbon Dioxide			<input checked="" type="checkbox"/>
Odor	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

**NOTES:**

1. When using air compressors, intake location shall be carefully selected and monitored closely to ensure air supplied to the compressor is of adequate quality.
2. No frequency for periodic checks of air quality is specified, due to wide variation in equipment types, use, working environments, and operating experience.
3. Continuous monitoring of temperature and carbon monoxide are not required.
4. For non-oil lubricated compressors that operate at less than 35 psi, no sampling for water is required.
5. These requirements apply to systems designed for breathing air, other air-supply systems need to be evaluated on a case-by-case basis for the type and frequency of testing.

Further details on sources of compressed air and its safe use can be found in CGA G-7-1988.



## PROCEDURE

**Subject: MOTOR VEHICLE OPERATION: GENERAL REQUIREMENTS**

### 1.0 PURPOSE AND SUMMARY

This procedure prescribes the general requirements for the operation of motor vehicles on company business. All operators of company owned, leased, and rented vehicles, as well as personal vehicles used on company business, are covered by this procedure. U.S. Department of Transportation (DOT) regulated personnel must also comply with the guidelines contained in Procedure HS810. Key elements of this procedure include:

- All employees who drive or may drive on company business must be familiar with the requirements of this procedure and certify their acceptance of the Company Rules for Motor Vehicle Operation (Attachment 2). In addition, covered employees shall sign a copy of the *most current version of Attachment 2* on an annual basis.
- All new hire candidates shall complete the Pre-employment Driving Record Certification (Attachment 3). This certification will be evaluated via the established point system to determine driving privilege status.
- Employees must report all vehicular citations incurred while on company business to their supervisor as soon as possible, but not longer than 24 hours after the occurrence. Once reported, the established evaluation criteria in Section 5.4 will be used to determine corrective actions.
- Employees have the responsibility to keep track of their non-work related vehicular citations and utilize the established evaluation criteria found in Section 5.3 to determine if their overall MVR citations exceed the Overall Driving Record limits (See Section 5.3.2).
- Employees utilizing vehicles while on company business are required to review this procedure and attend a company-designated driver training class at least once every two years.
- Requests for the re-instatement of denied or revoked driving privileges can be made to the appropriate business line Vice-President and the Director of Health & Safety.

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### 3.0 RESPONSIBILITY MATRIX

- 3.1 Procedure Responsibility  
The Director of 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

**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.
- When only company employees, company owned or leased (not rented) vehicles, and property is involved and damage exceeds \$2,500.00.

**Company** - Shaw Environmental & Infrastructure, Inc. (Shaw E & I) and its subsidiaries and affiliates.



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**Motor Vehicle** - Any passenger vehicle, including trucks, used upon the highway or in private facilities for transporting passengers and/or property. This includes personal vehicles operated on company business. For the purpose of this procedure, off-road vehicles, such as ATV's (Four Wheelers) earthmoving equipment, forklifts, non-highway use trucks, etc., are not considered vehicles. The use of motorcycles on company business is prohibited

**Project Assigned Employees** - Any employee that is assigned to a field operations project position. This designation includes Project Managers, Site Managers/Supervisors, Foremen, Technicians, Scientists, Geologists, Project Business Accountants, etc. This does not include employees that are typically assigned to an office but are visiting a site for brief periods of time, such as to provide technical assistance, perform audits, perform program reviews, etc.

## 5.0 TEXT

### 5.1 Company Rules for Motor Vehicle Operation

All employees who will or may be required to operate a company owned, leased, or rented motor vehicle or a personal vehicle used on company business shall acknowledge acceptance of the Company Rules for Motor Vehicle Operation (Attachment 2) prior to such operation. The signed form shall be retained by the Monroeville, PA Health & Safety Records Department. Each year, the company shall require covered employees to sign a copy of the most current Company Rules for Motor Vehicle Operation.

**FAILURE OF EMPLOYEES TO COMPLY WITH COMPANY RULES FOR MOTOR VEHICLE OPERATION OR THIS POLICY SHALL BE SUBJECT TO DISCIPLINARY ACTION UP TO AND INCLUDING (BUT NOT LIMITED TO) REVOCATION OF DRIVING PRIVILEGES FOR COMPANY BUSINESS AND TERMINATION OF EMPLOYMENT.**

#### 5.1.1 Project Assigned Employee Vehicle Use Requirements

The following requirements are set forth as it pertains to Project Assigned Employees.

- Project-assigned employees are not permitted to operate company vehicle (owned, leased or rented) on non-company business after 10:00 p.m. without written authorization from the project manager or the appointed Site Manager/Supervisor with jurisdiction over the vehicle. In those cases where there is shift work, a non-traditional workday (i.e. 3PM to 11PM workday, etc.) or other non-typical circumstances, it is understood that the after 10:00 PM restriction would not be appropriate. However, even in these non-typical circumstances, the Project Manager or the appointed site manager/supervisor shall be required to execute the required written authorization for use of a company vehicle, including the time frame in which employees shall be permitted to use the vehicle after their non-traditional workday.

- Project assigned personnel that are residing in temporary housing / hotels are



granted permission to drive to and from the temporary residence and work. Additionally, the Project Manager, or the appointed Site Manager/Supervisor his/her designee (Site Manager, Supervisor, etc.) is required to evaluate and optimize the potential of carpooling of project assigned personnel in an effort to reduce the number of company vehicles being driven to and from the project site.

- Project assigned employees shall not use company vehicles for sight seeing or any other personal/recreational activities.
- Vehicles may be used in support of "daily life activities" such as going to restaurants for dinner, laundromats, local retail stores, grocery stores, etc.
- A maximum distance for "daily life activity" driving shall be no further than 20-miles from the temporary housing in which an employee resides. In those cases where the maximum allowed distance does not permit daily life activities to be conducted, a written authorization, from the Project Manager or the appointed Site Manager/Supervisor, is required to travel further distances.
- Should an employee be required to live at his/her permanent residence due to it's proximity to the project site, that employee shall utilize his/her own personal transportation to drive to and from work. At the site, employees shall be allowed to use a company vehicle as required to perform project activities.
- If an employee is assigned to a project site that is located within driving distance from the employee's permanent residence, but is too far away to allow for a daily commute, that employee shall utilize their own personal transportation to drive to and from their permanent residence and the project site. (i.e. for initial assignment arrival to the project, trips home on rotation, etc.) Upon arrival to the site, employees shall be allowed to use a company vehicle as required to perform project activities. In these cases, the employee will also be required to drive their personal vehicle to and from the project site from their temporary housing / hotel residence, for personal "daily life activities", etc.

## 5.2 Pre-employment Evaluation

The local Health and Safety Assistant shall distribute a copy of this procedure to all new hire candidates for the completion of Attachments 2 and 3. Information provided should be evaluated via the point system in Section 5.3, and the hiring manager advised regarding any hiring or driving privilege restrictions that may apply. Hiring of persons with regular driving duties (e.g., field technicians and leadmen, sales persons, or others with assigned company motor vehicles) may only proceed after the information contained in Attachment 3 is evaluated.

Once Attachment 3 is completed, it is to be faxed to the Monroeville, PA Health and Safety Records Department at (412) 858-3976. The driving status of the prospective employee will be reported to the appropriate Human Resources Department in two to three working days. The local Health & Safety Assistant will notify the appropriate Human Resources manager when the attachments are not returned.



Discrepancies between the certified driving record report and Attachment 3 shall be reviewed with the prospective employee. Deliberate falsification of driving record information will disqualify prospective employees from being hired.

### 5.3 Driving Record Point System

The following point system will be used to evaluate the driving record of all existing employees and new hire candidates that can reasonably be expected to operate a motor vehicle during their employment. This data is to be collected through Motor Vehicle Records (MVR) search and by the employee completing Attachment 3 of this policy. Attachment 3 is to be completed by the new hire candidate and reviewed by the regional H&S Assistant to ensure compliance.

Driving Record Point System	
Description	Assigned Point Value
Overweight, loss of load, vehicular equipment infraction, etc.	1
Moving violation: speeding, failure to stop, failure to signal, etc.	2
At-fault accident	3
Major citation: reckless driving, tailgating, suspended license, speed contest, improper lane usage, Open Container (Non-Work Related), etc.	6
Driving under the influence, Hit and Run (leaving the scene)	8
Open Alcohol Container (Work Related)	8

#### 5.3.1 Pre-Employment Driving Record Point System Evaluation

If a new hire candidate has accumulated three (3) points or less in the last twelve (12) months or five (5) points or less in the last twenty-four (24) months, they will be given the privilege to drive motor vehicles on company business without restrictions.

If a new hire has accumulated four (4) to six (6) points in the last twelve (12) months or six (6) to eight (8) points in the last twenty-four (24) months, they will be placed on probation for a period of twelve (12) months. They will be afforded the privilege to drive motor vehicles on company business during this probationary period. Any driving infractions (i.e., speeding tickets, at-fault accidents, citations, etc.) accumulated during this probationary period will result in termination of the privilege to drive a motor vehicle on company business.

If the new hire candidate has accumulated seven (7) to eleven (11) points in the last twelve (12) months or nine (9) to fifteen (15) points in the last twenty-four (24) months, they will not be eligible for company driving privileges. Employment can only be offered with the strict understanding of denial of the privilege to drive motor vehicles on company business. After the first twelve (12) months of employment, the employee can petition the appropriate business line Vice President and the Director of Safety and Health for reconsideration of driving privileges.

If a new hire candidate is expected to drive a vehicle, to fulfill the responsibilities of his/her role, and there has been an accumulation of twelve (12) points or more in the last twelve (12) months or sixteen (16) points or more in the last twenty-four (24) months, the candidate shall not be hired. See Table below:



Candidate's Driving Privilege Status Description	Past 12 Months	Past 24 Months
Can drive without restriction.	0 to 3 points	0 to 5 points
Can drive with understanding of probationary status.	4 to 6 points	6 to 8 points
Not eligible for company driving privileges for first 12 months of employment.	7 to 11 points	9 to 15 points
Candidate not eligible for hire.	12 points or more	16 points or more

### 5.3.2 Existing Employee Driving Record Point System

An acceptable traffic record is one requirement for continued driving privileges. Accordingly, all affected employee's MVR traffic record is subject to periodic and annual review to ensure compliance with state and federal regulations, as well as company policy.

#### WORK RELATED TRAFFIC VIOLATIONS

It is the responsibility of all affected employees to provide verbal notice to their supervisor of any work related traffic violations that have occurred as soon as practicable but not longer than 24 hours after the occurrence. This verbal notice shall be followed by the employee completing an updated "Employee Driving Record Certification" (Attachment 3), and "Notification of Work Related Citation" form (Attachment 4). Both Attachment 3 and 4 shall then be immediately forwarded to the Monroeville, PA Health and Safety Records office.

#### NON-WORK RELATED TRAFFIC VIOLATIONS

Employees have the responsibility to keep track of their non-work related vehicular citations and utilize the established evaluation criteria, as described below, to determine if their overall traffic citations exceed acceptable company limits. It is not necessary for employees to report non-work related citations to their supervisor as they occur. However, if an employee's overall MVR record (work related or not) exceeds the company's established points system criteria, the employee must verbally inform their supervisor as soon as practicable but not longer than the following business day after the occurrence. This verbal notice shall be followed by the employee completing an updated "Employee Driving Record Certification" (Attachment 3), and it shall then be immediately forwarded to the Monroeville, PA Health and Safety Records office.

#### OVERALL DRIVING RECORD EVALUATION

If it is determined that an employee has accumulated three (3) points or less in the last twelve (12) months or five (5) points or less in the last twenty-four (24) months, they will be allowed to continue with the privilege to drive motor vehicles on company business without restrictions.

If an employee has accumulated four (4) to six (6) points in the last twelve (12) months or six (6) to eight (8) points in the last twenty-four (24) months, the employee will be placed on probation for a period of twelve (12) months. The employee can continue to drive motor vehicles on company business during this probationary period.

If the employee has accumulated seven (7) to eleven (11) points in the last twelve (12) months or nine (9) to fifteen (15) points in the last twenty-four (24) months, they will not



be eligible for company driving privileges. Continued employment may only be extended with the strict understanding of denial of the privilege to drive company owned, leased or rented motor vehicles on company business. After the first twelve (12) months following driving privilege revocation, the employee can petition their respective Business Line VP and the Director of Safety and Health for reconsideration of driving privileges. See Table below:

Employee's Driving Privilege Status Description	Past 12 Months	Past 24 Months
Can drive without restriction.	0 to 3 points	0 to 5 points
Can drive with understanding of probationary status.	4 to 6 points	6 to 8 points
Company driving privileges are revoked.	7 to 11 points	9 to 15 points

#### 5.4 Employee Evaluation Criteria

All employees who may operate a motor vehicle on company business will become familiar with the requirements of this procedure, complete the currently-designated company driver training class, and complete Attachment 2 prior to such operation. The employee driving evaluation criteria is based upon all infractions including those incurred while on company business and during off-work hours. It is imperative that employees notify their supervisors as immediately as possible and no later than 24 hours following a work-related citation/accident. Once notified, the supervisor will ensure the completion of Attachment 3 and Attachment 4, forward it to the Monroeville, PA H&S Records Office, and initiate one of the following corrective actions as required. Additionally, as it relates to non-work related and work related traffic violations, it is the employee's responsibility to ensure that their overall driving record does not allow for the exceeding of the driving records points system. Should the employee's driving record points exceed the system limits, that they must notify their supervisor immediately, complete an updated "Employee Driving Record Certification" (Attachment 3) and forwarded it to the Monroeville, PA Health & Safety Records Department.

##### 5.4.1 Work-Related Minor Citation

When an employee is given a work related minor citation (i.e., speeding ticket, moving violation, failure to signal turn, loss of load, etc.), the employee's supervisor will meet with the employee to discuss the corrective action that must be taken so that further violations do not occur. At a minimum, the supervisor shall require the employee to attend a recognized course in defensive driving on his/her own time and the cost of this training will be borne by the employee. This course shall be pre-approved by the Division Health & Safety Manager. The supervisor will provide written direction to the employee regarding the assigned corrective action(s). The supervisor shall forward a copy of an updated Employee Driving Record Evaluation form (Attachment 3) and a form of verification showing the employee's successful completion of an approved defensive driving course to the appropriate regional Human Resources Department for inclusion in the employee's personnel file. These documents shall also be forwarded to the Monroeville, PA Health & Safety Records Department.



#### **5.4.2 Work Related Major Citation**

When an employee is given a work related major citation (i.e., reckless driving, tailgating, suspended license, speed contest, etc.), the supervisor will hold a meeting with the employee, at which time the supervisor will complete the company Disciplinary Action Form (Procedure HR207) thereby informing the employee that any additional infractions will lead to more severe disciplinary action. In addition, the employee will be required to attend a recognized defensive driving course on his/her own time, as described in section 5.4.1, and will be suspended from work for one day without pay.

A copy of the Disciplinary Action Form shall be forwarded to the appropriate Human Resources Department for their information and inclusion in the employee's personnel file.

#### **5.4.3 Failure to Notify**

Should an employee fail to notify his/her supervisor of a citation or accident within the required reporting time, his/her company driving privilege may be revoked. The supervisor will also take disciplinary action that is appropriate for the unreported event.

If the unreported event is work related and is either an at-fault accident, driving under the influence case, or a hit and run violation, the termination process will be initiated.

All disciplinary actions shall be documented to the employee by the supervisor. This copy, and any written response by the employee, shall be forwarded to the appropriate Human Resources Department for their information and inclusion in the employee's personnel file.

#### **5.4.4 At-Fault Accident**

Whenever an employee is operating a company owned/leased/rented vehicle or their personal vehicle on company business is involved in an at-fault vehicle accident, an Accident Review Board shall be convened and recommend the corrective action to be taken. At a minimum, the action shall include the completion of a recognized driver safety course on their time and at their expense, as described in section 5.4.1. All disciplinary actions resulting from at-fault vehicle accidents will be reviewed for consistency by the appropriate Safety Council.

Depending upon the circumstances and severity of the accident, termination of the employee can be considered. As above, this must be approved by the appropriate Human Resources Department. All communication to the employee regarding the accident and resulting action shall be in writing with a copy to the appropriate Human Resources Department for their information and inclusion in the employee's personnel file.

#### **5.4.5 Driving Under the Influence, Hit & Run (Leaving The Scene) and Open Container**

If an employee is charged with Driving Under the Influence, Hit and Run or an Open Alcohol Container violation, he/she will have their driving privileges temporarily suspended pending final resolution of the charge. If the charge is resolved in the employee's favor, with a final adjudication holding no penalty, driving privileges may be re-instated. However, if any penalty is attached, such as probation, license restrictions, etc., the employee may be considered unqualified to drive for the company. Whenever an employee is convicted or pleads no contest to a company-



related driving under the influence, hit and run or open container charge, he/she will be immediately terminated.

In a case that is not work related, and an employee is convicted or pleads no contest to a hit and run or driving under the influence charge, the employee shall notify his supervisor. Accordingly, the employee's company driving privileges will then be revoked for twelve (12) months. After the first twelve (12) months following driving privilege revocation, the employee can petition their respective Business Line VP and the Director of Safety and Health for reconsideration of driving privileges.

#### 5.5 Training

All employees who will, or may reasonably be expected to, drive a company owned/leased/rented vehicle shall review this procedure and complete the currently-designated company driver training class prior to such operation. This class is designed to be taught either via the company's Web-based training program or by local Health and Safety personnel and must include the following elements: federal/state/local driving rules, company driving rules, emergency/accident procedures, and defensive driving techniques. Specific information on the vehicle to be operated will be provided locally. Personnel conducting this class shall provide the Knoxville Health and Safety Training Department with a copy of the course attendance sheet for inclusion in individual training records. All affected employees shall complete a driver safety training class at least once every two years.

#### 5.6 Reinstatement of Driving Privilege

Any employee who has had his/her privilege to drive a motor vehicle on company business revoked or denied, and who desires to reinstate this privilege, must apply to the business line Vice President and the Director of Health and Safety for reinstatement. The Director of H&S, or his designee, shall specify a rehabilitation program (if applicable), an external safe driving course, and any other requirements in which he/she deems appropriate. Once the employee completes the program, documentation of successful completion must be formally presented to the appropriate Vice President and the Director of H&S. If the documentation is accepted, the driving privilege may be reinstated. Copies of all documents shall then be forwarded, by the responsible H&S Manager, to Human Resources and to the Monroeville, PA Health & Safety Records Department.

Reinstatement of the driving privilege may occur one (1) time, at the discretion of the Director of Health & Safety and the responsible Business Line Vice President. If employee driving performance leads to a subsequent revocation of this privilege, such revocation shall be permanent.

#### 5.7 Non-Shaw Employee Vehicle Use Requirements

Only approved non-Shaw employees (client, subcontractor or temporary/temp agency employees) who have completed and signed the "Non-Shaw Employee Driver Questionnaire" (HS800 Attachment 5) will be allowed to drive a Shaw owned, leased, or rented vehicle. Upon completing the questionnaire and prior to the driver operating a Shaw vehicle, the subject questionnaire must be signed, dated and placed on file at



the job site. The primary vehicle operator or the Shaw Project Management representative shall review the questionnaire and determine whether the non-Shaw employee satisfies the driver qualification requirements of HS800. The driver qualification point system can be found in section 5.3 of this policy.

In addition to the above requirement, it is also a requirement of the responsible Shaw Project Manager to forward a fully executed, company specific version of the correspondence that is found in Attachment 6, to the employer of the non-Shaw driver. This correspondence should not be modified except for the fields that specify the name and address of the subcontractor or client to which the letter is being written. This written correspondence will serve to notify that any employee that is assigned by their company to a Shaw project, and is required to operate/drive a Shaw owned, leased, or rented vehicle, will be subject to either meeting or exceeding the operator requirements for Shaw employees.

As the employer of individuals who are assigned to a Shaw project, the authorized non-Shaw employer representative shall sign and return Attachment 6 to the respective Shaw Project Manager. By signing Attachment 6, the non-Shaw employer is acknowledging that they are either adopting the requirements set forth in this policy (HS800, Motor Vehicle Operation) or have developed a similar policy that meets or exceeds these requirements. Failure of a non-Shaw employer to comply with the requirements set forth in HS800 shall result in the prohibition of their employees driving any Shaw owned, leased or rented vehicles.

## 5.8 DRIVER SAFETY NOTIFICATION STICKER

A safety notification bumper sticker shall be applied to all Shaw owned / leased vehicles in an effort to ensure continued compliance with driving safety regulations. The notification service will be managed by a third party fleet safety management company and will serve as the recipient of all calls that are placed concerning unsafe driving behavior. The Findlay, OH equipment division will serve as the first point of contact as it pertains to notifications that are received from the third party company who administers the bumper sticker safety call in service. Upon receiving a report from the third party administrator, the equipment division shall determine what business line the vehicle / driver is located within and then contact the respective business line Divisional H&S Manager. The Divisional H&S Manager will then contact the affected employee and the employee's supervisor for a counseling/discussion meeting, concerning the complaint. Upon conclusion of the meeting, the information will be reviewed by the supervisor and the Divisional H&S Manager for determination of corrective or disciplinary action.

The company shall endeavor to ensure that all company owned/leased fleet vehicles shall have a safety notification bumper sticker applied to the rear of the vehicle. It is the responsibility of the driver, who is deemed the primary / responsible operator of the vehicle, to ensure that the sticker remains on the vehicle and remains legible and in no way defaced. If the vehicle is project or program assigned and there is no designated primary operator, then the Project Manager will be considered the primary / responsible



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operator. The primary / responsible operator shall contact the Equipment Division in Findlay, OH, at 1-800-225-6464 ext. 6051 or direct dial 419-425-605, immediately upon recognizing that the sticker is defaced or removed such that a new one can be re-applied.

Failure, on the part of the primary operator, to ensure that a legible sticker remains on the vehicle shall result in disciplinary action, up to and including vehicle usage being revoked, in addition to possible termination of employment.

## 5.9 INSURANCE

All employees who operate their personal vehicles for Company business, no matter how frequently, shall have in place the *minimum insurance* required for the state in which the vehicle is registered. If an employee uses his or her own personal vehicle for more than 60% of his working hours, Company may require employee to carry increased insurance coverage and limits. Employees agree that in the event of an accident occurring during working hours in his or her own vehicle, the insurance on the employee's vehicle will be primary and recovery of any claims by employee or third persons shall come first from the employee's personal vehicle insurance policy. By an employee driving his or her vehicle on Company business, employee consents to this policy including this provision for employee and employee's insurer.

## 6.0 EXCEPTION PROVISIONS

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

## 7.0 CROSS REFERENCES

HR207 Employee Disciplinary Action

HS013 Health and Safety Procedure Variations

HS020 Accident Prevention Program: Reporting, Investigation, and Review

HS810 Motor Vehicle Operation: Federal Motor Carrier Safety Regulations for Driver Qualifications

## 8.0 ATTACHMENTS

1. Responsibility Matrix
2. Company Rules for Motor Vehicle Operation
3. Pre-employment Driving Record Certification
4. Notification of Work-Related Citation
5. Non-Shaw Employee Driver Questionnaire
6. Memo Template for Employers of Non-Shaw Drivers



ATTACHMENT 1

MOTOR VEHICLE OPERATION: GENERAL REQUIREMENTS  
RESPONSIBILITY MATRIX

Action	Procedure Section	Responsible Party					
		Local Health & Safety Assistant	Business Line Health and Safety Manager	Supervisor	Accident Review Board	Corporate Human Resources	Director of H&S
Issue, Revise, and Maintain This Procedure	3.1						X
Ensure Employees Complete Attachment 2	5.1	X		X		X	
Distribute HS800 to New Hire Candidates for Completion of Attachments 2 and 3	5.2	X				X	
Request Evaluation of New Hire Driving Record	5.2	X				X	
Obtain Driving Record and Determine Driving Status	5.2	X					
Initiate Corrective Actions	5.4			X			
Ensure Completion and Distribution of Attachment 4	5.4			X			
Accident Review	5.4.4				X		
Ensure Drivers Meet Training Requirements	5.5			X			
Specify Program for Reinstatement of Driving Privilege	5.6						X
Reinstatement of Driving Privilege	5.6						X
Non-Shaw Employee Vehicle Use Requirements	5.7			X			
Contact Employee to discuss report from Safety Notification Sticker Service	5.8		X	X			



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## ATTACHMENT 2

### COMPANY RULES FOR MOTOR VEHICLE OPERATION

1. Prior to motor vehicle operation, all motor vehicle operators are required to provide the company with current documentation of licensing for the motor vehicle(s) to be operated. Supervisors shall review and approve said documentation.
2. The motor vehicle operator is responsible for the vehicle, and for conducting a pre-trip, walk around inspection prior to use (including load evaluation, if applicable). No vehicle with any mechanical defect, which endangers the safety of the driver, passengers, or the public, shall be used.
3. All company owned/leased trucks, should have small convex mirrors attached to the side mirrors.
4. The operator shall drive defensively at all times and is responsible for complying with all state and local traffic laws, as well as customer regulations concerning motor vehicle operation.
5. The operator and all passengers shall use seat belts at all times when the vehicle is in motion.
6. No employee shall operate a motor vehicle when abnormally tired, temporarily disabled, or under the influence of alcohol or drugs.
7. No employee shall allow a company owned, leased, or rented motor vehicle to be operated by an unauthorized employee or non-employee. (See also: unauthorized personal use of company vehicles)
8. The operator shall not allow for any open alcoholic beverage containers within a company vehicle or within a personal vehicle while it is being utilized for company business.
9. No employee shall drive beyond any barricades or into any area with designations such as HAZARDOUS, DO NOT ENTER, etc.
10. Use caution when driving through congested areas, or near where personnel and equipment are working.
11. Whenever possible, a spotter shall be used for backing all vehicles. This may be a fellow company employee, or a non-company employee who is willing to help.
12. Unless required, such as on a client's property, keys shall not be left in an unattended vehicle.
13. Employees shall not leave the driver's seat of a vehicle while the motor is running. Exemption: Vehicles equipped with a power take-off device with parking brake set and chocks in place.
14. No motorcycles are to be operated on company business.
15. Radar detectors are prohibited in all company owned, leased, or rented vehicles or in personal vehicles while being used for company business.
16. Analytical samples will be transported in accordance with 49 CFR regulations. Regulated hazardous substances shall not be transported in personal vehicles.



17. In case of an accident, the following steps shall be taken:
  - A. Stop.
  - B. Call for medical assistance in case of injuries.
  - C. Notify police.
  - D. Complete Vehicle Accident Report and submit to your supervisor as soon as possible.
18. Whenever a vehicle is stopped upon the traveled portion of a highway or the shoulder of a highway, for any cause other than necessary traffic stops, the driver shall, as soon as possible, place or activate the warning devices with which the vehicle is equipped.
19. Employee must notify the supervisor as soon as possible, but not longer than 24 hours after occurrence, for work related citations, accidents, and license expiration, suspension, or revocation.
20. No employee is authorized to operate a company vehicle (including rentals) after having been on duty for a period of 16 hours. No employee may drive for more than 12 hours in any single on-duty period. Once either of these criteria has been met, a period of 8 consecutive hours off duty is required before driving duties may be resumed. These are maximum, not minimum, requirements and employees may be unfit to drive after shorter on-duty periods. Commercial DOT drivers are subject to the more restrictive hours of service regulations described in Procedure HS810.
21. Project-assigned employees are not permitted to operate company owned, leased, or rented vehicles after 10:00 p.m. without written authorization from their supervisor. (See section 5.1.1)
22. Employees shall not operate company vehicles for any type of personal use, no exceptions. Personal use includes any usage that is not directly related to company business. See section 5.1.1 for definitions concerning "daily life activities" for Project Assigned Employees.
23. Employees shall not use a company vehicle to visit an establishment that has a primary function of providing nighttime entertainment including the dispensing of alcoholic beverages.
24. Temporary or non-Shaw employees shall be allowed to utilize Shaw company vehicles only after the driver has completed Attachment 5 and has satisfied the point system requirements set forth in Section 5.3 of this policy. In addition, the employer of that driver shall have satisfied the requirement set forth in section 5.7 of this policy and signed a copy of the memo set forth in Attachment 6. This includes clients or subcontractors.
25. Employees shall not transport family members, friends or any other unauthorized guest passenger unless it is arising out of course and scope of company business.
26. No employee shall be assigned use of a vehicle to take home when off of duty.

I have read and understand company Procedure HS800 and the company Rules for Motor Vehicle Operation, and agree to abide by all requirements.

---

Employee's Name (Printed)

Employee's Signature

Date



ATTACHMENT 3

EMPLOYEE DRIVING RECORD CERTIFICATION

DATE \_\_\_\_\_ REQUESTOR \_\_\_\_\_ PHONE NO. \_\_\_\_\_  
CANDIDATE / EMPLOYEE'S HOME  
DEPARTMENT NUMBER \_\_\_\_\_

	Assigned Point Value
Overweight, loss of load, vehicular equipment infraction, etc.	1
Moving violation: speeding, failure to stop, failure to signal turn, etc.	2
At-fault accident	3
Major citation: reckless driving, tailgating, suspended license, speed contest, improper lane usage, open container, etc.	6
Driving under the influence or Hit and Run (Leaving the Scene)	8

In the space provided below, please list all violations and accidents currently listed on your driving record by the state issuing your driver's license (include all states for which you have held a driver's license during the last two [2] years). Determine the number of points assigned from the table above, and write in column labeled Points. Finally, write the sum total of all points where indicated.

<u>Violations/Accidents</u>	<u>Driver License #/State</u>	<u>Date (mo/yr)</u>	<u>Points</u>
-----------------------------	-------------------------------	---------------------	---------------

**Total Points** \_\_\_\_\_

I hereby certify that the information provided is a complete and accurate statement of my driving record for the previous twenty-four (24) months. I authorize the company to obtain a copy of my driving record from the state of issuance of my license(s). I understand that falsification of data will disqualify me from being hired or may result in revocation of my company driving privileges.

Driver's License No. \_\_\_\_\_ State of Issuance \_\_\_\_\_  
Expiration Date \_\_\_\_\_ Date of Birth \_\_\_\_\_

\_\_\_\_\_  
New Hire Candidate Name (Printed) Social Security Number.

\_\_\_\_\_  
Signature Date

PLEASE FAX THIS FORM TO THE MONROEVILLE H & S RECORDS DEPARTMENT AT (412) 858-3976



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#### ATTACHMENT 4

### NOTIFICATION OF WORK-RELATED CITATION

This form is to be completed by employees incurring a work-related vehicular citation. Once complete, it is to be signed by the employee's supervisor and forwarded to the appropriate Human Resources Department for inclusion in the employee's personnel file.

Employee Name \_\_\_\_\_ Employee No. \_\_\_\_\_ Date \_\_\_\_\_

Nature of Citation \_\_\_\_\_

Location of Citation (City, State) \_\_\_\_\_

Date/Time Citation Received \_\_\_\_\_

Is Citation Being Contested?  No  Yes Details \_\_\_\_\_

Employee Signature \_\_\_\_\_ Date \_\_\_\_\_

Corrective Action Being Taken \_\_\_\_\_

Supervisor Signature \_\_\_\_\_ Date \_\_\_\_\_

PLEASE FAX THIS FORM TO THE MONROEVILLE H & S RECORDS DEPARTMENT AT (412) 858-3976



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## ATTACHMENT 5

### Non-Shaw Employee Driver Questionnaire

\_\_\_\_\_  
*Date*

\_\_\_\_\_  
*Time*

\_\_\_\_\_  
*Vehicle is assigned to what Shaw Employee?*

\_\_\_\_\_  
*Signature of Shaw Employee*

\_\_\_\_\_  
*Non-Shaw Driver's Name*

Do you have a valid driver's license?                      Yes                      No

State in which license was issued, DL Number and Exp Date \_\_\_\_\_

Have you had any citations or accidents in the past 24 months? Yes No

If yes, please list type of citations and the associated dates below:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

(Refer to HS800, Section 5.3, to determine driver eligibility based on the points system provided)

By signing below, I, the temporary driver, am acknowledging that the above information is true and accurately represents my driving record. I understand and agree that any misrepresentation or omission of material fact on this questionnaire will constitute sufficient grounds for your removal from the project site and will restrict the future use of Shaw vehicles.

I have read and fully understand the above:

\_\_\_\_\_  
*Signature of Non-Shaw Driver.*

\_\_\_\_\_  
*Date*



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## ATTACHMENT 6

Address  
Address  
Phone  
Fax:

# Memorandum

Date:

To:

CC:

From: Project Manager

RE: Requirements for Motor Vehicle Operation

---

Attached is Shaw Environmental & Infrastructure, Inc. (Shaw) policy HS800 - Motor Vehicle Operation: General Requirements. As you can see, this policy applies to all operators of Shaw owned, leased, or rented vehicles, as well as personal vehicles used on Shaw business.

Accordingly, you are hereby notified that any employee that is assigned by your company to a Shaw Environmental & Infrastructure, Inc project and is required to operate/drive Shaw owned, leased, or rented vehicles, will be subject to either meeting or exceeding the operator requirements for Shaw employees. Please be aware that as the employer of individuals who are assigned to a Shaw project, you must ensure that your company either adopts the requirements set forth in policy HS800 (Motor Vehicle Operation) or develop a similar policy that meets or exceeds those requirements

Only approved non-Shaw employees, who have completed and signed the "Non-Shaw Employee Driver Questionnaire" (HS800 Attachment 5) will be allowed to drive a Shaw vehicle. Furthermore, prior to the driver operating a Shaw vehicle, the subject questionnaire must be completed and placed on file at the job site. The primary vehicle operator or responsible Shaw management representative shall review the questionnaire and determine whether the non-Shaw employee satisfies the driver qualification requirements of HS800.

Failure to comply with the requirements of this correspondence or the requirements set forth in HS800 shall result in disciplinary action up to and including driving privilege revocation or removal of an affected non-Shaw employee from a project site. If the duties of your employees are expected to include driving a Shaw owned, leased or rented vehicle, please complete Attachment 5, for all of your affected personnel, and provide these to Shaw's site management. Alternatively, please be aware and make your employees aware that they are not authorized to drive a Shaw owned, leased, or rented vehicle without such compliance.

By signing this document, I, an authorized employee and agent of the subject company/employer, am acknowledging acceptance of the above information and agree to my employer's compliance with the referenced requirements stated herein.

---

*Signature / Title*

---

*Date*



## PROCEDURE

**Subject: COMMERCIAL MOTOR VEHICLE OPERATION AND MAINTENANCE**

### 1.0 PURPOSE AND SUMMARY

This procedure covers the general requirements for operation and maintenance of commercial motor vehicles. Requirements are based upon Federal regulations covering interstate (and intrastate for drug and alcohol testing) activity and/or activity in non-agreement states. Locations are authorized to use applicable State regulations for intrastate activity, but must fully comply with Federal regulations whenever an "intrastate" unit engages in "interstate" activity. Key provisions include:

- General Requirements;
- Financial Responsibility;
- Notification and Reporting of Accidents;
- Qualifications of Drivers;
- Driving of Motor Vehicles;
- Inspection, Repair and Maintenance;
- Hours of Service of Drivers; and
- Management Review and Follow-up.

Any location or major project wishing to establish a pool of commercial drivers, or even one commercial driver, must contact the DOT Administrator in Findlay and the Corporate Health & Safety office in Pittsburgh for enrollment in the random drug testing pool.

### 2.0 TABLE OF CONTENTS

- 1.0 Purpose and Summary
- 2.0 Table of Contents
- 3.0 Responsibility Matrix
- 4.0 Definitions
- 5.0 Text
  - 5.1 General Requirements
  - 5.2 Minimum Levels of Financial Responsibility for Motor Carriers
  - 5.3 Notification and Reporting of Accidents
  - 5.4 Qualifications of Drivers
  - 5.5 Driving of Motor Vehicles
  - 5.6 Inspection, Repair, and Maintenance
  - 5.7 Hours of Service of Drivers
  - 5.8 Transportation of Hazardous Materials Driving and Parking Rules
  - 5.9 Carriage by Public Highway
- 6.0 Exception Provisions
- 7.0 Cross Reference
- 8.0 Attachments



### 3.0 RESPONSIBILITY MATRIX

#### 3.1 Procedure Responsibility

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

#### 3.2 Action/Approval Responsibilities

See Responsibility Matrix, Attachment 1.

### 4.0 DEFINITIONS

General definitions can be found in 49 CFR 390.5. Other definitions can be found at the beginning of the regulatory reference for each section of this procedure.

#### Commercial Motor Vehicles Requiring CDL Drivers

In accordance with Federal Motor Carrier Safety Regulations (FMCSR) 383.91, there are three vehicle groups which require a fully qualified, documented DOT driver holding a Commercial Driver's License. These classes are as follows:

**Group A** "Any combination of vehicles with a GCWR of 26,001 or more pounds provided the GVWR of the vehicle(s) being towed is in excess of 10,000 pounds. (Holders of a Group A license may, with any appropriate endorsements, operate all vehicles within Groups B and C.)"

**Group B** "Any single vehicle with a GVWR of 26,001 or more pounds, or any such vehicle towing a vehicle not in excess of 10,000 pounds GVWR. (Holders of a Group B license may, with any appropriate endorsements, operate all vehicles within Group C.)"

**Group C** "Any single vehicle, or combination of vehicles, that does not meet the definition of Group A or Group B as contained herein, but that either is designed to transport 16 or more passengers including the driver, or is placarded for hazardous materials."

All three of the above groups require a qualified driver holding a CDL. This includes a complete DQ file, filing Driver's Daily Logs (or time cards), etc.



**Commercial Motor Vehicles NOT Requiring CDL Drivers**  
In accordance with FMCSR 390.5(a):

"Commercial motor vehicle means any self-propelled or towed vehicle used on public highways in interstate commerce to transport passengers or property when...the vehicle has a gross weight rating or gross combination weight rating of 10,001 or more pounds."

The CMV (commercial motor vehicle) described here is not covered in FMCSR 383.91 and thus would not require a driver holding a CDL. However, since the vehicle is considered a CMV by Federal regulations, any employee operating such a vehicle must have a complete DQ file in Findlay, is responsible for completing Driver's Daily Logs (or time cards), etc.; the regulations for the driver are exactly the same as for a driver holding a Commercial Driver's License, with the exception that these drivers are not required to hold a CDL; a State license is sufficient.

Also, the vehicle described in this section would automatically, as a CMV, fall into the group of vehicles requiring maintenance documentation at Findlay (Annual Inspections, Preventative Maintenance, Driver Inspection Reports, etc).

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

**5.0 TEXT**

This section is organized to follow the DOT Safety/Compliance Review Checklist.

**5.1 General Requirements**

**5.1.1** All locations operating commercial motor vehicles shall maintain a current copy of the Federal Motor Carrier Safety Regulations (FMCSR) and the Hazardous Materials Regulations (HMR), both of which are found in Title 49 of the Code of Federal Regulations.

**5.1.2** Training requirements for all drivers include the following minimum classes:

- Safe Driver Training (SDT)
- Hazardous Waste Hauling (HWH)
- Vacuum Truck Safety Training (VTST) (Note: Vacuum truck operators only)

Refresher training is required every two (2) years.

**5.1.3** All locations shall include safe commercial motor vehicle operation in their safety incentive/awareness programs.

**5.1.4** Each location shall monitor overall compliance as required in HS021, Accident Prevention Program: Management Safety Audits and Inspections; and HS018, Safety Councils.



5.1.5 A person is qualified to operate a commercial motor vehicle if he or she:

- Is at least 21 years old;
- Can read and speak the English language sufficiently to converse with the general public, to understand highway traffic signs and signals in the English language, to respond to official inquiries, and make entries on reports and records;
- Can by reason of experience, training, or both, safely operate the type of motor vehicle he or she drives;
- Can by reason of experience, training, or both, determine whether the cargo to be transported has been properly located, distributed and secured in or on the motor vehicle;
- Is familiar with methods and procedures for securing cargo in or on the motor vehicle; and
- Has a complete and current Driver Qualification File (See Section 5.2) in the possession of the Findlay DOT Administrator.

**5.2 Minimum Levels of Financial Responsibility for Motor Carriers**  
*(See 49 CFR 387 for further details)*

5.2.1 The Corporate Risk Management Department shall maintain insurance/financial responsibility as required in the current version of referenced regulation.

5.2.2 An executed DOT MCS90 shall be maintained, with a copy forwarded to the DOT Administrator in Findlay.

**5.3 Notification and Reporting of Accidents**  
*(See 49 CFR 390 for further details)*

5.3.1 All accidents and near misses shall be reported in accordance with HS020 Accident Prevention Program: Reporting, Investigation and Review, and HS091 Serious Injury and Fatality Reporting Requirements. All required accident documentation shall accompany the Monthly Loss Reports.

5.3.2 DOT procedures require that motor carriers maintain, for a period of one year after an accident occurs, an "Accident Register" containing specific information. This applies to all commercial vehicle accidents. Corporate Health & Safety will maintain the Register. The Register must include: date and time of accident, city/state, driver's name, number of injuries and/or fatalities, and whether hazardous materials other than fuel were released. Motor carriers are also required to maintain copies of all accident reports required by State or other governmental entities or insurers. **This is effective for all accidents occurring after March 3, 1993. Motor carriers must continue to retain copies of all accident reports previously submitted to FHWA for a period of three (3) years after the date of the accident. (49 CFR 390, Subpart A)**



5.3.3 Corporate Health & Safety must be notified by telephone or fax of all commercial vehicle accidents within 24 hours, or not later than the next business day. Use the current Vehicle Accident Report found in Shaw E & I Procedure HS020.

5.3.4 The Accident Register shall include the most reliable information on "reportable accidents" available to the motor carrier. A "reportable accident" means an occurrence involving a commercial motor vehicle operating on a public road which results in:

1. A fatality;
2. Bodily injury to a person who, as a result of the injury, immediately receives medical treatment away from the scene of the accident; or
3. One or more vehicles incurring disabling damage as a result of the accident, requiring the vehicle(s) to be transported away from the scene by a tow truck or other vehicle.

The term "accident" does not include:

1. An occurrence involving only boarding and alighting from a stationary motor vehicle;
2. An occurrence involving only the loading or unloading of cargo; or
3. An occurrence in the course of the operation of a passenger car or a multipurpose passenger vehicle (as defined in section 571.3 of 49 CFR) by a motor carrier and is not transporting passengers for hire or hazardous materials of a type and quantity that require the motor vehicle to be marked or placarded in accordance with section 177.823 of 49 CFR.

"Disabling damage" means damage which precludes departure of a motor vehicle from the scene of the accident in its usual manner in daylight after simple repairs.

Inclusions:

1. Damage to motor vehicles that could have been driven, but would have been further damaged if so driven.

Exclusions:

1. Damage which can be remedied temporarily at the scene of the accident *without special tools or parts*;
2. Tire disablement without other damage even if no spare tire is available;
3. Damage to turn signals, horn or windshield wipers which makes them inoperative.

"Fatality" means any injury which results in the death of a person at the time of the motor vehicle accident or within 30 days of the accident.



5.3.5 All Vehicle Accident Reports shall include the most reliable information available to the motor carrier on the following subjects:

1. Date of accident;
2. Time of accident;
3. Location (city, state) of the accident;
4. Name of driver;
5. Number of persons injured;
6. Number of persons killed; and
7. Whether hazardous materials were released (other than fuel).

5.3.6 Follow-up action with drivers involved with vehicle accidents shall be per HS800 Motor Vehicle Operation: General Requirements and the Shaw E & I progressive discipline system.

**5.4 Qualifications of Drivers**  
(See 49 CFR 391 for further details)

5.4.1 All hiring of drivers shall be done in accordance with the requirements of HS800 Motor Vehicle Operation: General Requirements and 49 CFR 391.

5.4.2 All prospective drivers shall be interviewed to verify the accuracy of information on the application.

5.4.3 All prospective drivers shall be required to show proof of current automobile insurance prior to hiring.

5.4.4 All locations shall track and verify that the following driver documents are current: driver's license, Driver's Certification of Violations, Annual Review of Driving Record and medical. The Employee's Records Expiration Dates form may be used for this purpose.

5.4.5 Prior to being allowed to operate a commercial motor vehicle, all drivers will be required to establish with the company (original in Findlay, copy at home terminal) a Driver Qualification File with the following minimum contents.

■ **Commercial Drivers License (CDL)**

**Combination Vehicle (Group A)** - Any combination of vehicles with a Gross Combination Weight Rating (GCWR) of 26,001 or more pounds provided the GVWR of the vehicle(s) being towed is in excess of 10,000 pounds.



**Heavy Straight Vehicle (Group B)** - Any single vehicle with a GVWR of 26,001 or more pounds, or any such vehicle towing a vehicle not in excess of 10,000 pounds GVWR.

**Small Vehicle (Group C)** - Any single vehicle, or combination of vehicles, that meets neither the definition of Group A nor that of Group B as contained in this section, but that either is designed to transport 16 or more passengers including the driver, or is used in the transportation of materials found to be hazardous for the purposes of the Hazardous Materials Transportation Act and which require the motor vehicle to be placarded under the Hazardous Materials Regulations (49 CFR Part 172, Subpart F).

(See 49 CFR 383.91 Figure I for further details on vehicles and CDL Groups.)

- **State License** - A driver operating a combination vehicle with a gross combined weight rating exceeding 10,001 pounds, but never operating a vehicle in one of the CDL categories (A,B,C), may perform these duties with an appropriate state license instead of a CDL.
  - Receipt for Federal Motor Carrier Safety Regulations (FMCSR)
  - Application for Employment
  - DOT Driver Supplemental Application for Employment
  - Driver's Road Test Examination
  - Written Examination
    - This exam must be graded and incorrect responses reviewed with the driver. Supervisor and driver shall initial test when done.
  - Certification of Road Test and Written Examination
    - A copy of this form must be provided to the driver.
  - Annual Driver's Certification of Violations
  - Inquiry to Previous Employers
    - This form pertains to experience operating commercial motor vehicles.
  - Alcohol & Controlled Substance Test Information Inquiry to Previous Employers
    - This is a Federal requirement which went into effective January 1, 1995. Whereas the Inquiry to Previous Employers regarding experience does not required a response, this form requires a response from the previous employer with 14 days of the driver being qualified. If a response is not received within the specified time, the driver is automatically disqualified.
  - Inquiry to State Agencies for Driver's Record
  - Annual Review of Driving Record.
  - Driver Data Sheet
  - Medical Examiner's Certificate



The certificate must be signed by the driver and Shaw E & I's Medical Review Officer. A copy must also be provided to the driver.

- DOT Long Form
- Medical Clearance and Drug and Alcohol Test Report

**NOTE:** All drug and alcohol test results for commercial drivers must be retained in the Pittsburgh files only. Medical Clearance must be endorsed for DOT and signed on back by supervisor and driver. DOT requires examination every two years. Shaw E & I requires examination every year due to hazardous waste operations duties. Also note that issuance of medical clearance signifies a negative drug test result for baseline and update exams. See Shaw E & I Procedures HS100 Medical Policies and HS101 Drug and Alcohol Testing for further information.

- Vehicle Types  
This list details which vehicles a driver is qualified and/or authorized to operate based on his CDL class and endorsements. Applicable to all states.
- Certification of Drug and Alcohol Awareness Training

## 5.5 Driving of Motor Vehicles (See 49 CFR 392 for further detail)

- 5.5.1 Use, possession, or sale of drugs, alcohol, or other illicit substances is generally prohibited. Specific procedures are found in HR024 Illegal Drugs, Alcohol, and Other Substances and HS101 Drug and Alcohol Testing.
- 5.5.2 Authorized passengers are limited to employees of Shaw E & I and those subcontractor, client or regulatory personnel who are integral to a task being performed.
- 5.5.3 Management shall monitor compliance with speed laws by reviewing daily miles of operation versus actual driving time. Runs in excess of 500 miles shall have documentation attached that speed laws and hours of service rules were not violated (e.g. operations were in an area where speed laws exceed 55 mph).

## 5.6 Inspection, Repair, and Maintenance (See 49 CFR 396 for further detail)

- 5.6.1 All commercial motor vehicles shall be included in a scheduled preventive maintenance program. Service intervals shall be in terms of miles or hours of operation. Service intervals and service requirements shall be per the manufacturer's recommendations with manufacturer recommendations documented in the Vehicle Maintenance File in Findlay.



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- 5.6.2 Whenever manufacturer service recommendations either fail to cover company's utilization of the equipment or are unavailable, preventative maintenance shall be done in accordance with Shaw E & I Procedure FE006, Minimum Preventive Maintenance Standards for Corporate Equipment.
- 5.6.3 All drivers shall conduct and document a pre-trip inspection (including tow bars and saddle mounts as applicable) before operating a commercial motor vehicle. No vehicle shall be operated unless the following parts and accessories are in good working order: service brakes (including trailer brake connections), parking brake, steering mechanism, lighting devices and reflectors, tires, horn, windshield wiper(s), rear-vision mirror(s) and coupling devices. The Driver's Inspection Report Form shall be used. A copy is to be submitted to the Maintenance Supervisor and the original is to remain with the vehicle.
- When repairs are complete the mechanic is to make the appropriate entry in the Vehicle Maintenance File and sign the original Driver's Inspection Report in the vehicle. The on-coming driver shall verify that repairs have been made, sign the Driver's Inspection Report and turn in the final copy. Final (original) copy must be forwarded to the DOT Administrator in Findlay for comparison with Driver's Daily Logs and retention.
- 5.6.4 All Driver's Inspection Report forms shall be forwarded to the DOT Administrator in Findlay not later than the twentieth day of the following month, and retained there for three months.
- 5.6.5 All vehicles shall be subject to an annual safety inspection in accordance with 49 CFR 396.17. A copy of this inspection shall be forwarded to the DOT Administrator. Note that the vehicle must either carry a copy of the inspection or be marked with a sticker/decals displaying the information required in 49 CFR 396.17(c)(2).
- 5.6.6 A limited safety inspection is required no less often than 90 days, and is to be noted in the home terminal Vehicle Maintenance File.
- 5.6.7 Inspectors shall meet the qualification requirements in 49 CFR 396.19: (Use forms provided in DOT Manual.)
- 5.6.8 Brake inspectors shall meet the qualification requirement in 49 CFR 396.25, which generally includes completion of an approved training program or one year of documented experience. (Use forms provided in DOT Manual.) Any driver making brake adjustments must also have certification of qualifications on file in Findlay.
- 5.6.9 Where Shaw E & I employees perform inspections and repairs, documentation of qualifications shall be on file with the DOT Administrator.



5.6.10 Where an outside vendor is used for inspection and repair, Shaw E & I management shall verify that the vendor understands and will comply with inspector qualification requirements.

5.6.11 The Maintenance/Inspection Check list (see DOT Manual) shall be used to check completeness of Vehicle Maintenance Files.

5.6.12 The current version of the North American Uniform Out-of-Service criteria must be followed in determining the service status of all commercial motor vehicles.

5.6.13 All cargo tanks shall have a copy of the manufacturer's data report and required recertifications in the maintenance file. Qualifications for recertification vendors shall be on file with the DOT Administrator. Recertification requirements can be found in 49 CFR 180.

5.6.14 All exemption vehicles or trailers are required to carry a copy of the exemption on the vehicle.

5.7 **Hours of Service of Drivers**  
(See 49 CFR 395 for further details)

5.7.1 Drivers shall not operate a commercial motor vehicle under the following conditions:

- More than 10 hours following 8 consecutive hours off-duty;
- For any period after having been on duty for 15 hours; or
- For any period after having been on duty for 70 hours during the period of eight consecutive days with the eighth day being the current date.

5.7.2 All drivers shall record their duty status on the Driver's Daily Log (see DOT Manual), including recap. Logs shall be completely filled out and submitted to home terminal management daily, or no less often than every 13 days for extended trips. Note that a drivers daily log cannot be used as a time card only.

5.7.3 Local management shall carefully review all Driver's Daily Logs. They shall require the driver to correct any errors, and take follow-up action (training or progressive discipline) where regulations or company procedures have been violated.

5.7.4 Dispatchers shall track drivers hours of service via the driver's recap for local service, and via recap and daily phone calls during extended trips.

5.7.5 100 air mile radius drivers may use the time card included in the DOT Manual, as long as they comply with the instructions provided. Whenever these instructions are not met, a Driver's Daily Log must be completed for that day or



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days. Note that switching between time cards and daily logs makes it easy to introduce errors into the recap. It is recommended that driver logs be used so that switching between the two forms is minimized.

5.7.6 The DOT Log Book Compliance Checklist shall be used by management to review Driver's Daily Logs.

5.7.7 All original Driver's Daily Logs are to be forwarded to the DOT Administrator in Findlay by the twentieth day of the following month, and retained there for six months. Copies must also be retained at the local office for six months.

### 5.8 Transportation of Hazardous Materials Driving and Parking Rules (See 49 CFR 397 for further details).

5.8.1 A motor vehicle containing hazardous materials must not be operated near an open fire unless its driver has first taken precautions to ascertain that the vehicle can safely pass the fire without stopping.

5.8.2 A motor vehicle containing hazardous materials must not be parked within 300 feet of an open fire.

5.8.3 No person may smoke or carry a lighted cigarette, cigar, or pipe on or within 25 feet of:

- A motor vehicle which contains explosives, oxidizing materials, or flammable materials; or
- An empty tank motor vehicle which has been used to transport flammable liquids or gases and which, when so used, was required to be marked or placarded in accordance with the rules in subsection 177.823 or 49 CFR.

5.8.4 When a motor vehicle which contains hazardous materials is being fueled:

- Its engine must not be operating, and
- A person must be in control of the fueling process at the point where the fuel tank is filled.

5.8.5 A motor vehicle transporting hazardous materials of a kind or quantity that require the vehicle to be marked or placarded in accordance with subsection 177.823 of 49 CFR must also display the information required in subsection 390.21 of 49 CFR, including USDOT 197183 (the Shaw E & I DOT number).

5.8.6 Special consideration shall be given to avoidance of heavily populated areas when hauling hazardous material/waste loads.

### 5.9 Carriage by Public Highway (See 49 CFR 177 for further details)



5.9.1 All loads of hazardous materials or hazardous wastes shall be accompanied by shipping papers or hazardous waste manifest, respectively. These documents shall be prepared in accordance with 49 CFR 177.817 and 49 CFR 172 Subpart C. All documents shall be retained for at least three years. Shipping documents using any generic descriptions (e.g., "n.o.s.") must also contain the technical name of the hazardous substance in parentheses following the basic description.

5.9.2 Shipping documents shall be within the drivers reach and readily visible. When the driver is out of the cab, they shall be in the drivers door pocket or on the drivers seat.

5.9.3 All hazardous materials/wastes loads shall be marked, labeled, and placarded in accordance with 49 CFR 192 Subparts D, E, and F, respectively.

5.9.4 All hazardous materials/wastes loads shall be reported and segregated in accordance with 49 CFR 177.848.

5.9.5 Spill incidents meeting any of the criteria listed below shall be reported to the DOT Administrator on DOT Form F 5800.1 (Attachment 2):

- Any quantity of hazardous waste,
- A reportable quantity (RQ) of hazardous material,

(Criteria listed below require immediate phone notification)

- A fatal injury or hospitalization occurs;
- Property damage exceeds \$50,000;
- Radioactive materials are spilled;
- The general public is evacuated for more than one hour; or
- Etiologic agent(s) are discharged.

## 6.0 EXCEPTION PROVISIONS

Variances to this procedure shall be requested in accordance with procedure HS013 Health & Safety Procedure Variances.

## 7.0 CROSS REFERENCES

HS018	Safety Councils
HS020	Accident Prevention Program: Reporting, Investigation and Review
HS021	Accident Prevention Program: Management Safety Audits and Inspections
HS091	Serious Injury and Fatality Reporting Requirements
HS100	Medical Policies
HS101	Drug and Alcohol Testing
HS800	Motor Vehicle Operation: General Requirements



FE006

Minimum Preventive Maintenance Standards for Corporate Equipment

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8.0 ATTACHMENTS

1. Responsibility Matrix
2. Hazardous Materials Incident Report (Form DOT F 5800.1)

**NOTE:** All other DOT forms can be found in the DOT Manual. Contact your DOT Administrator in Findlay.



**ATTACHMENT I**  
**COMMERCIAL MOTOR VEHICLE OPERATION AND MAINTENANCE**

**Responsibility Matrix**

Action	Procedure Section	Responsible Party			
		DOT Administrator	Risk Mgmt Dept	Corporate HS	Driver
Verify driver meets general requirements, including training	5.1	X		X	
Maintain statutory financial responsibility	5.2		X		
Accident Reporting: Internal	5.3	X			X
Accident Reporting: External	5.3			X	
Document driver qualification:					
▪ Establish DQ file	5.4	X			
▪ Maintain DQ file	5.4	X			
Monitor driver performance	5.5	X			
Maintain, inspect and service vehicles, and document (retain working copy)	5.6	X			
Hold maintenance documents	5.6	X			
Verify drivers comply with and document hours of service requirements	5.7	X			
Hold Driver's Daily Logs for six (6) months	5.7	X			



**ATTACHMENT 2**  
**HAZARDOUS MATERIALS INCIDENT FORM**

**DEPARTMENT OF TRANSPORTATION**  
**HAZARDOUS MATERIALS INCIDENT REPORT**

Form Approved DMB No. 2137 0039

**INSTRUCTIONS:** Submit this report in duplicate to the Information Systems Manager, Office of Hazardous Materials Transportation, DHM-63, Research and Special Programs Administration, U.S. Department of Transportation, Washington, D.C. 20590. If space provided for any item is inadequate, complete that item under Section IX, keying to the entry number being completed. Copies of this form, in limited quantities, may be obtained from the Information Systems Manager, Office of Hazardous Materials Transportation. Additional copies in this prescribed format may be reproduced and used, if on the same size and kind of paper.

I. MODE, DATE, AND LOCATION OF INCIDENT				
1. MODE OF TRANSPORTATION <input type="checkbox"/> Air <input type="checkbox"/> Highway <input type="checkbox"/> Rail <input type="checkbox"/> Water <input type="checkbox"/> Other				
2. DATE AND TIME OF INCIDENT (Use Military time [e.g., 8:30 am=0830, Noon=1200, 6 pm=1800, Midnight=2400]) Date: _____ Time: _____				
3. LOCATION OF INCIDENT (Include airport name in ROUTE/STREET if incident occurs at an airport.) CITY: _____ STATE: _____ COUNTY: _____ ROUTE/STREET: _____				
II. DESCRIPTION OF CARRIER COMPANY OR INDIVIDUAL REPORTING				
4. FULL NAME		5. ADDRESS (Principal place of business)		
6. LIST YOUR OMC MOTOR CARRIER CENSUS NUMBER, REPORTING RAILROAD ALPHABETIC CODE, MERCHANT VESSEL NAME AND ID NUMBER OR OTHER REPORTING CODE OR NUMBER.				
III. SHIPMENT INFORMATION (From Shipping Paper or Package Label)				
7. SHIPPER NAME AND ADDRESS (Principal place of business)		8. CONSIGNEE NAME AND ADDRESS (Principal place of business)		
9. ORIGIN ADDRESS (If different from Shipper address)		10. DESTINATION ADDRESS (If different from Consignee address)		
11. SHIPPING PAPER/WAYBILL IDENTIFICATION NO.				
IV. HAZARDOUS MATERIAL(S) SPILLED (NOTE: REFER TO SECTION 17.10.1)				
12. PROPER SHIPPING NAME	13. CHEMICAL/TRADE NAME	14. HAZARD CLASS	15. IDENTIFICATION NO. (i.e., UN 2020)	
16. IS MATERIAL A HAZARDOUS SUBSTANCE? <input type="checkbox"/> YES <input type="checkbox"/> NO		17. WAS THE RO MET? <input type="checkbox"/> YES <input type="checkbox"/> NO		
18. ESTIMATED QUANTITY HAZARDOUS MATERIAL RELEASED (include measurement)	19. FATALITIES	20. HOSPITALIZED	21. NON-HOSPITALIZED	
22. NUMBER OF PEOPLE EVACUATED				
23. ESTIMATED DOLLAR AMOUNT OF LOSS AND/OR PROPERTY DAMAGE, INCLUDING COST OF DECONTAMINATION OR CLEANUP (Round off in dollars):				
A. PRODUCT LOSS	B. CARRIER DAMAGE	C. PUBLIC/PRIVATE PROPERTY DAMAGE	D. DECONTAMINATION/CLEANUP	E. OTHER
CONSEQUENCES ASSOCIATED WITH INCIDENT: <input type="checkbox"/> VAPOR (GAS) DISPERSION <input type="checkbox"/> MATERIAL ENTERED WATERWAY SEWER <input type="checkbox"/> COLLAGE <input type="checkbox"/> FIRE <input type="checkbox"/> EXPLOSION <input type="checkbox"/> ENVIRONMENTAL DAMAGE <input type="checkbox"/> NONE <input type="checkbox"/> OTHER				



**TRANSPORT ENVIRONMENT**

25. INDICATE TYPE(S) OF VEHICLE(S) INVOLVED:  
 TANK CAR     RAIL CAR     TOFC/COFC     CARGO TANK     VAN TRUCK/TRAILER     FLAT BED TRUCK TRAILER  
 AIRCRAFT     BARGE     SHIP     OTHER \_\_\_\_\_

26. TRANSPORTATION PHASE DURING WHICH INCIDENT OCCURRED OR WAS DISCOVERED:  
 EN ROUTE BETWEEN ORIGIN/DESTINATION     LOADING     UNLOADING     TEMPORARY STORAGE TERMINAL

27. LAND USE AT INCIDENT SITE:  
 INDUSTRIAL     COMMERCIAL     RESIDENTIAL     AGRICULTURAL     UNDEVELOPED

28. COMMUNITY TYPE AT SITE:     URBAN     SUBURBAN     RURAL

29. WAS THE SPILL THE RESULT OF A VEHICLE ACCIDENT/DERAILMENT?     YES     NO  
 IF YES AND APPLICABLE, ANSWER PARTS A THRU C.

A. ESTIMATED SPEED:	B. HIGHWAY TYPE: <input type="checkbox"/> DIVIDED/LIMITED ACCESS <input type="checkbox"/> UNDIVIDED	C. TOTAL NUMBER OF LANES: <input type="checkbox"/> ONE <input type="checkbox"/> THREE <input type="checkbox"/> TWO <input type="checkbox"/> FOUR OR MORE	SPACE FOR DOT USE ONLY
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**VII. PACKAGING INFORMATION** If the package is overpacked (consists of several packages (e.g. glass jars within a fiberboard box)) begin with information on the innermost package.

ITEM	A	B	C
30. TYPE OF PACKAGING. INCLUDE INNER RECEPTACLES (num, tank car)			
31. CAPACITY OR WEIGHT PER UNIT PACKAGE (e.g., 55 gallons, 65 lbs.)			
32. NUMBER OF PACKAGES OF SAME TYPE WHICH FAILED			
33. NUMBER OF PACKAGES OF SAME TYPE IN SHIPMENT			
34. PACKAGE SPECIFICATION IDENTIFICATION (e.g., DOT 17E, DOT 105A 100, UN1A1 or none)			
35. ANY OTHER PACKAGING MARKINGS (e.g., STC, 18/16-55-88, Y1.4/150/87)			
36. NAME AND ADDRESS, SYMBOL OR REGISTRATION OF PACKAGING MANUFACTURER			
37. SERIAL NUMBER OF CYLINDERS, PORTABLE TANKS, IKS, TANK CARS			
38. TYPE OF LABELING OR PLACARDING APPLIED			
39. IF RECONDITIONED OR REPAIRED	A. REGISTRATION OR SYMBOL		
	B. DATE OF LAST TEST OR REPAIR		
40. EXEMPTION/APPROVAL/COMPETENT AUTHORITY APPLICABLE (e.g., DOT E1012)			

**VIII. DESCRIPTION OF PACKAGING FAILURE** Check all applicable boxes for the package(s) identified above.



<p>41. 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46. DESCRIPTION OF EVENTS: Describe the sequence of events that led to incident, action taken (if not covered) and action taken to prevent recurrence. Include any recommendations to improve packaging, handling, or transportation of hazardous materials. Photographs and diagrams should be attached when necessary for clarification. ATTACH A COPY OF THE HAZARDOUS WASTE MANIFEST FOR INCIDENTS INVOLVING HAZARDOUS WASTE on additional sheets if necessary.

<p>46. NAME OF PERSON RESPONSIBLE FOR PREPARING REPORT (Please Print)</p>	<p>47. SIGNATURE</p>	
<p>48. TITLE OF PERSON RESPONSIBLE FOR PREPARING REPORT</p>	<p>49. TELEPHONE NUMBER (Area Code)</p> <p>( ) -</p>	<p>50. DATE REPORT SIGNED</p>



## PROCEDURE

**Subject: CRANE OPERATIONS**

### 1.0 PURPOSE AND SUMMARY

Crane safety is a key issue at many Shaw Environmental & Infrastructure, Inc. (Shaw E & I) construction sites. Proper qualification of operators is arguably the key element in proper crane operation.

Since the majority of crane operations at Shaw E & I projects involve subcontracted or rental equipment, **Shaw E & I HAS ESTABLISHED A POLICY PREFERENCE TO OBTAIN A QUALIFIED OPERATOR WITH RENTED OR SUBCONTRACTED EQUIPMENT, WHENEVER POSSIBLE.** Requirements are also established for qualifying an Shaw E & I operator.

### 2.0 TABLE OF CONTENTS

- 1.0 Purpose and Summary
- 2.0 Table of Contents
- 3.0 Responsibility Matrix
  - 3.1 Procedure Responsibility
  - 3.2 Action/Approval Responsibilities
- 4.0 Definitions
- 5.0 Text
  - 5.1 Shaw E & I Requirements
  - 5.2 Qualifying an Shaw E & I Operator
- 6.0 Exception Provisions
- 7.0 Cross References
- 8.0 Attachments

### 3.0 RESPONSIBILITY MATRIX

#### 3.1 Procedure Responsibility

The National Director, Health & Safety is responsible for the issuance, revision, and maintenance of this procedure.

#### 3.2 Action/Approval Responsibilities

The Responsibility Matrix is Attachment I.

### 4.0 DEFINITIONS

(None)



## 5.0 TEXT

Crane operations are a periodic part of many Shaw E & I projects. Generally, this involves hiring a qualified subcontractor, or renting a crane to be operated by Shaw E & I personnel. It is the responsibility of the project manager to verify that crane operations are conducted in accordance with applicable standards, using qualified personnel.

### 5.1 Shaw E & I Requirements

- All cranes operated on Shaw E & I-controlled sites shall meet applicable design standards (i.e., ANSI, Power Crane and Shovel Association, etc.).
- Cranes shall have a copy of the most recent annual and periodic inspections on-board.
- All cranes shall be inspected by a qualified person, prior to operation (see Attachment 5, Crane and Derrick Inspection Checklist), to verify proper working condition. If this inspection is not conducted by an Shaw E & I associate, a Shaw E & I supervisor shall verify that it is done.
- A copy of the manufacturer's operating manual shall be carried on all cranes. The manual shall include a load rating chart that indicates safe loads in various configurations, wire and cable minimums and maximums, and any special considerations.
- It is the strong preference of Shaw E & I that crane operations be subcontracted to qualified firms, or that rented cranes come with a qualified operator from the provider.
- The "Recognizing Unsafe Crane and Rigging Practices" (Attachment 2), or equivalent, and the "Hand Signals for Mobile Cranes" (Attachment 3) are to be reviewed at the Tailgate Safety Meeting prior to crane operation.
- All cranes rented, leased, or purchased by Shaw E & I shall be equipped with a load indicator where feasible. This is mandatory where load/lift conditions are not completely known.

### 5.2 Qualifying an Shaw E & I Operator

Shaw E & I will only operate cranes where it has been demonstrated that the Shaw E & I associate is qualified to operate the specific crane to be used. It is the responsibility of the project manager, working with the project HS professional, to identify a supervisor who is competent to qualify a crane operator, based on the supervisor's training and/or experience.



Key elements of qualifying an Shaw E & I operator are listed below.

- Documented training on specific, or type of crane, to be used (on-the-job training may be difficult to document).
- A competent supervisor evaluates the proposed operator's familiarity with, and ability to safely operate, the crane using the Mobile Crane Operator Proficiency Form (Attachment 4).
- The completed Mobile Crane Operator Proficiency Form is to be placed in the associate's training file.
- Verify that the operator has no physical/medical conditions that would inhibit safe operations (i.e., incorrect vision deficiency, disorders which could cause sudden loss of consciousness, etc.).

Except where qualifications and experience can be verified, it is recommended that Shaw E & I operators not be qualified to operate the types of equipment listed below.

- Lattice boom
- Crawlers
- Telescoping boom >2 lengths

## 6.0 EXCEPTION PROVISIONS

Exceptions shall be per the requirements of Shaw E & I Procedure HS013.

## 7.0 CROSS REFERENCES

29 CFR 1926.550

## 8.0 ATTACHMENTS

1. Matrix
2. "Recognizing Unsafe Crane and Rigging"
3. "Hand Signals for Mobile Cranes"
4. Mobile Crane Operator Proficiency Form
5. Crane and Derrick Inspection Checklist



**ATTACHMENT 1  
 CRANE OPERATIONS**

**Responsibility Matrix**

Action	Procedure Section	Responsible Party		
		Project Manager	Site Supervisor	HS Professional
Verify that crane operations are conducted in accordance with applicable standards, using qualified personnel.	5.0	X		
Inspect all cranes prior to operation, or ensure an inspection is performed before operations commence.	5.1	X		
Ensure a copy of the manufacturer's operating manual is carried on all cranes.	5.1	X		
Review "Recognizing Unsafe Crane and Rigging Practices" (or equivalent) and "Hand Signals for Mobile Cranes" at Tailgate Safety Meeting.	5.1		X	
Identify a competent supervisor to qualify crane operators.	5.2	X		X
Evaluate proposed operators' familiarity with, and ability to safely operate, the crane using the Mobile Crane Operators Proficiency Form.	5.2		X	
Place completed Mobile Crane Operator Proficiency Form in associates' training files.	5.2			X
Verify that operator has no physical/medical conditions that would inhibit safe operations.	5.2	X		X



## ATTACHMENT 2

### RECOGNIZING UNSAFE CRANE RIGGING PRACTICES

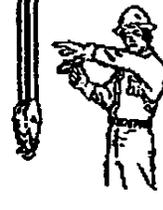
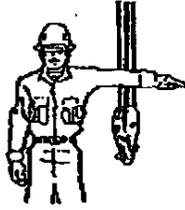
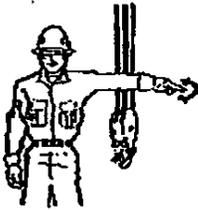
#### Be Alert For:

- Quick and sudden crane movements;
- Improper crane ground conditions;
- Improper crane support (mats, cribbing, etc.); - Mobile
- Horseplay with and around the crane;
- Unsecured crane swing radius; - Mobile
- Leaking hydraulic systems
- Maintenance being performed without proper mechanical/electrical Lock-Outs; -Overhead
- Repairs being performed on one of multiple cranes on the same runway without properly installed railstops, or the positioning of a signal person to warn of approaching cranes; - Overhead
- Unsecured crane load path;
- Loads being passed over the heads of personnel;
- Damaged wire rope on crane;
- Use of damaged rigging gear;
- Use of rigging gear without gloved hands;
- Improper use of Standard Hand Signs.

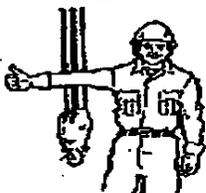
This list is not intended to be all-inclusive. The constant observance of crane and rigging operations is a must to obtain the safest environment possible. Always be on the lookout for acts which could lead to an accident.



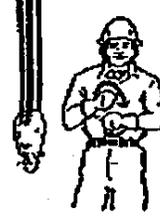
### ATTACHMENT 3 HAND SIGNALS FOR MOBILE CRANES



<p><b>EMERGENCY STOP.</b> Arm extended, palm down, move hand rapidly right and left.</p>	<p><b>STOP.</b> Arm extended, palm down, hold position rigidly.</p>	<p><b>DOG EVERYTHING.</b> Clasp hands in front of body.</p>	<p><b>MOVE SLOWLY.</b> Use one hand to give any motion signal and place other hand motionless in front of hand giving the motion signal. (Hoist Slowly shown as example.)</p>
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<p><b>RAISE BOOM.</b> Arm extended, fingers closed, thumb pointing upward.</p>	<p><b>LOWER BOOM.</b> Arm extended, fingers closed, thumb pointing downward.</p>	<p><b>USE MAIN HOIST.</b> Tap fist on head; then use regular signals.</p>	<p><b>USE WHIP LINE. (Auxiliary Hoist)</b> Tap elbow with one hand; then use regular signals.</p>
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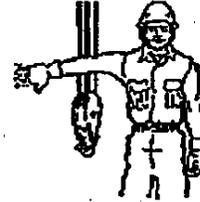
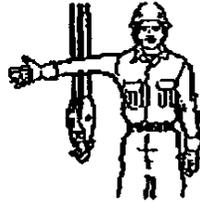
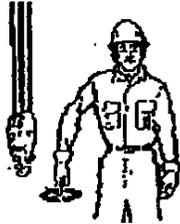


<p><b>SWING.</b> Arm extended, point with finger in direction of swing of boom.</p>	<p><b>TRAVEL.</b> Arm extended forward, hand open and slightly raised, make pushing motion in direction of travel.</p>	<p><b>TRAVEL (One Track).</b> Lock the track on side indicated by raised fist. Travel opposite track in direction indicated by circular motion of other fist rotated vertically in front of body. (For crawler cranes only.)</p>	<p><b>TRAVEL (Both Tracks).</b> Use both fists, in front of body, making a circular motion, about each other, indicating direction of travel, forward or backward. (For crawler cranes only)</p>
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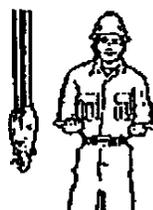
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<p><b>HOIST.</b> With forearm vertical, forefinger pointing up, move hand in small horizontal circle.</p>	<p><b>LOWER.</b> With arm extended downward, forefinger pointing down, move hand in small horizontal circles.</p>	<p><b>RAISE THE BOOM AND LOWER THE LOAD.</b> With arm extended, thumb pointing up, flex fingers in and out as long as load movement is desired.</p>	<p><b>LOWER THE BOOM AND RAISE THE LOAD.</b> With arm extended, thumb pointing down, flex fingers in and out as long as load movement is desired.</p>
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**FOR HYDRAULIC MACHINES ONLY**



<p><b>RETRACT BOOM (Telescoping Boom).</b> One Hand Signal. One fist in front of chest, thumb pointing outward and heel of fist tapping chest.</p>	<p><b>EXTEND BOOM (Telescoping Boom).</b> One Hand Signal. One fist in front of chest with thumb tapping chest.</p>	<p><b>EXTEND BOOM (Telescoping Boom).</b> Both fists in front of body with thumbs pointing outward.</p>	<p><b>RETRACT BOOM (Telescoping Boom).</b> Both fists in front of body with thumbs pointing toward each other.</p>
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ATTACHMENT 4

MOBILE CRANE OPERATOR PROFICIENCY FORM

Name _____ SS# _____			Manuf.	Manuf.	Manuf.	Manuf.	
Project Name _____ Project # _____			Model	Model	Model	Model	
<b>RESULTS:</b>	<b>LEVEL</b>	<b>SCORE</b>	<b>DESCRIPTION</b>	Model	Model	Model	Model
	<input type="checkbox"/> 1	00-60	Not recommended to operate crane with load attached	Cap.	Cap.	Cap.	Cap.
	<input type="checkbox"/> 2	61-70	Recommendation: Operate only under direct supervision				
	<input type="checkbox"/> 3	71-80	Recommendation: Operate only to 50% of crane capacity				
<input type="checkbox"/> 4	81-90	Recommendation: Operate only to 75% of crane capacity					
<input type="checkbox"/> 5	91-100	Recommendation: Operate to machine full capacity					
<b>DEDUCT</b>	<b>POINTS ARE TO BE DEDUCTED BASED ON SEVERITY OF INFRACTION.</b>			_____ 100 _____			
	<b>PRE-START INSPECTION</b>						
1-3	A. Assure that no repairs are in progress.	A.					
1-3	B. Observe condition of rope and hook(s).	B.					
1-3	C. Point out to examiner fittings needing lubrication every 8 hours.	C.					
1-3	D. Check all fuel and levels.	D.					
	<b>STARTING THE ENGINE</b>						
1-3	E. Observe gauges for correct readings.	E.					
1-3	F. Allow sufficient warm-up time.	F.					
1-3	G. Test operating controls.	G.					
1-3	H. Test swing brake.	H.					
	<b>TRAVELING</b>						
1-5	I. Travel with boom in line with carrier.	I.					
1-5	J. Travel to test area.	J.					
1-5	K. Spot machine to accomplish lift.	K.					
1-5	L. Set-up and level machine.	L.					
	<b>OPERATION</b>						
1-5	M. Failing to keep the proper distance from hazards.	M.					
1-5	N. Striking the ground or any other object.	N.					
1-5	O. Swinging abruptly causing dynamic loading.	O.					
1-5	P. Snapping the load causing shock loading.	P.					
	<b>OPERATION (HAND SIGNALS)</b>						
1-5	Q. Moving without signals.	Q.					
1-5	R. Improper response to signal.	R.					
1-5	S. Responding to go signal abruptly.	S.					
1-5	T. Responding to stop signal too slowly.	T.					



MACHINE SHUT-DOWN					
1-3	U. Travel machine to designated parking area.	U.			
1-3	V. Engage swing, boom and hoist brakes (where applicable).	V.			
1-3	W. Idle engine one full minute before shut-down.	W.			
1-3	X. Close all doors, windows and skylight. X:				
TOTAL POINTS DEDUCTED					

It is the ultimate responsibility of supervision to know and recognize the operator's current physical and mental capabilities.

- New Operator - Good coordination and understanding of equipment. Should operate only under direct supervision.
- Experienced Operator:

Operator's Signature

Examiner's Signature

Project Manager's Signature



ATTACHMENT 5

CRANE AND DERRICK INSPECTION CHECKLIST

The following items shall be checked by the operator every time the crane is to be operated:

1.   All control mechanisms for maladjustment interfering with proper operation.
2.   All control mechanisms for excessive wear of components and contamination by lubricants or other foreign matter.
3.   All operator aids, motion and load limiting devices, and other safety devices for malfunction and inaccuracy of settings.
4.   All chords and lacing.
5.   All hydraulic and pneumatic systems - with particular emphasis given to those which flex in normal operation of the crane.
6.   Hooks and latches for deformation, chemical damage, cracks, and wear.
7.   Rope for proper spooling onto the drum(s) and sheave(s) and rope reeving for compliance with crane manufacturer's specifications.
8.   Electrical apparatus for malfunctioning, signs of excessive deterioration, dirt, and moisture accumulation.
9.   Hydraulic system for proper oil level.
10.   Tires for recommended inflation pressure (mobile cranes).
11.   Wedges and supports for looseness or dislocation (climbing tower cranes).
12.   Braces and guys supporting crane masts; anchor bolt base connections for looseness or loss of preload (tower cranes and derricks).
13.   Derrick mast fittings and connections for compliance with manufacturer's recommendations.
14.   Barge or pontoon ballast compartments for proper ballast; deckloads for proper securing; chain lockers, storage, fuel compartments, and battening of hatches; fire fighting and lifesaving equipment in place and functional; hull void compartments sounded for leakage (floating cranes and derricks).

Inspector's Signature

Date

Inspector's Name (print)

**APPENDIX D**

**SUPPLEMENTAL CHEMICAL HAZARD INFORMATION**

**MSDS DEFINITIONS**

**MATERIAL DATA SAFETY SHEETS (MSDS)**

# 2-Butanone

CAS

78-93-3



RTECS

EL6475000

## Synonyms & Trade Names

DOT ID & Guide

Ethyl methyl ketone, MEK, Methyl acetone, Methyl ethyl ketone 1193 127

## Exposure Limits

NIOSH REL: TWA 200 ppm (590 mg/m<sup>3</sup>) ST 300 ppm (885 mg/m<sup>3</sup>)

OSHA PEL†: TWA 200 ppm (590 mg/m<sup>3</sup>)

## IDLH

## Conversion

3000 ppm See: 78933

1 ppm = 2.95 mg/m<sup>3</sup>

## Physical Description

Colorless liquid with a moderately sharp, fragrant, mint- or acetone-like odor.

MW: 72.1      BP: 175°F      FRZ: -123°F      Sol: 28%

VP: 78 mmHg      IP: 9.54 eV      Sp.Gr: 0.81

Fl.P: 16°F      UEL(200°F): 11.4% LEL(200°F): 1.4%

Class IB Flammable Liquid: Fl.P. below 73°F and BP at or above 100°F.

## Incompatibilities & Reactivities

Strong oxidizers, amines, ammonia, inorganic acids, caustics, isocyanates, pyridines

## Measurement Methods

NIOSH 2500, 2555, 3800; OSHA 16, 84, 1004  
See: NMAM or OSHA Methods

### **Personal Protection & Sanitation**

(See protection)

Skin: Prevent skin contact

Eyes: Prevent eye contact

Wash skin: When contaminated

Remove: When wet (flammable)

Change: No recommendation

Provide: Eyewash

### **First Aid**

(See procedures)

Eye: Irrigate immediately

Skin: Water wash immediately

Breathing: Fresh air

Swallow: Medical attention immediately

### **Respirator Recommendations**

NIOSH/OSHA

#### **Up to 3000 ppm:**

(APF = 25) Any supplied-air respirator operated in a continuous-flow mode<sup>f</sup>

(APF = 25) Any powered, air-purifying respirator with organic vapor cartridge(s)<sup>f</sup>

(APF = 50) Any chemical cartridge respirator with a full facepiece and organic vapor cartridge(s)

(APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted organic vapor canister

(APF = 50) Any self-contained breathing apparatus with a full facepiece

(APF = 50) Any supplied-air respirator with a full facepiece

#### **Emergency or planned entry into unknown concentrations or IDLH conditions:**

(APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode

(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus

#### **Escape:**

(APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted organic vapor canister/Any appropriate escape-type, self-contained breathing apparatus

Important additional information about respirator selection

### **Exposure Routes**

inhalation, ingestion, skin and/or eye contact

### **Symptoms**

Irritation eyes, skin, nose; headache; dizziness; vomiting; dermatitis

### **Target Organs**

Eyes, skin, respiratory system, central nervous system

# Chlorobenzene

CAS

108-90-7

$C_6H_5Cl$

RTECS

CZ0175000

## Synonyms & Trade Names

DOT ID & Guide

Benzene chloride, Chlorobenzol, MCB, Monochlorobenzene, Phenyl chloride 1134 130

## Exposure Limits

NIOSH REL: See Appendix D

OSHA PEL: TWA 75 ppm (350 mg/m<sup>3</sup>)

## IDLH

1000 ppm See: 108907

## Conversion

1 ppm = 4.61 mg/m<sup>3</sup>

## Physical Description

Colorless liquid with an almond-like odor.

MW: 112.6    BP: 270°F    FRZ: -50°F    Sol: 0.05%

VP: 9 mmHg    IP: 9.07 eV    Sp.Gr: 1.11

FLP: 82°F    UEL: 9.6%    LEL: 1.3%

Class IC Flammable Liquid: FLP. at or above 73°F and below 100°F.

## Incompatibilities & Reactivities

Strong oxidizers

## Measurement Methods

NIOSH 1003; OSHA 7  
See: NMAM or OSHA Methods

### **Personal Protection & Sanitation**

(See protection)

Skin: Prevent skin contact

Eyes: Prevent eye contact

Wash skin: When contaminated

Remove: When wet (flammable)

Change: No recommendation

### **First Aid**

(See procedures)

Eye: Irrigate immediately

Skin: Soap wash promptly

Breathing: Respiratory support

Swallow: Medical attention immediately

### **Respirator Recommendations**

NIOSHA

#### **Up to 1000 ppm:**

(APF = 25) Any supplied-air respirator operated in a continuous-flow mode<sup>f</sup>

(APF = 25) Any powered, air-purifying respirator with organic vapor cartridge(s)<sup>f</sup>

(APF = 50) Any chemical cartridge respirator with a full facepiece and organic vapor cartridge(s)

(APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted organic vapor canister

(APF = 50) Any self-contained breathing apparatus with a full facepiece

(APF = 50) Any supplied-air respirator with a full facepiece

#### **Emergency or planned entry into unknown concentrations or IDLH conditions:**

(APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode

(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus

#### **Escape:**

(APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted organic vapor canister/Any appropriate escape-type, self-contained breathing apparatus

Important additional information about respirator selection

### **Exposure Routes**

inhalation, ingestion, skin and/or eye contact

### **Symptoms**

Irritation eyes, skin, nose; drowsiness, incoordination; central nervous system depression; in animals: liver, lung, kidney injury

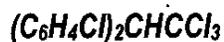
### **Target Organs**

Eyes, skin, respiratory system, central nervous system, liver

# DDT

CAS

50-29-3



RTECS

KJ3325000

## Synonyms & Trade Names

DOT ID & Guide

p,p'-DDT; Dichlorodiphenyltrichloroethane; 1,1,1-Trichloro-2,2-bis(p-chlorophenyl)ethane 2761 151

## Exposure Limits

NIOSH REL: Ca TWA 0.5 mg/m<sup>3</sup> See Appendix A

OSHA PEL: TWA 1 mg/m<sup>3</sup> [skin]

## IDLH

## Conversion

Ca [500 mg/m<sup>3</sup>] See: 50293

## Physical Description

Colorless crystals or off-white powder with a slight, aromatic odor. [pesticide]

MW: 354.5

BP: 230°F (Decomposes) MLT: 227°F

Sol: Insoluble

VP: 0.0000002 mmHg IP: ?

Sp.Gr: 0.99

Fl.P: 162-171°F

UEL: ?

LEL: ?

Combustible Solid

## Incompatibilities & Reactivities

Strong oxidizers, alkalis.

## Measurement Methods

NIOSH S274 (II-3)

See: NMAM or OSHA Methods

## **Personal Protection & Sanitation**

(See protection)

Skin: Prevent skin contact

Eyes: Prevent eye contact

Wash skin: When contaminated/Daily

Remove: When wet or contaminated

Change: Daily

Provide: Eyewash, Quick drench

## **First Aid**

(See procedures)

Eye: Irrigate immediately

Skin: Soap wash promptly

Breathing: Respiratory support

Swallow: Medical attention immediately

## **Respirator Recommendations**

NIOSH

**At concentrations above the NIOSH REL, or where there is no REL, at any detectable concentration:**

(APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode

(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus

**Escape:**

(APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted organic vapor canister having an N100, R100, or P100 filter. [Click here for information on selection of N, R, or P filters.](#) Any appropriate escape-type, self-contained breathing apparatus

Important additional information about respirator selection

## **Exposure Routes**

inhalation, skin absorption, ingestion, skin and/or eye contact

## **Symptoms**

Irritation eyes, skin; paresthesia tongue, lips, face; tremor; anxiety, dizziness, confusion, malaise (vague feeling of discomfort), headache, lassitude (weakness, exhaustion); convulsions; paresis hands; vomiting; [potential occupational carcinogen]

## **Target Organs**

Eyes, skin, central nervous system, kidneys, liver, peripheral nervous system

## **Cancer Site**

In animals: liver, lung & lymphatic tumors

# Dieldrin

$C_{12}H_8Cl_6O$

CAS

60-57-1

RTECS

IO1750000

## Synonyms & Trade Names

## DOT ID & Guide

HEOD; 1,2,3,4,10,10-Hexachloro-6,7-epoxy-1,4,4a,5,6,7,8,8a-octahydro-1,4-2761 151  
endo,exo-5,8-dimethanonaphthalene

## Exposure Limits

NIOSH REL: Ca TWA 0.25 mg/m<sup>3</sup> [skin] See Appendix A

OSHA PEL: TWA 0.25 mg/m<sup>3</sup> [skin]

## IDLH

## Conversion

Ca [50 mg/m<sup>3</sup>] See: 60571

## Physical Description

Colorless to light-tan crystals with a mild, chemical odor. [insecticide]

MW: 380.9

BP: Decomposes

MLT: 349°F

Sol: 0.02%

VP(77°F): 8 x 10<sup>-7</sup> mmHg  
IP: ?

Sp.Gr: 1.75

F.L.P: NA

UEL: NA

LEL: NA

Noncombustible Solid

## Incompatibilities & Reactivities

Strong oxidizers, active metals such as sodium, strong acids, phenols

## Measurement Methods

NIOSH S283 (II-3)  
See: NMAM or OSHA Methods

### **Personal Protection & Sanitation**

(See protection)

Skin: Prevent skin contact

Eyes: Prevent eye contact

Wash skin: When contaminated/Daily

Remove: When wet or contaminated

Change: Daily

Provide: Eyewash, Quick drench

### **First Aid**

(See procedures)

Eye: Irrigate immediately

Skin: Soap wash immediately

Breathing: Respiratory support

Swallow: Medical attention immediately

### **Respirator Recommendations**

NIOSH

**At concentrations above the NIOSH REL, or where there is no REL, at any detectable concentration:**

(APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode

(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus

**Escape:**

(APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted organic vapor canister having an N100, R100, or P100 filter. Click here for information on selection of N, R, or P filters./Any appropriate escape-type, self-contained breathing apparatus  
Important additional information about respirator selection

### **Exposure Routes**

inhalation, skin absorption, ingestion, skin and/or eye contact

### **Symptoms**

Headache, dizziness; nausea, vomiting, malaise (vague feeling of discomfort), sweating; myoclonic limb jerks; clonic, tonic convulsions; coma; [potential occupational carcinogen]; in animals: liver, kidney damage

### **Target Organs**

central nervous system, liver, kidneys, skin

### **Cancer Site**

in animals: lung, liver, thyroid & adrenal gland tumors



### **Personal Protection & Sanitation**

(See protection)

Skin: Prevent skin contact  
Eyes: Prevent eye contact  
Wash skin: When contaminated  
Remove: When wet or contaminated  
Change: Daily  
Provide: Eyewash, Quick drench

### **First Aid**

(See procedures)

Eye: Irrigate immediately  
Skin: Soap flush immediately  
Breathing: Respiratory support  
Swallow: Medical attention immediately

### **Respirator Recommendations**

Not available.

Important additional information about respirator selection

### **Exposure Routes**

inhalation, skin absorption, ingestion, skin and/or eye contact

### **Symptoms**

Irritation skin; nausea, confusion, agitation, flushing, dry mouth, tremor, convulsions, headache; in animals: kidney, liver injury; decreased testis weight

### **Target Organs**

Skin, central nervous system, liver, kidneys, reproductive system

# Endrin

$C_{12}H_8Cl_6O$

CAS

72-20-8

RTECS

IO1575000

## Synonyms & Trade Names

## DOT ID & Guide

1,2,3,4,10,10-Hexachloro-6,7-epoxy-1,4,4a,5,6,7,8,8a-octahydro-endo,endo-5,8-dimethanonaphthalene; Hexadrin®

1,4-2761 151

**Exposure Limits** NIOSH REL: TWA 0.1 mg/m<sup>3</sup> [skin]

OSHA PEL: TWA 0.1 mg/m<sup>3</sup> [skin]

IDLH

## Conversion

2 mg/m<sup>3</sup> See: 72208

## Physical Description

Colorless to tan, crystalline solid with a mild, chemical odor. [insecticide]

MW: 380.9

BP: Decomposes

MLT:  
(Decomposes)

392°F Sol: Insoluble

VP: Low

IP: ?

Sp.Gr: 1.70

Fl.P: NA

UEL: NA

LEL: NA

Noncombustible Solid, but may be dissolved in flammable liquids.

## Incompatibilities & Reactivities

Strong oxidizers, strong acids, parathion [Note: May emit hydrogen chloride & phosgene when heated or burned.]

## Measurement Methods

NIOSH 5519

See: NMAM or OSHA Methods

## **Personal Protection & Sanitation**

(See protection)

Skin: Prevent skin contact

Eyes: Prevent eye contact

Wash skin: When contaminated

Remove: When wet or contaminated

Change: Daily

Provide: Eyewash, Quick drench

## **First Aid**

(See procedures)

Eye: Irrigate immediately

Skin: Soap wash immediately

Breathing: Respiratory support

Swallow: Medical attention immediately

## **Respirator Recommendations**

NIOSH/OSHA

**Up to 1 mg/m<sup>3</sup>:**

(APF = 10) Any air-purifying half-mask respirator with organic vapor cartridge(s) in combination with an N95, R95, or P95 filter. The following filters may also be used: N99, R99, P99, N100, R100, P100. Click here for information on selection of N, R, or P filters.

(APF = 10) Any supplied-air respirator

**Up to 2 mg/m<sup>3</sup>:**

(APF = 25) Any supplied-air respirator operated in a continuous-flow mode

(APF = 25) Any powered air-purifying respirator with an organic vapor cartridge in combination with a high-efficiency particulate filter.

(APF = 50) Any air-purifying full-facepiece respirator equipped with organic vapor cartridge(s) in combination with an N100, R100, or P100 filter. Click here for information on selection of N, R, or P filters.

(APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted organic vapor canister having an N100, R100, or P100 filter. Click here for information on selection of N, R, or P filters.

(APF = 50) Any self-contained breathing apparatus with a full facepiece

(APF = 50) Any supplied-air respirator with a full facepiece

**Emergency or planned entry into unknown concentrations or IDLH conditions:**

(APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode

(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus

**Escape:**

(APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted organic vapor canister having an N100, R100, or P100 filter. Click here for information on selection of N, R, or P filters./Any appropriate escape-type, self-contained breathing apparatus

Important additional information about respirator selection

## **Exposure Routes**

inhalation, skin absorption, ingestion, skin and/or eye contact

## **Symptoms**

Epileptiform convulsions; stupor, headache, dizziness; abdominal discomfort, nausea, vomiting; insomnia; aggressiveness, confusion; drowsiness, lassitude (weakness, exhaustion); anorexia; in animals: liver damage

**Target Organs**

central nervous system, liver

# Ethyl benzene

CAS

100-41-4



RTECS

DA0700000

## Synonyms & Trade Names

DOT ID & Guide

Ethylbenzol, Phenylethane

1175 130

## Exposure Limits

NIOSH REL: TWA 100 ppm (435 mg/m<sup>3</sup>) ST 125 ppm (545 mg/m<sup>3</sup>)

OSHA PEL†: TWA 100 ppm (435 mg/m<sup>3</sup>)

## IDLH

## Conversion

800 ppm [10%LEL] See: 100414

1 ppm = 4.34 mg/m<sup>3</sup>

## Physical Description

Colorless liquid with an aromatic odor.

MW: 106.2      BP: 277°F      FRZ: -139°F      Sol: 0.01%

VP: 7 mmHg      IP: 8.76 eV      Sp.Gr: 0.87

Fl.P: 55°F      UEL: 6.7%      LEL: 0.8%

Class IB Flammable Liquid: Fl.P. below 73°F and BP at or above 100°F.

## Incompatibilities & Reactivities

Strong oxidizers

## Measurement Methods

NIOSH 1501; OSHA 7, 1002  
See: NMAM or OSHA Methods

## **Personal Protection & Sanitation**

(See protection)

Skin: Prevent skin contact

Eyes: Prevent eye contact

Wash skin: When contaminated

Remove: When wet (flammable)

Change: No recommendation

## **First Aid**

(See procedures)

Eye: Irrigate immediately

Skin: Water flush promptly

Breathing: Respiratory support

Swallow: Medical attention immediately

## **Respirator Recommendations**

NIOSH/OSHA

### **Up to 800 ppm:**

(APF = 10) Any chemical cartridge respirator with organic vapor cartridge(s)\*

(APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted organic vapor canister

(APF = 25) Any powered, air-purifying respirator with organic vapor cartridge(s)\*

(APF = 10) Any supplied-air respirator\*

(APF = 50) Any self-contained breathing apparatus with a full facepiece

### **Emergency or planned entry into unknown concentrations or IDLH conditions:**

(APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode

(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus

### **Escape:**

(APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted organic vapor canister/Any appropriate escape-type, self-contained breathing apparatus

Important additional information about respirator selection

## **Exposure Routes**

inhalation, ingestion, skin and/or eye contact

## **Symptoms**

Irritation eyes, skin, mucous membrane; headache; dermatitis; narcosis, coma

## **Target Organs**

Eyes, skin, respiratory system, central nervous system

# Heptachlor

$C_{10}H_5Cl_7$

## Synonyms & Trade Names

1,4,5,6,7,8,8-Heptachloro-3a,4,7,7a-tetrahydro-4,7-methanoindene

## Exposure Limits

NIOSH REL: Ca TWA 0.5 mg/m<sup>3</sup> [skin] See Appendix A

OSHA PEL: TWA 0.5 mg/m<sup>3</sup> [skin]

## IDLH

Ca [35 mg/m<sup>3</sup>] See: 76448

## Conversion

## Physical Description

White to light-tan crystals with a camphor-like odor. [insecticide]

MW: 373.4

BP: 293°F (Decomposes) MLT: 203°F

Sol: 0.0006%

VP(77°F): 0.0003 mmHg IP: ?

Sp.Gr: 1.66

FLP: NA

UEL: NA

LEL: NA

Noncombustible Solid, but may be dissolved in flammable liquids.

## Incompatibilities & Reactivities

Iron, rust

## Measurement Methods

NIOSH S287 (II-5); OSHA PV2029  
See: NMAM or OSHA Methods

## CAS

76-44-8

## RTECS

PC0700000

## DOT ID & Guide

2761 151 (organochlorine pesticide, solid)

### **Personal Protection & Sanitation**

(See protection)

Skin: Prevent skin contact

Eyes: Prevent eye contact

Wash skin: When contaminated/Daily

Remove: When wet or contaminated

Change: Daily

Provide: Eyewash, Quick drench

### **First Aid**

(See procedures)

Eye: Irrigate immediately

Skin: Soap wash immediately

Breathing: Respiratory support

Swallow: Medical attention immediately

### **Respirator Recommendations**

NIOSH

**At concentrations above the NIOSH REL, or where there is no REL, at any detectable concentration:**

(APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode

(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus

**Escape:**

(APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted organic vapor canister having an N100, R100, or P100 filter. [Click here for information on selection of N, R, or P filters.](#) Any appropriate escape-type, self-contained breathing apparatus

Important additional information about respirator selection

### **Exposure Routes**

inhalation, skin absorption, ingestion, skin and/or eye contact

### **Symptoms**

In animals: tremor, convulsions; liver damage; [potential occupational carcinogen]

### **Target Organs**

central nervous system, liver

### **Cancer Site**

in animals: liver cancer

# **p-Xylene**

**CAS**

106-42-3

**C<sub>6</sub>H<sub>4</sub>(CH<sub>3</sub>)<sub>2</sub>**

**RTECS**

ZE2625000

## **Synonyms & Trade Names**

**DOT ID & Guide**

1,4-Dimethylbenzene; para-Xylene; p-Xylol

1307 130

## **Exposure Limits**

NIOSH REL: TWA 100 ppm (435 mg/m<sup>3</sup>) ST 150 ppm (655 mg/m<sup>3</sup>)

OSHA PEL†: TWA 100 ppm (435 mg/m<sup>3</sup>)

## **IDLH**

900 ppm See: 95476

## **Conversion**

1 ppm = 4.41 mg/m<sup>3</sup>

## **Physical Description**

Colorless liquid with an aromatic odor. [Note: A solid below 56°F.]

MW: 106.2    BP: 281°F    FRZ: 56°F    Sol: 0.02%

VP: 9 mmHg    IP: 8.44 eV    Sp.Gr: 0.86

Fl.P: 81°F    UEL: 7.0%    LEL: 1.1%

Class IC Flammable Liquid: Fl.P. at or above 73°F and below 100°F.

## **Incompatibilities & Reactivities**

Strong oxidizers, strong acids

## **Measurement Methods**

NIOSH 1501, 3800; OSHA 1002  
See: NMAM or OSHA Methods

## **Personal Protection & Sanitation**

(See protection)

Skin: Prevent skin contact

Eyes: Prevent eye contact

Wash skin: When contaminated

Remove: When wet (flammable)

Change: No recommendation

## **First Aid**

(See procedures)

Eye: Irrigate immediately

Skin: Soap wash promptly

Breathing: Respiratory support

Swallow: Medical attention immediately

## **Respirator Recommendations**

NIOSH/OSHA

**Up to 900 ppm:**

(APF = 10) Any chemical cartridge respirator with organic vapor cartridge(s)\*

(APF = 25) Any powered, air-purifying respirator with organic vapor cartridge(s)\*

(APF = 10) Any supplied-air respirator\*

(APF = 50) Any self-contained breathing apparatus with a full facepiece

**Emergency or planned entry into unknown concentrations or IDLH conditions:**

(APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode

(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus

**Escape:**

(APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted organic vapor canister/Any appropriate escape-type, self-contained breathing apparatus

Important additional information about respirator selection

## **Exposure Routes**

inhalation, skin absorption, ingestion, skin and/or eye contact

## **Symptoms**

Irritation eyes, skin, nose, throat; dizziness, excitement, drowsiness, incoordination, staggering gait; corneal vacuolization; anorexia, nausea, vomiting, abdominal pain; dermatitis

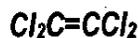
## **Target Organs**

Eyes, skin, respiratory system, central nervous system, gastrointestinal tract, blood, liver, kidneys

# Tetrachloroethylene

CAS

127-18-4



RTECS

KX3850000

## Synonyms & Trade Names

DOT ID & Guide

Perchloroethylene, Perchloroethylene, Perk, Tetrachloroethylene 1897 160

## Exposure Limits

NIOSH REL: Ca Minimize workplace exposure concentrations. See Appendix A

OSHA PEL†: TWA 100 ppm C 200 ppm 300 ppm (5-minute maximum peak in any 3-hours)

## IDLH

## Conversion

Ca [150 ppm] See: 127184

1 ppm = 6.78 mg/m<sup>3</sup>

## Physical Description

Colorless liquid with a mild, chloroform-like odor.

MW: 165.8

BP: 250°F

FRZ: -2°F

Sol: 0.02%

VP: 14 mmHg

IP: 9.32 eV

Sp.Gr: 1.62

FLP: NA

UEL: NA

LEL: NA

Noncombustible Liquid, but decomposes in a fire to hydrogen chloride and phosgene.

## Incompatibilities & Reactivities

Strong oxidizers; chemically-active metals such as lithium, beryllium & barium; caustic soda; sodium hydroxide; potash

## Measurement Methods

NIOSH 1003; OSHA 1001  
See: NMAM or OSHA Methods

### **Personal Protection & Sanitation**

(See protection)

Skin: Prevent skin contact

Eyes: Prevent eye contact

Wash skin: When contaminated

Remove: When wet or contaminated

Change: No recommendation

Provide: Eyewash, Quick drench

### **First Aid**

(See procedures)

Eye: Irrigate immediately

Skin: Soap wash promptly

Breathing: Respiratory support

Swallow: Medical attention immediately

### **Respirator Recommendations**

NIOSH

**At concentrations above the NIOSH REL, or where there is no REL, at any detectable concentration:**

(APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode

(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus

**Escape:**

(APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted organic vapor canister/Any appropriate escape-type, self-contained breathing apparatus

Important additional information about respirator selection

### **Exposure Routes**

inhalation, skin absorption, ingestion, skin and/or eye contact

### **Symptoms**

Irritation eyes, skin, nose, throat, respiratory system; nausea; flush face, neck; dizziness, incoordination; headache, drowsiness; skin erythema (skin redness); liver damage; [potential occupational carcinogen]

### **Target Organs**

Eyes, skin, respiratory system, liver, kidneys, central nervous system

### **Cancer Site**

in animals: liver tumors

# Trichloroethylene

CAS

79-01-6

$ClCH=CCl_2$

RTECS

KX4550000

## Synonyms & Trade Names

## DOT ID & Guide

Ethylene trichloride, TCE, Trichloroethene, 1710 160  
Trilene

## Exposure Limits

NIOSH REL: Ca See Appendix A See Appendix C

OSHA PEL†: TWA 100 ppm C 200 ppm 300 ppm (5-minute maximum peak in any 2 hours)

## IDLH

## Conversion

Ca [1000 ppm] See: 79016

1 ppm = 5.37 mg/m<sup>3</sup>

## Physical Description

Colorless liquid (unless dyed blue) with a chloroform-like odor.

MW: 131.4

BP: 189°F

FRZ: -99°F

Sol(77°F): 0.1%

VP: 58 mmHg

IP: 9.45 eV

Sp.Gr: 1.46

FLP: ?

UEL(77°F): 10.5%

LEL(77°F): 8%

Combustible Liquid, but burns with difficulty.

## Incompatibilities & Reactivities

Strong caustics & alkalis; chemically-active metals (such as barium, lithium, sodium, magnesium, titanium & beryllium)

## Measurement Methods

NIOSH 1022, 3800; OSHA 1001  
See: NMAM or OSHA Methods

### **Personal Protection & Sanitation**

(See protection)

Skin: Prevent skin contact

Eyes: Prevent eye contact

Wash skin: When contaminated

Remove: When wet or contaminated

Change: No recommendation

Provide: Eyewash, Quick drench

### **First Aid**

(See procedures)

Eye: Irrigate immediately

Skin: Soap wash promptly

Breathing: Respiratory support

Swallow: Medical attention immediately

### **Respirator Recommendations**

NIOSH

**At concentrations above the NIOSH REL, or where there is no REL, at any detectable concentration:**

(APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode

(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus

**Escape:**

(APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted organic vapor canister/Any appropriate escape-type, self-contained breathing apparatus

Important additional information about respirator selection

### **Exposure Routes**

inhalation, skin absorption, ingestion, skin and/or eye contact

### **Symptoms**

Irritation eyes, skin; headache, visual disturbance, lassitude (weakness, exhaustion), dizziness, tremor, drowsiness, nausea, vomiting; dermatitis; cardiac arrhythmias, paresthesia; liver injury; [potential occupational carcinogen]

### **Target Organs**

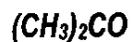
Eyes, skin, respiratory system, heart, liver, kidneys, central nervous system

### **Cancer Site**

in animals: liver & kidney cancer

**Acetone****CAS**

67-64-1

**RTECS**

AL3150000

**Synonyms & Trade Names****DOT ID & Guide**

Dimethyl ketone, Ketone propane, 2-Propanone 1090 127

**Exposure  
Limits**NIOSH REL: TWA 250 ppm (590 mg/m<sup>3</sup>)OSHA PEL†: TWA 1000 ppm (2400 mg/m<sup>3</sup>)**IDLH**

2500 ppm [10%LEL] See: 67641

**Conversion**1 ppm = 2.38 mg/m<sup>3</sup>**Physical Description**

Colorless liquid with a fragrant, mint-like odor.

MW: 58.1      BP: 133°F      FRZ: -140°F      Sol: Miscible

VP: 180 mmHg      IP: 9.69 eV      Sp.Gr: 0.79

FLP: 0°F      UEL: 12.8%      LEL: 2.5%

Class IB Flammable Liquid: FLP. below 73°F and BP at or above 100°F.

**Incompatibilities & Reactivities**

Oxidizers, acids

**Measurement Methods**NIOSH 1300, 2555, 3800; OSHA 69  
See: NMAM or OSHA Methods

### **Personal Protection & Sanitation**

(See protection)

Skin: Prevent skin contact

Eyes: Prevent eye contact

Wash skin: When contaminated

Remove: When wet (flammable)

Change: No recommendation

### **First Aid**

(See procedures)

Eye: Irrigate immediately

Skin: Soap wash immediately

Breathing: Respiratory support

Swallow: Medical attention immediately

### **Respirator Recommendations**

NIOSH

**Up to 2500 ppm:**

(APF = 10) Any chemical cartridge respirator with organic vapor cartridge(s)\*

(APF = 25) Any powered, air-purifying respirator with organic vapor cartridge(s)\*

(APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted organic vapor canister

(APF = 10) Any supplied-air respirator\*

(APF = 50) Any self-contained breathing apparatus with a full facepiece

**Emergency or planned entry into unknown concentrations or IDLH conditions:**

(APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode

(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus

**Escape:**

(APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted organic vapor canister/Any appropriate escape-type, self-contained breathing apparatus

Important additional information about respirator selection

### **Exposure Routes**

inhalation, ingestion, skin and/or eye contact

### **Symptoms**

Irritation eyes, nose, throat; headache, dizziness, central nervous system depression; dermatitis

### **Target Organs**

Eyes, skin, respiratory system, central nervous system

**Aldrin**

**CAS**

309-00-2

1.1.1  $C_{12}H_8Cl_6$

**RTECS**

IO2100000

**Synonyms & Trade Names**

**DOT ID & Guide**

1,2,3,4,10,10-Hexachloro-1,4,4a,5,8,8a-hexahydro-endo-1,4-exo-5,8-dimethanonaphthalene; HHDN; Octalene

2761 151

**Exposure Limits**

NIOSH REL: Ca TWA 0.25 mg/m<sup>3</sup> [skin] See Appendix A

OSHA PEL: TWA 0.25 mg/m<sup>3</sup> [skin]

**IDLH**

**Conversion**

Ca [25 mg/m<sup>3</sup>] See: 309002

**Physical Description**

Colorless to dark-brown crystalline solid with a mild chemical odor. [Note: Formerly used as an insecticide.]

MW: 364.9

BP: Decomposes

MLT: 219°F

Sol: 0.003%

VP: 0.00008 mmHg

IP: ?

Sp.Gr: 1.60

FLP: NA

UEL: NA

LEL: NA

Noncombustible Solid, but may be dissolved in flammable liquids.

**Incompatibilities & Reactivities**

Concentrated mineral acids, active metals, acid catalysts, acid oxidizing agents, phenol

**Measurement Methods**

NIOSH

5502

See: NMAM or OSHA Methods

### **Personal Protection & Sanitation**

(See protection)

Skin: Prevent skin contact  
Eyes: Prevent eye contact  
Wash skin: When contaminated/Daily  
Remove: When wet or contaminated  
Change: Daily  
Provide: Eyewash, Quick drench

### **First Aid**

(See procedures)  
Eye: Irrigate immediately  
Skin: Soap wash immediately  
Breathing: Respiratory support  
Swallow: Medical attention immediately

### **Respirator Recommendations**

NIOSH

**At concentrations above the NIOSH REL, or where there is no REL, at any detectable concentration:**

(APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode

(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus

**Escape:**

(APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted organic vapor canister having an N100, R100, or P100 filter. Click here for information on selection of N, R, or P filters./Any appropriate escape-type, self-contained breathing apparatus

Important additional information about respirator selection

### **Exposure Routes**

inhalation, skin absorption, ingestion, skin and/or eye contact

### **Symptoms**

Headache, dizziness; nausea, vomiting, malaise (vague feeling of discomfort); myoclonic jerks of limbs; clonic, tonic convulsions; coma; hematuria (blood in the urine), azotemia; [potential occupational carcinogen]

### **Target Organs**

central nervous system, liver, kidneys, skin

### **Cancer Site**

In animals: tumors of the lungs, liver, thyroid & adrenal glands

**Chlordane**

**CAS**

57-74-9



**RTECS**

PB9800000

**Synonyms & Trade Names**

**DOT ID & Guide**

Chlordan; Chlordano; 1,2,4,5,6,7,8,8-Octachloro-3a,4,7,7a-tetrahydro-4,7-methanoindane 131

**Exposure Limits**

**NIOSH REL:** Ca TWA 0.5 mg/m<sup>3</sup> [skin] See Appendix A

**OSHA PEL:** TWA 0.5 mg/m<sup>3</sup> [skin]

**IDLH**

**Conversion**

Ca [100 mg/m<sup>3</sup>] See: 57749

**Physical Description**

Amber-colored, viscous liquid with a pungent, chlorine-like odor. [insecticide]

MW: 409.8      BP: Decomposes      FRZ: 217-228°F      Sol: 0.0001%

VP: 0.00001 mmHg IP: ?      Sp.Gr(77°F): 1.6

FLP: NA      UEL: NA      LEL: NA

Noncombustible Liquid, but may be utilized in flammable solutions.

**Incompatibilities & Reactivities**

Strong oxidizers, alkaline reagents

**Measurement Methods**

NIOSH 5510; OSHA 67  
See: NMAM or OSHA Methods

### **Personal Protection & Sanitation**

(See protection)

Skin: Prevent skin contact

Eyes: Prevent eye contact

Wash skin: When contaminated

Remove: When wet or contaminated

Change: Daily

Provide: Eyewash, Quick drench

### **First Aid**

(See procedures)

Eye: Irrigate immediately

Skin: Soap wash immediately

Breathing: Respiratory support

Swallow: Medical attention immediately

### **Respirator Recommendations**

NIOSH

**At concentrations above the NIOSH REL, or where there is no REL, at any detectable concentration:**

(APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode

(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus

**Escape:**

(APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted organic vapor canister having an N100, R100, or P100 filter. Click here for information on selection of N, R, or P filters./Any appropriate escape-type, self-contained breathing apparatus  
Important additional information about respirator selection

### **Exposure Routes**

inhalation, skin absorption, ingestion, skin and/or eye contact

### **Symptoms**

Blurred vision; confusion; ataxia, delirium; cough; abdominal pain, nausea, vomiting, diarrhea; irritability, tremor, convulsions; anuria; in animals: lung, liver, kidney damage; [potential occupational carcinogen]

### **Target Organs**

central nervous system, eyes, lungs, liver, kidneys

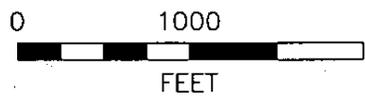
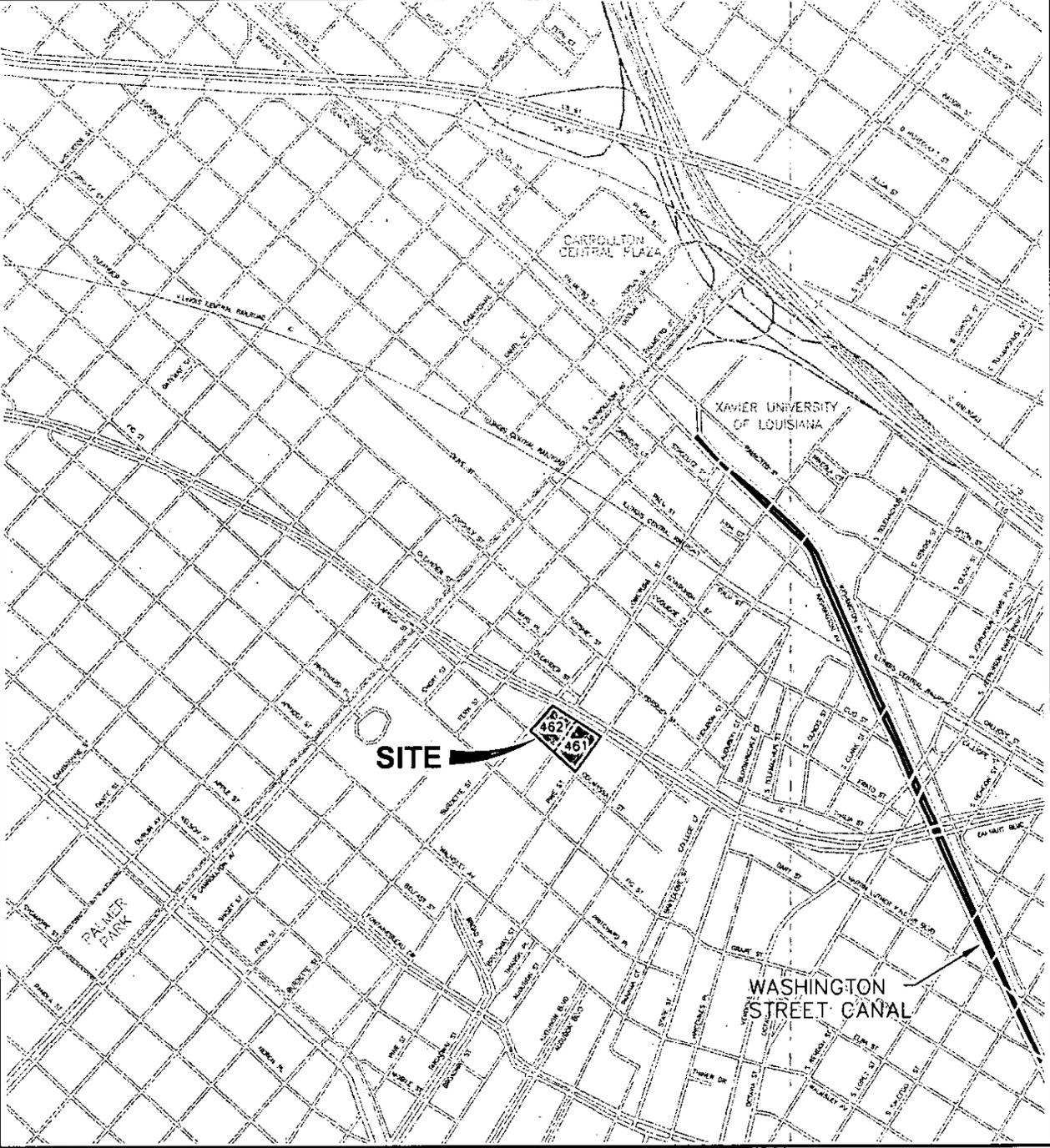
### **Cancer Site**

[in animals: liver cancer]

**APPENDIX E**

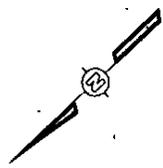
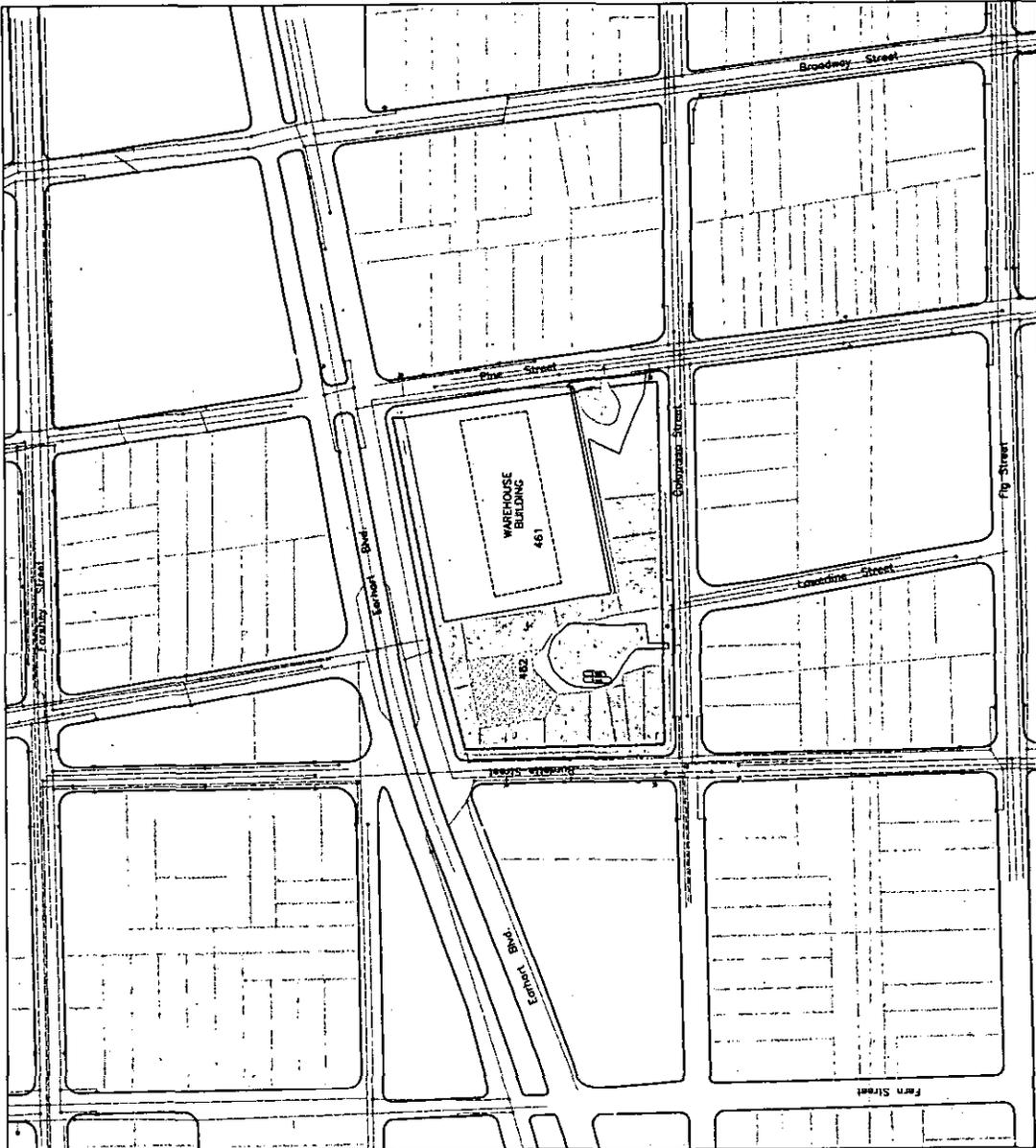
**SITE MAPS**

IMAGE X-REF OFFICE BTR DRAWN BY J. BOUDREAUX 02/28/06 CHECKED BY CDM 02/28/06 APPROVED BY KPR 02/28/06 DRAWING NUMBER 771728-A9




 T H AGRICULTURE & NUTRITION, L.L.C.  
 &  
 ELEMENTIS CHEMICALS, INC.

**FIGURE 1**  
**SITE LOCATION MAP**  
 HEALTH AND SAFETY PLAN  
 7700 EARTH BLVD. FACILITY NEW ORLEANS,  
 LOUISIANA



**LEGEND:**

-  MATERIAL REMAINING IN PLACE "F027"
-  SOIL REMAINING IN PLACE AS BUFFER ZONE
-  EXCAVATED AND BACKFILLED AREA "NOMINAL 1 FT. BGS"
-  EXCAVATED AND BACKFILLED AREA "NOMINAL 4.5 FT. BGS"

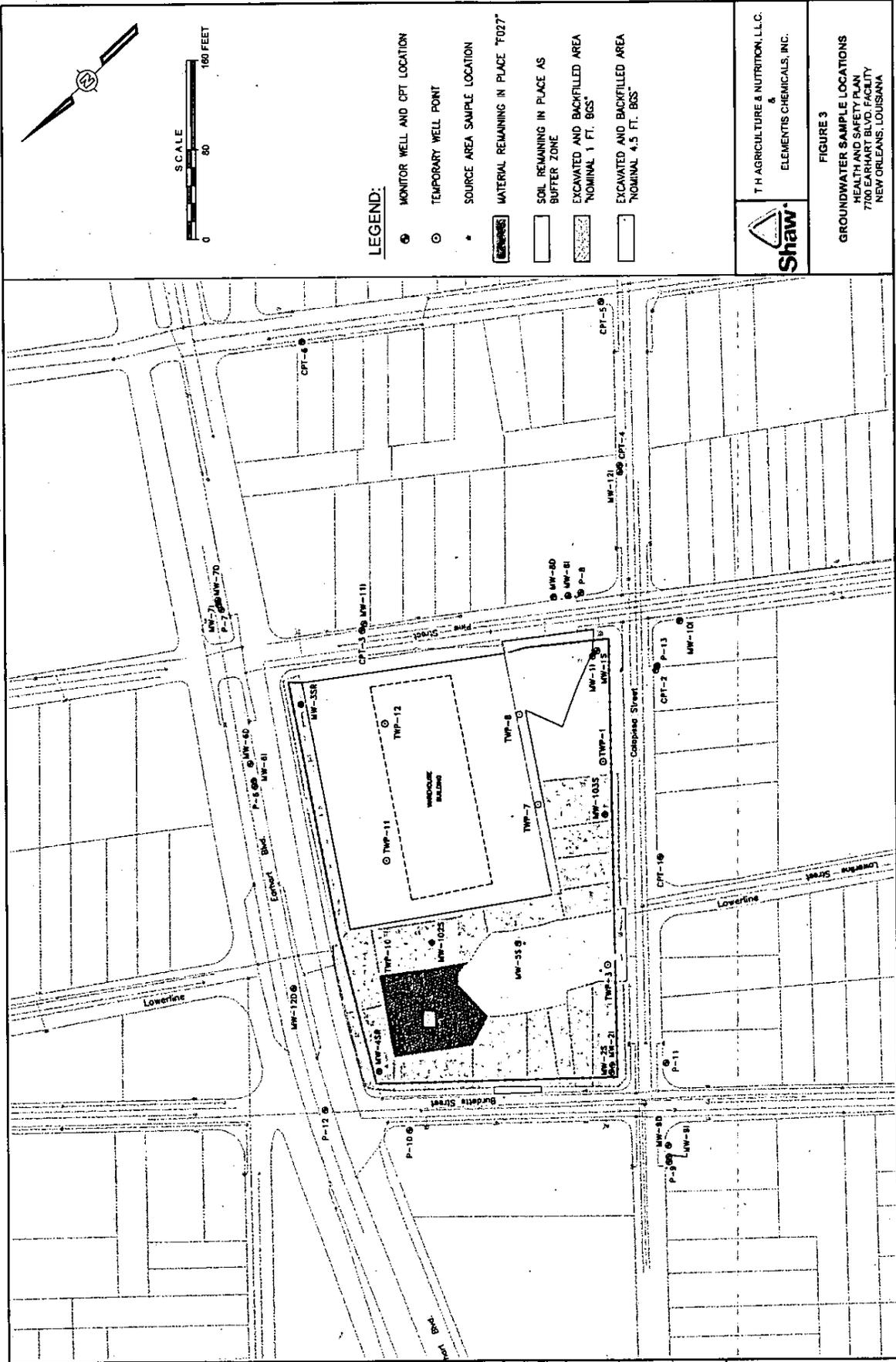


**Shaw**

T H AGRICULTURE & NUTRITION, L.L.C.  
&  
ELEMENTS CHEMICALS, INC.

**FIGURE 2**  
FACILITY LAYOUT MAP  
HEALTH AND SAFETY PLAN  
7700 EARHART BLVD. FACILITY  
NEW ORLEANS, LOUISIANA

IMAGE	X-REF	OFFICE	BTR	L.ROUREAUX	02/28/08	CDM	02/28/08	KPH	02/28/08	DRAWING NUMBER	771728-B56
		DRAWN BY		CHECKED BY		APPROVED BY					

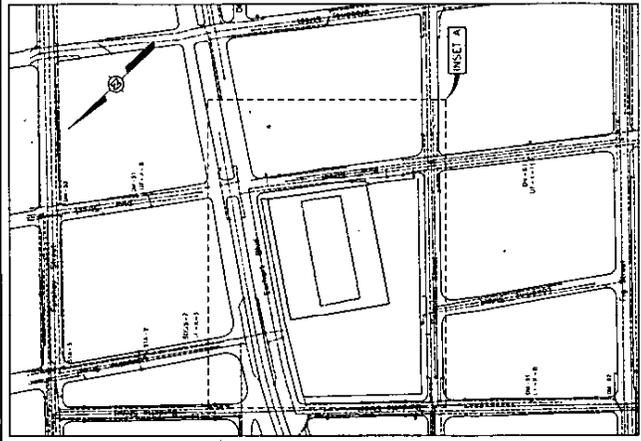
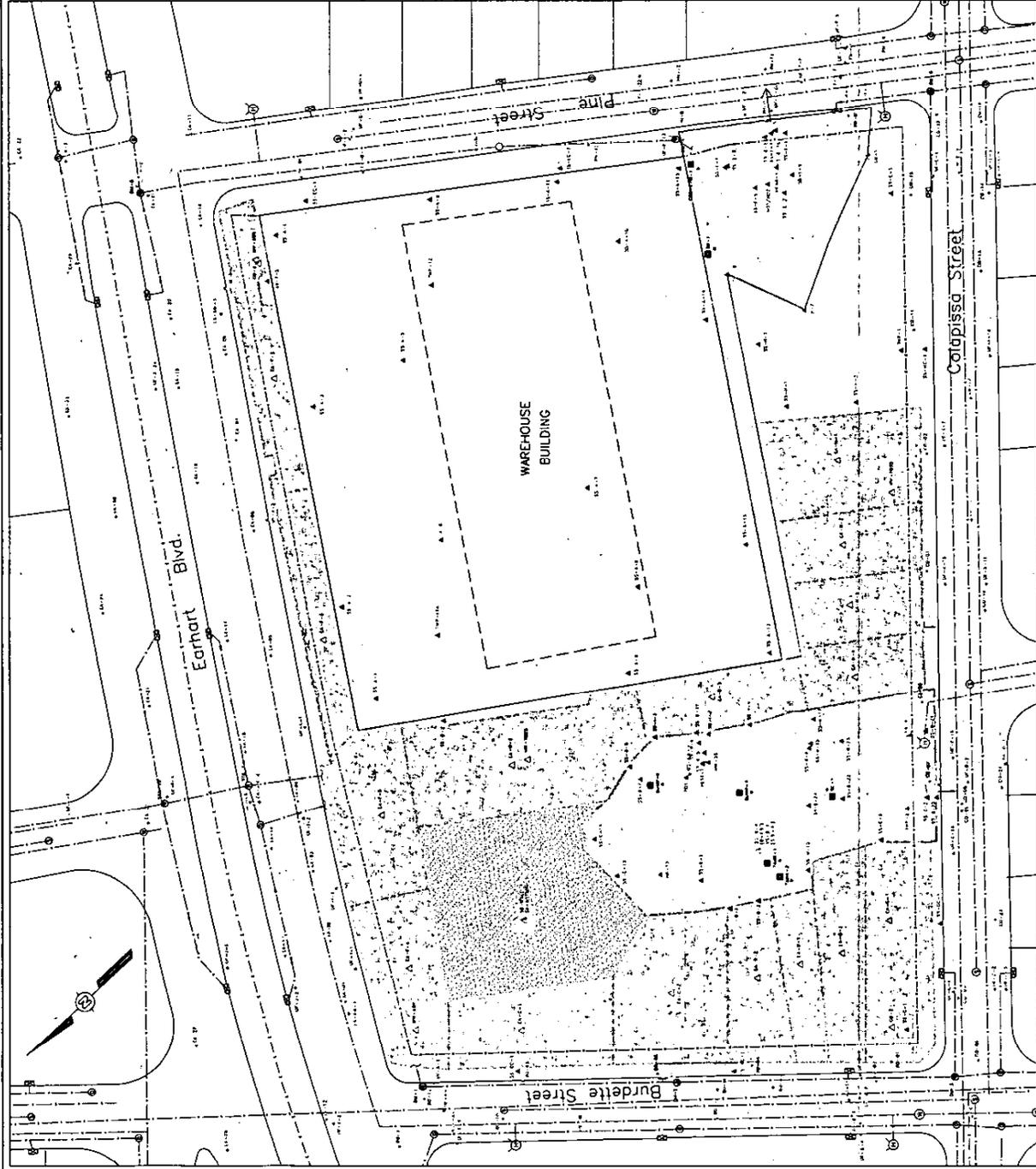


**Shaw**  
 T.H. AGRICULTURE & NUTRITION, L.L.C.  
 &  
 ELEMENTS CHEMICALS, INC.

**FIGURE 3**  
 GROUNDWATER SAMPLE LOCATIONS  
 HEALTH AND SAFETY PLAN  
 7700 EAPART BLVD. FACILITY  
 NEW ORLEANS, LOUISIANA

IMAGE	X-REF	OFFICE	BTR	DRAWN BY	CHECKED BY	APPROVED BY	DRAWING NUMBER
				LABOREUX	CDM	KRP	771728-857
				02/29/06	02/28/06	02/28/06	

IMAGE	X-REF	OFFICE	BTR	DATE	CHECKED BY	APPROVED BY	DRAWING NUMBER
				02/29/06	J. BONDRAUX		771728-E23



PLAN VIEW

SCALE  
0 10 20 30 40 50 FEET

LEGEND:

- STREET SUB-SURFACE SOIL SAMPLE LOCATIONS (1.0-10.0 FT DEEP)
- SOIL REMAINING IN PLACE "AS IS"
- SOIL REMAINING IN PLACE AS BUFFER ZONE
- EXCAVATED AND BACKFILLED AREA, NOMINAL 1 FT, BCT
- EXCAVATED AND BACKFILLED AREA, NOMINAL 4.5 FT, BCT



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ELEMENTIS CHEMICALS, INC.

FIGURE 4  
HEALTH AND SAFETY PLAN  
7708 EAMART BLVD. FACILITY  
NEW ORLEANS, LOUISIANA  
CONSTITUENT CONCENTRATIONS IN SOIL

**APPENDIX F**

**JOB SAFETY ANALYSES (JSA)**

## JOB SAFETY ANALYSIS (JSA)

Supervision/Foreman \_\_\_\_\_

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

<p><b>Permits</b></p> <p>_____ Required</p> <p>_____ Cold Work</p> <p>_____ Hot Work</p> <p>_____ Entry Permit</p> <p>_____ All conditions Met</p> <p>_____ Signed off when complete</p> <p>_____ Other: _____</p> <p><b>Personal Protective Equipmt</b></p> <p>_____ Hard Hat</p> <p>_____ Ear Protection</p> <p>_____ Safety Harness</p> <p>_____ Type of Glove</p> <p>_____ Composition of Gloves</p> <p>_____ Special Purpose Gloves</p> <p>_____ Tyvek Suit</p> <p>_____ Acid Suit/Slicker Suit</p> <p>_____ Rubber Boots</p> <p>_____ Mono Goggles</p> <p>_____ Burning/Welding Face Protection</p> <p>_____ Face Shield</p> <p>_____ Respirator</p> <p>_____ Fresh Air</p> <p>_____ Other: _____</p> <p><b>Tools</b></p> <p>_____ Current Inspection</p> <p>_____ Proper tools</p> <p>_____ Good tool condition</p> <p>_____ Qualifications</p> <p>_____ Other: _____</p> <p><b>Emergency Equipment</b></p> <p>_____ Fire Extinguishers</p> <p>_____ Safety Shower</p> <p>_____ Evacuation Route/Map</p> <p>_____ Other: _____</p> <p><b>Access</b></p> <p>_____ Scaffold (properly inspected)</p> <p>_____ Ladder (tied off/secured)</p> <p>_____ Manlift</p> <p>_____ Personel Basdet (approved/inspected)</p> <p>_____ Operator Training</p> <p>_____ Other: _____</p>	<p><b>Welding</b></p> <p>_____ Flashburns</p> <p>_____ Combustibles</p> <p>_____ Spark containment</p> <p>_____ Shields</p> <p>_____ Grounding</p> <p>_____ Water Hose</p> <p>_____ Fire Extinguisher</p> <p>_____ Fire Blanket</p> <p>_____ Fire Watch</p> <p>_____ Sewer Covers</p> <p>_____ Other: _____</p> <p><b>Overhead Work</b></p> <p>_____ Barricades</p> <p>_____ Signs</p> <p>_____ Hole Cover</p> <p>_____ Handrails</p> <p>_____ Other: _____</p> <p><b>Electrical</b></p> <p>_____ Locked &amp; Tagged Out</p> <p>_____ Try Start/Stop Switch</p> <p>_____ GFCI Test</p> <p>_____ Assured Grounding</p> <p>_____ Extension Cord Inspection</p> <p>_____ Other: _____</p> <p><b>Lifting</b></p> <p>_____ Forklift</p> <p>_____ Cherry Picker</p> <p>_____ Load Chart</p> <p>_____ Angle</p> <p>_____ Crane</p> <p>_____ Chainfall</p> <p>_____ Proper Rigging Practices</p> <p>_____ Manual Lifting</p> <p>_____ Condition of Equipment</p> <p>_____ Operator Certified</p> <p>_____ Other: _____</p>	<p><b>Hazards (Environmental)</b></p> <p>_____ Electrical Shock</p> <p>_____ Heat Stress</p> <p>_____ Heavy Objects</p> <p>_____ Hot/Cold Surface or Material</p> <p>_____ Inadequate Lighting</p> <p>_____ Line Breaking</p> <p>_____ Noise</p> <p>_____ Poor Access/Egress</p> <p>_____ Sharp Objects</p> <p>_____ Other: _____</p> <p><b>Chemical Hazards</b></p> <p>_____ Chemical Burn Shin/Eyes</p> <p>_____ Flammable</p> <p>_____ Ingestion</p> <p>_____ Inhalation</p> <p>_____ Skin Contamination</p> <p>_____ Other: _____</p> <p><b>Body Hazards</b></p> <p>_____ Fall Potential</p> <p>_____ Pinch Points</p> <p>_____ Slip/Trip Potential</p> <p>_____ Other: _____</p> <p><b>Other Work in Area</b></p> <p>_____ Others working overhead</p> <p>_____ Type of work others performing</p> <p>_____ PPE Due to Other Work</p> <p>_____ Other: _____</p> <p><b>Confined Space</b></p> <p>Know the following:</p> <p>Possible hazards within space</p> <p>First signs of exposure</p> <p>How to summons help</p> <p>How to track personnel</p> <p>Entering and exiting the confined space</p> <p>Maintain contact with all entrants by</p> <p style="padding-left: 20px;">by visual or voice contact at all times</p> <p>Do not attempt to rescue unless you are</p> <p>Remain at entry point and assume no</p> <p style="padding-left: 20px;">no duties that will take you from there</p>
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**JOB SAFETY ANALYSIS (JSA)**

<p><u>List Required PPE:</u></p>  <p><u>Pre-Job Preparation:</u></p> <p>1. Filled out JSA? <input type="checkbox"/></p> <p>2. Reviewed JSA with entire crew? <input type="checkbox"/></p> <p>3. Everyone has signed JSA? <input type="checkbox"/></p>	<p><b>Safety Access / Location</b></p> <p>Protected or Safe Building/Area:</p> <p>Wind Direction:</p> <p>Evacuation Route:</p> <p>Assembly Point:</p>	<p><b>Supervisor:</b></p> <p>JSA Prepared by:</p> <p>Are others in work area?</p> <p>New JSA? <input type="checkbox"/></p> <p>or</p> <p>Revised JSA? <input type="checkbox"/></p>
<p><b>Job Tasks</b></p> <p>What does the work at this job/location consist of?</p>   		<p><b>Review of the Job (Safety Only)</b></p> <p>Time of Review:</p> <p>Safety Representative:</p> <p>Comments:</p>
<p><b>List the Potential Hazards of this job/work</b></p>   		<p><b>Supervisor's Comments:</b></p>   
<p><b>Recommended Actions or Procedures</b></p>   		<p><b>Supervisor's Initials:</b></p>   
<p><b>Crew Signatures:</b></p>  	  	  