

9/26/06 - 02691

**SITE SPECIFIC HEALTH AND SAFETY PLAN FOR
Surface Munitions and Explosives of Concern at
Munitions Response Area-Live Impact Area,
Munitions Response
Sites 1 through 8, 13, 15 through 20, and 29 through 31
Former Vieques Naval Training Range (VNTR)
Vieques, Puerto Rico**

Prepared for:

DEPARTMENT OF THE NAVY
Atlantic Division
Naval Facilities Engineering Command
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Shaw Project No. 123113
September 26, 2006

**Site-Specific Safety and Health Plan Approval for the
Munitions Response, Vieques Island, Puerto Rico**

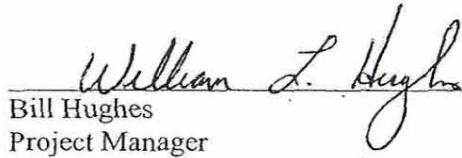
I have read and approve this site-specific safety and health plan attachment for activities at Vieques Island, Puerto Rico with respect to project hazards, regulatory requirements, and Shaw procedures.



David Mummert, CIH
Program Certified Industrial Hygienist

10-12-2006

Date



Bill Hughes
Project Manager

10-12-2006

Date

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APPENDICES

- Appendix A International Safety Cards & Material Safety Data Sheets
- Appendix B Site-Specific Health and Safety Procedures
- Appendix C Activity Hazard Analyses
- Appendix D Route To Hospital
- Appendix E Health and Safety Plan Amendment Documentation Form
- Appendix F Hurricane Preparedness Plan
- Appendix G Accident Prevention Plan
- Appendix H Blood Borne Pathogens Exposure Control Plan
- Appendix I Safety Plan Acknowledgement
- Appendix J OSHA 300 Log
- Appendix K UXO Safety Plan
- Appendix L Accident Reporting Forms

List of Acronyms

AHA	Activity Hazard Analyses
AFWTF	Atlantic Fleet Weapons Training Facility
ATG	Air to Ground
BAC	Blood Alcohol Concentration
CIH	LANTDIV Certified Industrial Hygienist
CFR	Code of Federal Regulation
CRZ	Contamination Reduction Zone
CSP	Certified Safety Professional
DBA	A-Weighted Decibel
°C	Degrees Celsius
°F	Degrees Fahrenheit
EMA	Eastern Maneuver Area
EMA	Emergency Management Agency
EMS	Emergency Response Service
EPA	Environmental Protection Agency
ERCP	Emergency Response Contingency Plan
EV	Electron Volt
EZ	Exclusion Zone
F/B	Flash/Bang
FMFLANT	Fleet Marine Force, Atlantic
Shaw	Shaw Remediation Services, LLC
LIA	Live Impact Area
LEL	Lower Explosive Limit
Mph	Miles Per Hour
MSDS	Material Safety Data Sheet
NATO	North American Treaty Organization
NGFS	Naval Gunfire Support
NIOSH	National Institute for Occupational Safety and Health
NRR	Noise Reduction Rating
O ₂	Oxygen
OP	Observation Point
OSHA	Occupational Safety and Health Administration
PEL	Permissible Exposure Level
HSM	LANTDIV Program Health and Safety Manager
PM	Project Manager

PPE	Personal Protection Equipment
SIA	Surface Impact Area

List of Acronyms (continued)

ROICC	Resident Officer In Charge of Construction
RPM	Remedial Program Manager
SS	Site Superintendent
SSHSP	Site-Specific Safety and Health Plan
SZ	Support Zone
UV	Ultraviolet
UXOSO	Unexploded Ordnance Safety Officer
VNTR	Vieques Naval Training Range

1.0 INTRODUCTION

1.1 OBJECTIVE

The objective of this plan 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 safety plan will act as the supporting document for the UXO Safety Plan, located in Appendix K, since work involves munitions.

1.2 POLICY STATEMENT

The policy of 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.

This Site Specific Health and Safety Plan (SSHSP) prescribes the procedures that must be followed during referenced site activities. Operational changes that could affect the health and safety of personnel or the community will not be made without the prior approval of the Project Manager and the Health and Safety Coordinator.

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.

1.3 REFERENCES

This SSHSP complies with applicable Occupational Safety and Health Administration (OSHA), U.S. Environmental Protection Agency (EPA), and Shaw Health & Safety policies and procedures. This plan follows the guidelines established in the following:

- Standard Operating Safety Guides, EPA (Publication 9285.1-03, June 1992).

- U.S. Coast Guard (USCG), EPA (86-116, November 1985).
- Title 29 of the Code of Federal Regulations (CFR), Part 1910.
- Title 29 of the Code of Federal Regulations (CFR), Part 1926.
- USACE Safety and Health Requirements Manual EM 385-1-1.
- Shaw Health and Safety Procedures HS001 through HS999 (current).

1.4 DISCLAIMER

The enclosed Site Specific Health and Safety Plan has been designed for the methods presently contemplated by Shaw E&I (Shaw) for execution of the proposed work. Therefore, the Site Specific Health and Safety Plan may not be appropriate if the work is not performed by or using the methods presently contemplated by Shaw and/or Shaw, or if the scope of work is modified. Each company or contractor is responsible for the safety and health of their personnel, for their actions, and for the work they perform. It is highly recommended that each company or contractor working at the site perform their work under the supervision of their internal health and safety professionals.

2.0 SITE HISTORY/SCOPE P OF WORK

2.1 BACKGROUND

The Navy has owned portions of Vieques since 1941, when land was purchased for use as ammunitions storage facility in support of World War II training requirements. Although the Island of Culebra was the focal point for naval gunfire in the 1960s and early 1970s, VNTR, formerly known as the Atlantic Fleet Weapons Training Facility (AFWTF), began developing facilities on the eastern end of Vieques in 1964, when it established a gunnery range in the LIA. In 1965, the Navy established the LIA, also known as the Air Impact Area, and began construction of Observation Point (OP) I on Cerro Matias.

By the 1970s, the LIA maintained several targets for aerial bombing including old tanks and vehicles used as mock-ups, two bulls-eye targets and a strafing target. Additionally, several point and area targets for ships to practice naval gunfire support (NGFS) were established in the LIA.

The VNTR provided logistics support, scheduling assistance, and facilities for NGFS and air-to-ground (ATG) ordnance delivery training for Atlantic Fleet ships, North Atlantic Treaty Organization (NATO) ships, air wings, and smaller air units from other allied nations and the Puerto Rican National Guard. The Fleet Marine Force, Atlantic (FMFLANT), conducted training for Marine amphibious units, battalion landing teams, and combat engineering units in the Eastern Maneuver Area (EMA). Occasionally, naval units of allied nations having a presence in the Caribbean and the Puerto Rican National Guard also utilized the EMA.

Adjacent to and west of the Surface Impact Area (SIA), the 10,673-acre EMA provided maneuvering space and ranges for the training of marine amphibious units and battalion landing teams in exercises of amphibious landings, small-arms fire, artillery and tank fire, shore fire control, and combat engineering tasks. The EMA was first established in 1947. It is demarcated by the western property line east to the western front friendly-fire line where the SIA begins. Marine artillery was fired from gun positions in the EMA and SIA toward targets in the LIA and SIA.

Portions of the training areas within the VNTR were in continuous use since World War II, when the Navy acquired title to the land, until 2003. The Atlantic Fleet's ships, aircraft, and marine forces carried out training in all aspects of NGFS, ATG ordnance delivery, air-to-surface mine delivery, amphibious landings, small-arms fire, artillery and tank fire, and

combat engineering. As part of normal operations, unexploded ordnance (UXO) was cleared periodically from the LIA and treated on-site by detonation. The Navy also operated a waste munitions open burn and open detonation (OB/OD) facility under a USEPA interim status Subpart X permit within the LIA.

2.2 SCOPE OF WORK

The total land area of the removal action area is approximately 440 acres; however, areas inundated by water or areas with standing water will not be addressed as part of this removal action. The objective of the TCRA/IM is to reduce risks at MRSs identified as posing an explosive hazard due to MEC present on the ground surface. Access to the areas identified for removal are currently restricted; however, trespassing occurs regularly in these areas. The restrictions to these areas are currently not anticipated to be lifted. The objectives will be met by removing all MEC present on the ground surface or exposed at the ground surface.

This Health and Safety Plan focuses on the following tasks identified in the work order:

- Clearing and grubbing
- Soil Screening
- Road Repair

MEC Surface removal actions are addressed in the UXO Safety Plan, as are associated Activity Hazard Analysis

All site activities have been analyzed for potential hazards for which control measures are provided in Appendix C, Activity Hazard Analyses.

Site Location

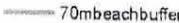
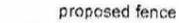
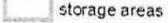
Vieques is located in the Caribbean Sea approximately 7 miles southeast of the eastern tip of the island of Puerto Rico and 20 miles southwest of St. Thomas, U.S. Virgin Islands. Vieques is the largest offshore island of the Commonwealth of Puerto Rico. It is approximately 20 miles long and 4.5 miles wide, and has an area of approximately 33,088 acres (51 square miles).

The former VNTR is situated in the eastern half of the Island of Vieques, and is bordered on the west by the community of Isabel Segunda, to the north by Vieques Sound, and to the south by the Caribbean Sea. The former VNTR consist of approximately 14,500 acres and is divided operationally into four MRAs that (from west to east) include: the EMA, an area approximately 10,673 acres; the SIA, approximately 2,500 acres; the 900-acre Live Impact Area (LIA) and the 200-acre Eastern Conservation Area (ECA) on the easternmost tip of Vieques

Proposed Storage Areas and Munitions Response Boundaries
Former Vieques Naval Training Range
Vieques, Puerto Rico

Munitions Response Sites 1 through 7, 16, 17 and 30

Legend

-  70m beach buffer
-  proposed fence
-  storage areas
-  Grid
-  MRS_Boundaries

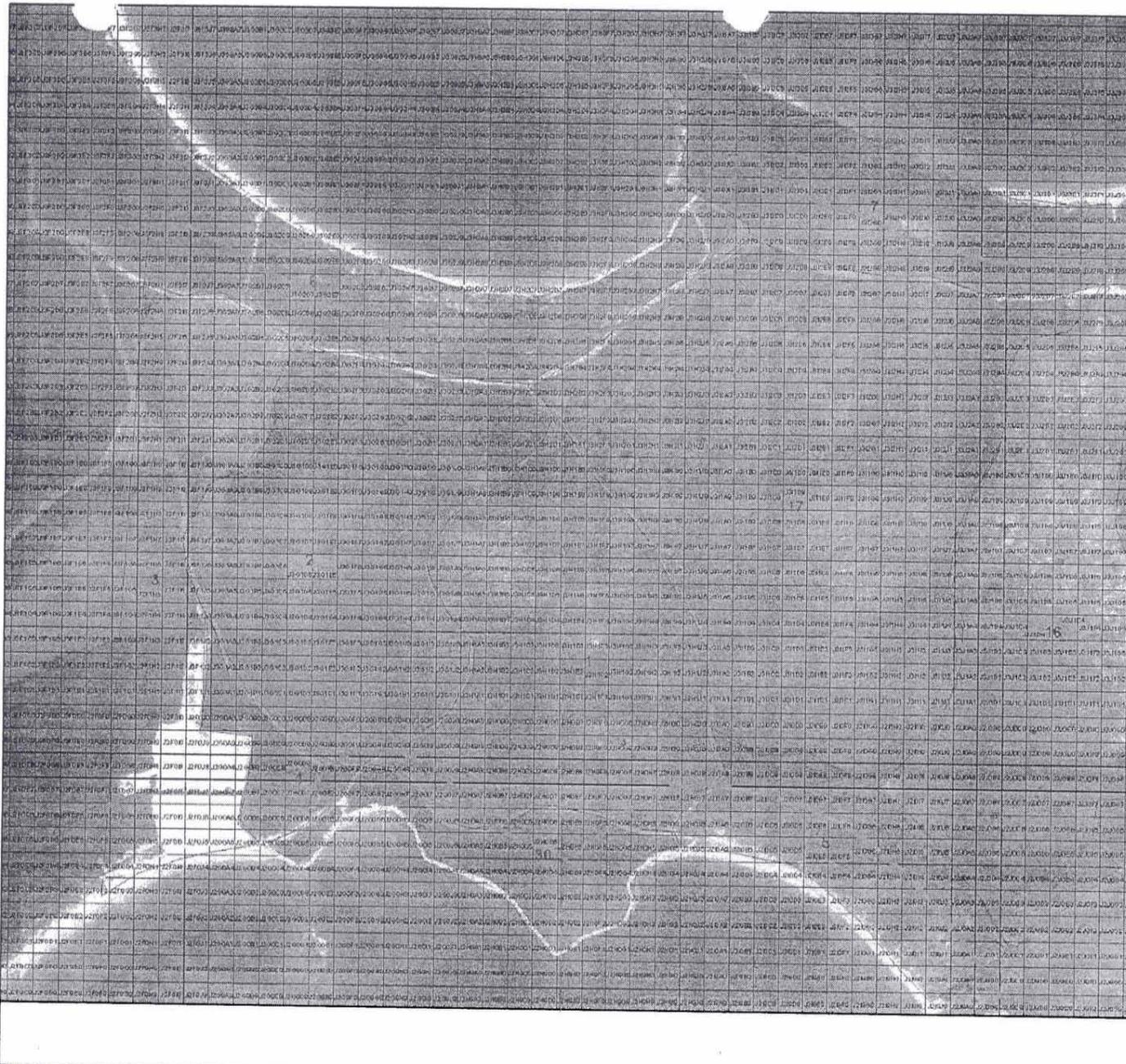
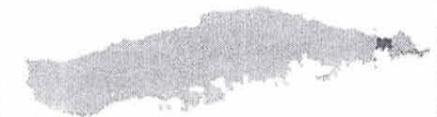
Date: May 23, 2005

Created by: C. Stroh

SOURCE:



Map Scale: 1:375,000



DEPARTMENT OF THE NAVY		NAVAL FACILITIES ENGINEERING COMMAND	
NAVFAC ATLANTIC DIVISION		NORFOLK, VIRGINIA	
NAVAL STATION		VIEQUES, PUERTO RICO	
Former Naval Ammunitions Support Detachment			
SITE MAP			
CODE OF NO. 1	SCALE NOT TO SCALE		
DATE 08/01/04	SCALE 001/4		
SYMBOL NO. 001/4	SCALE 001/4		
CONTRACT NO. N62470-02-D-3260	NAVFAC Drawing No. 123113-A1 DWG		
PROJECT NO. 2-1			

 Shaw Environmental, Inc.		DESIGNED BY	LM	10/04/06	CHECKED BY	WLM	10/04/06
		DRAWN BY	TFR	10/04/06	APPROVED BY	WLM	10/04/06

3.0 KEY PERSONNEL AND MANAGEMENT

The Project Manager (PM), Senior UXO Supervisor (SUXOS), Unexploded Ordnance Safety Officer (UXOSO), LANTDIV Program Certified Industrial Hygienist (CIH) and LANTDIV Program Health and Safety Manager (HSM) are responsible for formulating and enforcing health and safety requirements, and for implementing this SSHSP. The following summarizes the health and safety responsibilities of the site management.

3.1 PROJECT SAFETY RESPONSIBILITIES

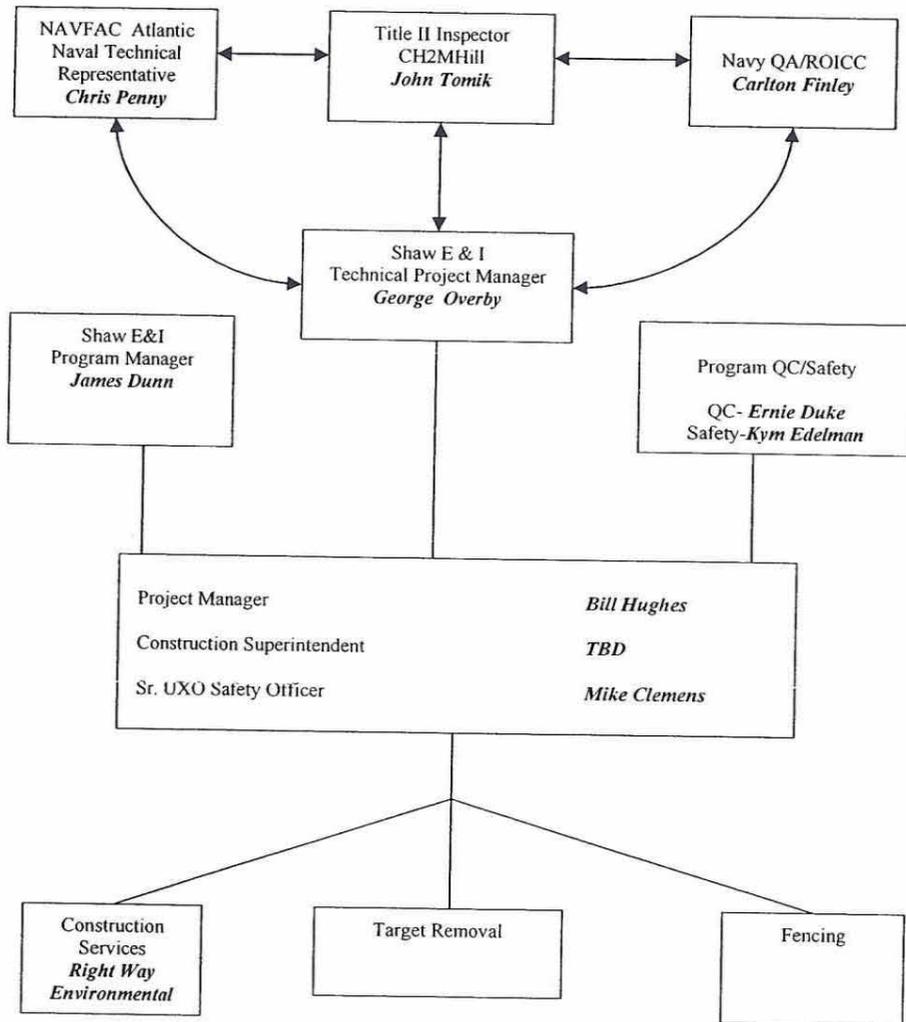
The PM has the overall responsibility for the project and to assure that the requirements of the contract are attained in a manner consistent with the SSHSP requirements. The PM will coordinate with the SS, and the UXOSO to assure that the work is completed in a manner consistent with the SSHSP. The SS is responsible for field implementation of the SSHSP. The SS will be the main contact in any on-site emergency situation and will insure off-site emergency agencies have been contacted prior to the start of work. The PM, CIH, HSM, SS and UXOSO are authorized to administer this SSHSP. The PM, CIH, HSM, SS and UXOSO are authorized to stop work when an imminent health or safety risk exists. The PM and CIH are responsible for reviewing the SSHSP and ensuring that the SSHSP is complete and accurate. The HSC will also provide technical and administrative support for the Health and Safety Program and will be available for consultation when required. Each employee is responsible for personal safety as well as the safety of others in the work area.

3.2 KEY SAFETY PERSONNEL

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

Project Manager	Bill Hughes (757) 318-5140 (office) (757) 438-8498 (cell)
Construction Superintendent	Mike Clemens (509) 990-1149 (cell)
Unexploded Ordnance Safety Officer	Mike Clemens (509) 990-1149 (cell)

Navy QA Representative	Carlton Finley (787) 509-3071
RPM	Christopher Penny (757) 322-4815 (office)
COR	Zane Perry (757) 322-4777 (office) (757) 619-4611 (cell)
Title II Inspector: CH2M Hill	John Tomik (757) 671-8311 ext. 413
U.S. Fish and Wildlife	Oscar Diaz (787) 741-0659 (office) (787) 347-7708 (cell)
Program Certified Industrial Hygienist	Dave Mummert, CIH (419) 425-6129 (office) (419) 348-1544 (cellular)
Program Health and Safety Manager	Kym Edelman (757) 318-5132 (office) (757) 435-5384 (cellular)
Regional Health and Safety Manager	Joe Hoyt, CHST (804) 337-6982 (office)



4.0 ACTIVITY HAZARDS

On site chemical contamination is not anticipated. Chemical hazards are therefore associated with materials brought on site. MSDS's for chemicals which may be brought to the site are located in Appendix A.

4.1 CHEMICAL HAZARDS

No chemical hazards are anticipated. Work will be conducted in non-contaminated areas.

4.2 HAZARD COMMUNICATION

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 personnel and subcontractors. Hazard communication will include:

4.2.1 Container Labeling

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

4.2.2 Material Safety Data Sheets (MSDS)

There will be an MSDS located on site for all site contaminants and each hazardous chemical known to be used on site. MSDS's are located in Appendix A of the Site-Specific Health Plan.

4.2.3 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:

- OSHA regulated 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 MSDS's for hazardous substances found on Shaw sites.
- Emergency spill procedures.
- 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.

4.3 PHYSICAL HAZARDS

To minimize physical hazards, Shaw has developed standard safety protocols that will be followed at all times. Activity Hazard Analyses, located in Appendix C, have been developed for each principal activity and identify all major hazards to which employees may be exposed.

The UXO Safety Plan addresses hazards associated with handling MEC as well as protective measures and safety procedures that will be followed to protect the health and safety of site personnel.

The SS and UXOSO will observe the general work practices of each crewmember and equipment operator, and enforce safe procedures. The crew leaders and SS will inspect the work areas. All hazards will be corrected in a timely manner. A variety of physical hazards may be encountered during work activities at this site. Hard hats, safety glasses and steel-toe safety boots are required in all areas of the site. Site-specific hazards and all necessary precautions will be discussed at the daily safety meetings. Failure to follow safety protocols will result in removal of an employee from the site and appropriate disciplinary actions.

4.4 ENVIRONMENTAL HAZARDS

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

4.4.1 Heat Stress

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

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

Heat stress prevention is outlined in Shaw Health and Safety procedure HS400, Working in Hot Environments. This information will be reviewed during safety meetings. Workers are encouraged to increase consumption of water and electrolyte-containing beverages; e.g., Gatorade. Heat stress can be prevented by assuring an adequate work/rest schedule. Guidelines are presented below and should be used in conjunction with HS400.

In addition, workers are encouraged to take rests and report symptoms whenever they feel any adverse effects that may be heat-related. The frequency of breaks may need to be increased based on worker recommendation to the UXOSO and SS. Heat stress can be prevented by assuring an adequate work/rest schedule and adequate fluid consumption. A guide for work/rest schedules for various protection levels are given below in Table 4.2. The number of hours before a work/rest period is based on experience with similar work. The time periods should be considered maximum. It must also be remembered that individual physical variability's and differences in physical work activities may require revisions to site plans. This table should be used as a guide. Professional judgment of the SS and UXOSO is necessary to assure a fully protective plan to prevent heat stress disorders.

Table 4.2
Guidelines For Work-Rest Periods
Protection Level
Number Of Hours Before Rest Period

Temperature	Level D	Level C	Level B	Level A
90+ F*	2.0	1.5	1.0	0.5
87.5 F	2.5	2.0	1.5	1.0
82.5 F	3.0	2.5	2.0	1.5
77.5 F	3.5	3.0	2.5	1.5
72.5	4.0	3.5	2.5	1.5

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

Alternately the work/rest schedule can be calculated based on heat stress monitoring results. Each individual will count his/her radial (wrist) pulse as early as possible during each rest period. If the heart rate 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.

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

Monitoring for heat stress will begin when the ambient temperature reaches or exceeds 70 °F when wearing chemical protective clothing (Level C, B, A), or 80 °F for site activities performed with no chemical protective clothing (Level D). Monitoring will include pulse rate, weight loss, oral/ or ear canal temperature, signs and symptoms of heat stress and fluid intake.

4.4.2 Noise

Hearing protection is required for workers operating or working near heavy equipment, where the noise level is greater than 85 A-weighted decimal (dBA) (Time Weighted Average [TWA]) as well as personnel working around heavy equipment. The UXOSO will determine the need and appropriate testing procedures (i.e., sound level meter and/or dosimeter) for

noise measurement in accordance with Shaw Health and Safety procedure HS402 Hearing Conservation Program.

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

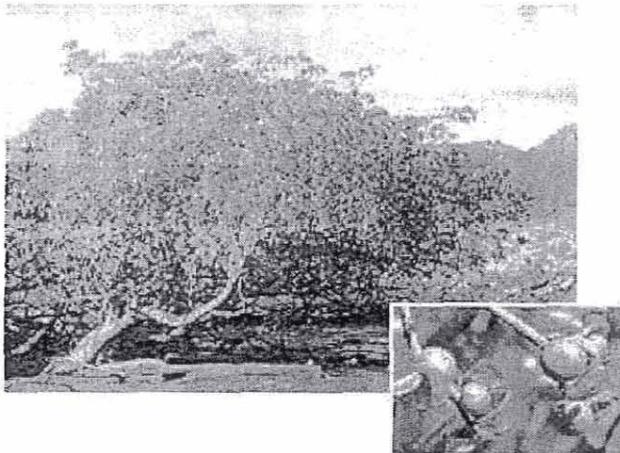
If continuous noise levels are found to exceed 85 dBA at any location within the work area, warning signs will be posted. Workers and visitors will be notified that hearing protection is required. Appropriate hearing protection (e.g., ear plugs) will be worn whenever personnel are working or visitors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

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

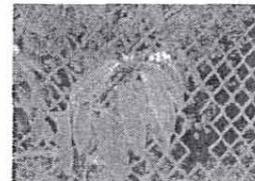
Instrument	Measurement	Action
Type I or Type II Sound Level Meter or dosimeter	>80 dBA → 85 dBA	Hearing protection recommended. Limit work duration to 8-hour shifts.
	>85 dBA → 90 dBA	Hearing protection required. Limit work duration to 8-hour shifts.
	>90 dBA → 115 dBA	Hearing protection required. Investigate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

4.4.3 Biological Hazards

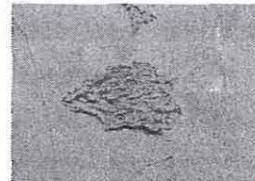
Manchioneel is a tree that has been reported on Vieques Island. This large poisonous tree grows commonly behind ant beaches. The fruit resembles a small green apple; it is poisonous. An immediate antidote is seawater. Do not touch any part of the tree, or stand under it in the rain. (see photo below)



Comocladia dodonaea



Croton discolor



Tragia volubilis



Malpighia fucata



Cordia rupicola

There are two plants on Vieques Island. Their common names are “Rayo” and “Bayahonda”. They have needle pointed thorns, but they are not poisonous. The major risk is walking within these bushes causing scratches to skin. Wearing long sleeve shirts (thick) will help, however, due to hot weather, avoiding these plants is best.

Several other plants on Vieques are known to be skin irritating. They include:

- *Comocladia dodonaea* - Commonly known as Christmas-bush, this is a fairly small shrub that has waxy looking leaves that have a small spine at the end of each of them. The leaves can vary in color from green to yellow to red. The sap and residue on the leaves contain a chemical similar to those found in poison ivy but in a higher concentration.
- *Croton discolor* –This plant is a fairly large bush (up to 7 ft. tall) that looks like it is drying out and doesn’t have long to live. There are two species on the island, but both look very similar and have very hairy leaves. The leaves have a tendency to stick to your clothing because of the hairs of the leaves.
- *Tragia volubilis* - This plant is commonly known as Pica-Pica, as well as Cowitch. It is a vine that, if cut or disturbed, will release hairs that can cause skin irritations.
- *Malpighia fucata* – Commonly known as palo bronco, this evergreen shrub (or small tree) is identified by its opposite, blunt-pointed leaves. Upper leaf surfaces are green and lower surfaces are a paler green with many yellowish, needle-like hairs. Flowers have white/pink petals.



Pictetia aculeate

- *Cordia rupicola* – This is a small shrub with red fruit. Previously thought to be endemic to Puerto Rico and known only from one area, it has recently been reported from the island of Anegada's wooded hills among low dense brush.
- *Pictetia aculeate* – Commonly known as tachuelo, gumbo limbo, or turpentine tree, this tree has a reddish, peeling bark and produces an intensely aromatic resin not unlike the pine tree resins that are used to produce true turpentine.

West Nile Virus and West Nile Encephalitis West Nile Virus/West Nile Encephalitis is rapidly becoming a health concern in the United States. West Nile Virus was first identified in the U.S. in the New York area in 1999 and is closely related to the St. Louis Encephalitis Virus, which is routinely found in the United States.

"Encephalitis" means an inflammation of the brain and it can be caused by viral and bacterial infections. West Nile Encephalitis can be a serious or even fatal illness although this is rare in humans. This illness develops in approximately one of every 150 infections and is generally confined to older and physically compromised individuals.

West Nile Encephalitis is a viral infection of the brain transmitted through the bite of a mosquito, which has previously fed on birds and/or horses that were infected with West Nile Virus. Dead birds in an area may mean that West Nile Virus is circulating between the birds and the mosquitoes in that area. West Nile Virus is not transmitted from one person to another. Human illness from West Nile Virus is rare, even in areas where the virus has been reported.

Symptoms of Exposure Most people who become infected with West Nile Virus will have either no symptoms or only mild ones. Symptoms of West Nile Encephalitis include high fever, headache, confusion, muscle aches and weakness, seizures, or paralysis. At its most

serious, the infection can result in coma, permanent neurological damage, and death. Symptoms usually occur five to 15 days following the bite of an infected mosquito. Because West Nile Encephalitis is a viral infection, antibiotics are not effective and there is no specific treatment available other than general support therapy.

Protective Measures at Projects There is no vaccine to protect humans against West Nile Virus. Individuals at project sites can reduce their risk from being infected with West Nile Virus by taking the following actions to protect against mosquito bites:

- Review the hazards of West Nile Virus periodically in morning safety meetings.
- Increase protective measures when working at dawn, dusk, and in the early evening.
- Reduce the area of exposed skin when working outdoors. Long-sleeved shirts with sleeves rolled down are recommended. Understand that mosquitoes may bite through thin clothing, so personnel should evaluate the actual Level D clothing worn, e.g., heavy long sleeve work shirts and heavy jeans may be indicated. Also, the risk or threat of mosquito bites is reduced for those activities that require the use of disposable coveralls.
- For activities where only Level D Personal Protective Equipment (PPE) is specified, consider using disposable coveralls when working in wooded, highly vegetated, or swampy areas.
- Use an insect repellent containing approximately 25% DEET (N, N-diethyl-metotoluamide). DEET in concentrations greater than 25% provides no additional protection but repel insects longer. However, at some point there is no direct correlation between concentration and repellency. For example, 50% DEET provides about four hours of protection against mosquitoes, but increasing the concentration to 100% provides only one additional hour of protection. Use the repellent according to the manufacturer's directions provided on the container. Use just enough repellent to cover exposed skin and clothing. Do not treat unexposed skin. Frequent re-application is unnecessary for effectiveness. Avoid prolonged and excessive use of DEET.
- After returning from outdoor field activities, wash treated skin with soap and water.
- Personnel should report flu-like symptoms to the SSHO.

DEET is safe for pregnant and lactating women and is generally safe for children. You should avoid applying it to open wounds and irritated skin as it may further irritate the skin or cause discomfort.

Sweating, perspiration and getting wet may wash away the repellent and may require that DEET containing repellent be re-applied.

To remove the breeding places on a project, the following precautions will be followed as practical:

- Cut tall grass and weeds
- Drain accumulated water in such items as drums, buckets, pools and plastic containers
- Repair holes in door and window screens
- Eliminate stagnate water puddles as practical
- Limit outdoor activities at dawn, dusk and early evening, when mosquitoes are most active, as practical

4.4.4 Lightning

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

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

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

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

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

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

First Aid. An employee that is struck by lightning needs immediate assistance (call 911). The body will not carry an electrical charge, but receives an electrical shock and may be burned. Personnel certified in first-aid/CPR should inspect for shock and burns around fingers, toes, buckles and jewelry. Stay with the injured employee until medical help arrives.

4.5 VEHICLE AND HEAVY EQUIPMENT SAFETY MANAGEMENT

4.5.1 Vehicle Safety

Motor vehicle incidents are the number one cause of occupational fatalities, accounting for one in three deaths. Fifty percent or more of vehicle safety incidents occur while backing up. Shaw employees involved in the operation and use of Shaw and/or leased or rented vehicles will comply with the Shaw Health and Safety procedures HS800 Motor Vehicle Operation: General Requirements and HS810 Commercial Vehicle Operation and Maintenance. Shaw requires employees to use seat belts at all times when traveling in Shaw owned or leased/rented vehicles. The SS and/or UXOSO will develop a parking area plan, including backing vehicles into parking spaces, using spotters for backing vehicles and policy mandated vehicle inspections.

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

Shaw employees arriving at work areas should park vehicles away from delivery, heavy equipment and vehicle loading/unloading locations to prevent parked vehicles from damage

by various deliveries. Heavy equipment operators should inspect areas and request vehicles to be moved or spotters used if necessary, to maneuver equipment in tight areas. Employees who observe near misses or potential risks to parked or moving vehicles must report these to the SS or UXOSO immediately.

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

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

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

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

- Seatbelt use is mandatory for all passengers
- Personnel may not ride in the back of cargo vehicles
- The driver must make a 360 degree walk around the assigned vehicle prior to vehicle movement
- A ground guide is used to back up any vehicle
- Vehicle speed is limited to the posted speed limits for developed roadways, 25 mph maximum on dirt roads and 10 mph maximum off-road (based on conditions)
- Vehicle driven in four wheel low and low gear when on dirt roads or off road driving where steep grades dictate

- All operators must possess a valid drivers license
- Fuel or gasoline are not to be transported inside the passenger compartment
- No vehicle is left running when unattended
- Parking brakes are used when vehicles are parked.

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

4.5.2 Heavy Equipment Safety

Forklifts, excavators, loaders other material handling equipment present various physical hazards on remediation sites. The following critical safety practices shall be followed to prevent safety incidents during heavy equipment operation.

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

4.6 MANUAL MATERIAL LIFTING

Many different types of objects may be handled manually during site operations. Care should be taken when lifting and handling heavy or bulky items because they are the cause of many back injuries. The following fundamentals address the proper lifting techniques that are essential in preventing back injuries:

- 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 weighs more than 60 pounds. Multiple employees or the use of mechanical lifting devices are required for objects over the 60-pound limit.
- The anticipated path to be taken by the lifter should be inspected for the presence of slip, trip, and fall hazards.
- The feet shall be placed far enough apart for good balance and stability (typically shoulder width). **THE FOOTING SHALL BE SOLID.**
- The worker shall get as close to the load as possible. The legs shall be bent at the knees.
- The back shall be kept as straight as possible and abdominal muscles should be tightened.
- To lift the object, the legs are straightened from their bending position.
- A worker shall never carry a load that cannot be seen over or around.
- When placing an object down, the stance and position are identical to that for lifting. The legs are bent at the knees and the object lowered.

When two or more workers are required to handle the same object, coordination is essential to ensure that the load is lifted uniformly and that the weight is equally divided between the individuals carrying the load. When carrying the object, each worker, if possible, shall face the direction in which the object is being carried. In handling bulky or heavy items, the following guidelines shall be followed to avoid injury to the hands and fingers:

- A firm grip on the object is essential; leather gloves shall be used if necessary.
- The hands and object shall be free of oil, grease, and water that might prevent a firm grip, and the fingers shall be kept away from any points that could cause them to be pinched or crushed, especially when setting the object down.
- The item shall be inspected for metal slivers, jagged edges, burrs, and rough or slippery surfaces prior to being lifted.

4.7 ACTIVITY HAZARD ANALYSES

Appendix C contains Activity Hazard Analyses (AHA) for primary site tasks. They contain detailed information on physical hazards, and provide control measures for these hazards. The AHA's will be field checked by the SS and UXOSO on an ongoing basis and revised as necessary. All revisions will be communicated to the work crew.

5.0 WORK AND SUPPORT AREAS

To prevent migration of contamination from personnel and equipment, work areas will be clearly specified as designated below prior to beginning operations. Each work area will be clearly identified using signs or physical barriers. Even though this project consists of clean construction, site zones will be clearly delineated to prevent access of un-authorized individuals.

5.1 SUPPORT ZONE

The SZ, will be located upwind, in an area outside the work area, within the geographic perimeters of the site. The area is used for material staging, vehicle parking, office facilities, sanitation facilities, and receipt of deliveries. Personnel entering this zone may include delivery personnel, visitors, security guards, etc., who will not necessarily be permitted in the work area. All personnel arriving in the SZ will, upon arrival, report to the UXOSO and sign the site visitor log.

5.2 WORK ZONE

The WZ will be the area around the excavation activities. All employees will use proper PPE when working in these areas. The location of the WZ will be identified by fencing or other appropriate means primarily around the excavation. A daily entry log records the time of entry and exit from the WZ for each person.

A log of all personnel visiting, entering or working on the site shall be maintained by the UXOSO. Visitors will attend a site orientation given by the UXOSO and sign the SSHSP.

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 WZ.
- Hands and face must be washed upon leaving the WZ 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.

- All personnel must comply with established safety procedures. Any staff member who does not comply with safety policy, as established by the SS, will be immediately dismissed from the site.
- All employees and visitors must sign in and out of the site.

6.0 PROTECTIVE EQUIPMENT

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

6.1 ANTICIPATED PROTECTION LEVELS

The following protection levels have been established for the site work activities.

Table 6.1
Anticipated Protection Levels

Task	Initial PPE Level	Upgrade PPE Level	Skin Protection	Respiratory Protection	Other PPE
Clearing and Grubbing	Level D	Modified Level 'D'	Leather-work gloves. Tyvek® coverall as necessary to protect against biological hazards, irritating plants, as needed.	None	Hard-hat, steel-toe work boots, safety glasses and hearing protection >85 dBA.
Screening Soil; Road Repair	Level D	Not Anticipated	Tyvek® coverall as necessary to protect against biological hazards	None	Hard-hat, steel-toe work boots, safety glasses and hearing protection >85 dBA. Utilize hi-visibility vests for heavy traffic areas.
MEC Surface Removal Actions	As specified in UXO Safety Plan	As specified in UXO Safety Plan	As specified in UXO Safety Plan	As specified in UXO Safety Plan	As specified in UXO Safety Plan
General Support Zone Activities	Level D	Not Anticipated	None	None	Hard-hat, steel-toe boots, safety glasses and hearing protection >85dBA.

6.2 PROTECTION LEVELS DESCRIPTIONS

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

6.2.1 Level D

Level D consists of the following:

- Safety glasses with side shields
- Hard hat
- Steel-toed work boots
- Work clothing as prescribed by weather
- Leather work gloves
- Cut resistant gloves when handling sharp objects
- Reflective vests for ground personnel working around heavy equipment or roadways
- Hearing protection in areas >85 dBA

6.2.2 Modified Level D

Modified Level D consists of the following:

- Safety glasses with side shields
- Hard hat
- Steel-toed work boots
- Tyvek® coverall or PVC rain suit for wet conditions
- Latex over-boots
- Hearing protection in areas >85 dBA

6.3 SITE- SPECIFIC PERSONAL PROTECTIVE EQUIPMENT (PPE)

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

The SS will be responsible for monitoring all aspects of the PPE program. This includes donning and doffing, temperature related stress monitoring, inspection, and decontamination. PPE selection is identified in Table 6.1 for each specified task. The UXOSO, in consultation with the HSC, and the HSM will direct changes in PPE based on changing conditions. The site-specific SSHSP will serve as written certification that the workplace was evaluated concerning PPE requirements.

7.0 DECONTAMINATION PROCEDURES

This section describes the procedures necessary to ensure that both personnel and equipment are free from gross contamination when they leave the work site. No chemical hazards are anticipated so decontamination will be for general removal of visual gross contamination.

7.1 PERSONNEL DECONTAMINATION

Decontamination procedures will ensure that material which workers may have contacted in the WZ do not spread to clean areas of the site. This sequence describes the general decontamination procedure. The specific stages will vary depending on the site, the task, the protection level, etc.

7.1.1 Modified Level 'D' Decontamination

1. Go to end of WZ
2. Remove and discard latex booties
3. Remove outer gloves and discard
4. Remove protective suit
5. Remove inner sample gloves and discard
6. Wash face and hands.

7.1.2 Personal Hygiene

Before any eating, smoking, or drinking, personnel will wash hands, arms, neck and face.

7.2 EQUIPMENT DECONTAMINATION

All contaminated equipment will be decontaminated before leaving the site. Decontamination procedures will vary, but may include sweeping, wiping, scraping, hosing, or steaming the exterior of the equipment. Personnel performing this task will wear the proper PPE as prescribed by the UXOSO.

7.3 DISPOSAL

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

8.0 AIR MONITORING

Air monitoring is not anticipated on this portion of the project.

9.0 EMERGENCY RESPONSE

9.1 PRE-EMERGENCY PLANNING

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

The following situations would warrant implementation of the Emergency Response and Contingency Plan (ERCP):

Fire/Explosion	<ul style="list-style-type: none">• The potential for human injury exists.• Toxic fumes or vapors are released.• The fire could spread on-site or off-site and possibly ignite other flammable materials or cause heat-induced explosions.• The use of water and/or chemical fire suppressants could result in contaminated run-off.
Spill or Release of Hazardous Materials	<ul style="list-style-type: none">• The spill could result in the release of flammable liquids or vapors, thus causing a fire or gas explosion hazard.• The spill could cause the release of toxic liquids or fumes in sufficient quantities or in a manner that is hazardous to or could endanger human health.
Natural Disaster	<ul style="list-style-type: none">• A rainstorm exceeds the flash flood level.• The facility is in a projected tornado path or a tornado has damaged facility property.• Severe wind gusts are forecasted or have occurred and have caused damage to the facility.• Hurricanes
Medical Emergency	<ul style="list-style-type: none">• Trauma injuries (broken bones, severe lacerations/bleeding, burns).• Eye/skin contact with hazardous materials.• Loss of consciousness.• Heat stress (Heat stroke).• Heart attack.• Respiratory failure.• Allergic reaction.

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

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

- On-site emergency responders will be current in regards to training and medical surveillance programs. Copies of all applicable certificates will be kept on file for on-site personnel required to respond.
- It will be the responsibility of the Site Supervisor 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 air horns.

9.2 EMERGENCY RECOGNITION AND PREVENTION

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

Chemical Hazards	<ul style="list-style-type: none"> • Materials at the site • Materials brought to the site
Physical Hazards	<ul style="list-style-type: none"> • Fire/explosion • Slip/trip/fall • Excessive noise
Mechanical Hazards	<ul style="list-style-type: none"> • Pinch points • Vehicle traffic
Environmental Hazards	<ul style="list-style-type: none"> • Electrical Storms • High winds • Heavy Rain/Snow • Temperature Extremes (Heat/Cold Stress) • Poisonous Plants/Animals

Once a hazard has been recognized, the SS and the UXOSO 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

- PPE selection/use
- Following all Shaw standard operating procedures

**Table 9.1
Emergency Telephone Numbers**

<u>Local Agencies</u> –	
Ambulance	911
Fire	911
Police	911
<u>Hospital</u>	
Centro de Salud Familiar Susana Centeno Carr. 997 Kilometer 1 Ht.0 Bo. Destino Vieques, Puerto Rico	(787) 741-2151
Regional Poison Control Center	800-552-6337
<u>Federal Agencies</u>	
Agency for Toxic Substances and Disease Registry National Response Center	(404) 639-0615 (24 hr.) 800-424-8802
Navy QA Representative – Carlton Finley RPM – Christopher Penny COR- Zane Perry	(787) 509-3071 (757) 322-4815 (office) (757) 322-4777 (office) (757) 619-4611 (cellular)
<u>Shaw Personnel</u>	
Project Manager – Bill Hughes	(757) 318-5140 (office) (757) 438-8498 (cellular)
Construction Superintendent – Mike Clemens	(509) 990-1149 (cellular)
Unexploded Ordnance Safety Officer – Mike Clemens	(509) 990-1149 (cellular)
Program CIH – David Mummert	(419) 425-6129 (office) (419) 348-1544 (cellular)
Program Health & Safety Manger – Kym Edelman	(757) 318-5132 (office) (757) 435-5384 (cellular)
Shaw Corporation (24 hour) Help Desk	(866)299-3445
Additional Phone #'s in Section 3 this SSHSP	

9.3 PERSONNEL ROLES, LINES OF AUTHORITY, AND COMMUNICATIONS

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

The primary Emergency Coordinator for this site is the Site Supervisor. In the event an emergency occurs and the Emergency Coordinator is not on site, the SS 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.

9.3.1 Responsibilities and Duties

This section describes the responsibilities and duties assigned to the Emergency Coordinator.

It is recognized that the structure of the “Incident Command System” will change as additional response organizations are added. 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.

9.3.2 On-Site Emergency Coordinator Duties

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

- Identify the source and character of the incident, type and quantity of any release. Assess possible hazards to human health or the environment that may result directly from the problem or its control.
- Discontinue operations in the vicinity of the incident if necessary to ensure that fires, explosions, or spills do not recur or spread to other parts of the site.
- Notify the ROICC. The ROICC will contact the local Emergency Response Teams if their help is necessary to control the incident. Table 9.1 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 Shaw Project Manager
- Notify ROICC
- 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 maybe necessary and, if so, notify the ROICC. The ROICC will contact the local Police Department and the Office of Emergency Management.

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.

9.3.3 Safe Distances and Places of Refuge

The Emergency Coordinator for all activities will be the SS. 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.

If an incident may threaten the health or safety of the surrounding community, the public will be informed and, if necessary, evacuated from the area. The Emergency Coordinator, or his designee, will inform the proper agencies in the event that this is necessary. Telephone numbers are listed in Table 9.1.

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

- Chemical release
- Fire/explosion
- Medical emergency
- Hazardous weather.

In general, evacuation will be made to the main entrance to the Shaw site, 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.

9.3.4 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.

9.3.5 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. The crew supervisor will have a two-way radio. 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.

9.3.6 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 Supervisor.

- Personnel will be assigned by the Emergency Coordinator to be available 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 annually, at a minimum, to practice all of these procedures and will be treated with the same seriousness as an actual emergency.

9.3.7 Medical Emergency Contingency Measures

The procedures listed below will be used to respond to medical emergencies. The UXOSO 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.

9.3.8 Response

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

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

- Location of the victim at the work site
- Nature of the emergency

- Whether the victim is conscious
- Specific conditions contributing to the emergency, if known.

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

Life-Threatening Incident. If an apparent life-threatening condition exists, the crew supervisor will inform the Emergency Coordinator by radio, and the local Emergency Response Services (EMS) will be immediately called. An on-site person will be appointed who will meet the EMS and have him/her quickly taken to the victim. Any injury within the EZ will be evacuated by 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.

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, 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.

An accident/injury/illness report will be completely and properly filled out and submitted to the Program Health and Safety /Project CIH, in accordance with Shaw reporting procedures.

A list of emergency telephone numbers is given in Table 9.1.

Non Life-Threatening Incident. All injuries, no matter how small, will be reported to the SS and UXOSO. If it is determined that no threat to life is present, the Site Supervisor will direct the injured person through decontamination procedures 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 Supervisor.

9.3.9 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
- Notify Shaw PM
- Notify Navy QA Representative and NAVFAC Atlantic Project Manager

9.3.10 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.
- “No smoking” signs will be conspicuously posted in areas where flammable materials are present and throughout the exclusion and contamination reduction zones.

- Fire extinguishers will be located in all Shaw site dedicated vehicles and 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.

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.

9.4 HAZARDOUS WEATHER CONTINGENCY MEASURES

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

- Lightning
- Heavy Rains
- High Winds

9.4.1 Response

- All equipment will be shut down and secured to prevent damage.
- Personnel will be moved to safe refuge. 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.

9.4.2 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
- Notify Shaw PM
- Notify ROICC

10.0 TRAINING REQUIRMENTS

Site-specific training for this project will include Hazard Communication as per 29 CFR 1926, site physical and environmental hazards, emergency response and evacuation procedures, and emergency telephone numbers. Training will be held at the site location by the PM before any site work activities begin.

Outlines of the orientation for SHAW sub-contract personnel and visitors are presented below:

Shaw/SUBCONTRACTORS	VISITOR ORIENTATION
<ul style="list-style-type: none">• SSHSP sign off• Sign in/out procedures• Site background• Chain of command• Rules and regulations• Hours of work• Absences• Equipment• Emergency Information• Emergency signal• Gathering point• Responsibilities/roles• Emergency phone numbers• Work Zones• MSDS's [Hazard Communication Program]• AHA's (Activity Hazard Analyses)• Forms, site-specific Incident Reporting• UXO Awareness	<ul style="list-style-type: none">• SSHSP signoff• Review of Site map• Work Zones in progress• Hazard Communication• Emergency plan/signals• Training/medical requirements• Zones/areas open to visitors

11.0 MEDICAL SURVEILLANCE PROGRAM

All Shaw personnel participate in a medical and health monitoring program. This program is initiated when the employee starts work with a complete physical and medical history and is continued on a regular basis, based on an individual's job function. This program was developed in conjunction with a consultant toxicologist and Shaw's occupational health physician. Other medical consultants are retained when additional expertise is required.

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

The Shaw Medical Director is:

Dr. Jerry H. Berke
MD, MPH
Health Resources
600 West Cumming Park
Suite 3400
Woburn, Mass 01801-6350
781-935-8581 (direct dial)
800-350-4511 (toll free)

The Shaw Medical Director and the HSM will be immediately notified of any suspected exposures to hazardous materials/wastes.

**APPENDIX A
INTERNATIONAL SAFETY CARDS & MATERIAL SAFETY DATA
SHEETS (MSDS's)**

International Safety Cards are included in this section, as well as MSDS's for chemicals that may be brought to the site.

Materials which may be brought to the site:

Gasoline

Diesel

**APPENDIX A
INTERNATIONAL SAFETY CARDS & MATERIAL SAFETY DATA
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Materials which may be brought to the site:

Gasoline

Diesel



CITGO Gasolines, All Grades Unleaded

Material Safety Data Sheet

CITGO Petroleum Corporation
P.O. Box 4689
Houston, TX 77210

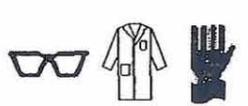
MSDS No. UNLEAD
Revision Date 05/23/2005

IMPORTANT: Read this MSDS before handling or disposing of this product and pass this information on to employees, customers and users of this product.

Hazard Rankings		
	HMIS	NFPA
Health Hazard	* 2	1
Fire Hazard	3	3
Reactivity	0	0

* = Chronic Health Hazard

Emergency Overview			
Physical State	Liquid.		
Color	Transparent, clear to amber or red.	Odor	Pungent, characteristic gasoline.
DANGER:			
Extremely flammable liquid; vapor may cause flash fire or explosion.			
Vapor may travel considerable distance to source of ignition and flash back.			
Use Only as a Motor Fuel. Do Not Siphon by Mouth.			
Harmful or fatal if swallowed - Can enter lungs and cause damage.			
High concentrations of vapor reduce oxygen available for breathing and may cause suffocation.			
May be harmful if inhaled or absorbed through the skin.			
Mist or vapor may irritate the eyes, mucous membranes, and respiratory tract.			
Liquid contact may cause eye and skin irritation.			
Overexposures may cause central nervous system (CNS) depression and target organ effects (See Section 3).			
Harmful or fatal if swallowed - Can enter lung and cause damage.			
Inhalation overexposure can increase the heart's susceptibility to arrhythmias (irregular beats).			
Contains Benzene - Cancer Hazard.			
Long term exposure to gasoline vapor has caused cancer in laboratory animals.			
Avoid Spills. Spills may present both a physical and an environmental hazard.			

Protective Equipment
Minimum Recommended See Section 8 for Details


SECTION 1. PRODUCT IDENTIFICATION

Trade Name	CITGO Gasolines, All Grades Unleaded	Technical Contact	(800) 248-4684
Product Number	Various	Medical Emergency	(832) 486-4700
CAS Number	Mixture.	CHEMTREC Emergency (United States Only)	(800) 424-9300

CITGO Gasolines, All Grades Unleaded

Product Family	Motor fuels.
Synonyms	Unleaded Gasolines; Motor Gasolines; Petrol; Automobile Motor Fuels; Finished Gasolines; Gasoline, Regular Unleaded; Gasoline, Mid-grade Unleaded; Gasoline, Premium Unleaded; Reformulated Gasolines (RFG); Reformulated Motor Fuels; Oxygenated Motor Spirits; Gasoline, Regular Reformulated; Gasoline, Mid-grade Reformulated; Gasoline, Premium Reformulated.

SECTION 2. COMPOSITION

Gasoline is a complex and variable mixture that originates from finished refinery streams. These streams can contain the hydrocarbons and oxygenated chemicals (oxygenates) listed below that are regulated or are associated with certain potential health effects. The typical concentration of oxygenates in gasoline does not exceed 18% (v/v).

Component Name(s)	CAS Registry No.	Concentration (%)
Methyl tertiary-Butyl Ether (MTBE)	1634-04-4	0 - 15
Tertiary-Amyl Methyl Ether (TAME)	994-05-8	0 - 15
Ethyl tertiary Butyl Ether (ETBE)	637-92-3	0 - 15
Tertiary-Amyl Ethyl Ether (TAEE)	919-94-8	0 - 15
Diisopropyl Ether (DIPE)	108-20-3	0 - 15
Ethanol	64-17-5	0 - 10
Toluene	108-88-3	<20
Xylene, all isomers	1330-20-7	<18
n-Hexane	110-54-3	<8
Trimethylbenzenes, all isomers	25551-13-7	<5
Benzene	71-43-2	<5
Cumene	98-82-8	<4
Ethylbenzene	100-41-4	<4
Cyclohexane	110-82-7	<3
Naphthalene	91-20-3	<2
Styrene	100-42-5	<1

SECTION 3. HAZARDS IDENTIFICATION

Also see Emergency Overview and Hazard Ratings on the top of Page 1 of this MSDS.

Major Route(s) of Entry Skin contact. Eye contact. Inhalation. Ingestion.

Signs and Symptoms of Acute Exposure

Inhalation	Breathing high concentrations may be harmful. Mist or vapor can irritate the throat and lungs. Breathing this material may cause central nervous system depression with symptoms including nausea, headache, dizziness, fatigue, drowsiness, or unconsciousness. Breathing high concentrations of this material, for example, in an enclosed space or by intentional abuse, can cause irregular heartbeats which can cause death.
Eye Contact	This product can cause eye irritation with short-term contact with liquid, mists or vapor. Symptoms include stinging, watering, redness, and swelling. In severe cases, permanent eye damage can result.
Skin Contact	This material can cause skin irritation. The severity of irritation will depend on the amount of material that is applied to the skin and the speed and thoroughness that it is removed. It is likely that some components of this material are able to pass into the body through the skin and may cause similar effects as from breathing or swallowing it. If the skin is damaged, absorption increases.

Ingestion

CITGO Gasolines, All Grades Unleaded

If swallowed, this material may irritate the mucous membranes of the mouth, throat, and esophagus. It can be readily absorbed by the stomach and intestinal tract. Symptoms include a burning sensation of the mouth and esophagus, nausea, vomiting, dizziness, staggered gait, drowsiness, loss of consciousness and delirium, as well as additional central nervous system (CNS) effects.

Due to its light viscosity, there is a danger of aspiration into the lungs during swallowing and subsequent vomiting. Aspiration can result in severe lung damage or death. Cardiovascular effects include shallow rapid pulse with pallor (loss of color in the face) followed by flushing (redness of the face). Also, progressive CNS depression, respiratory insufficiency and ventricular fibrillation leads to death.

Chronic Health Effects Summary

Intentional misuse by deliberately concentrating and inhaling gasoline can be harmful or fatal. Altered mental state, drowsiness, peripheral motor neuropathy, irreversible brain damage ("Petrol Sniffers Encephalopathy"), delirium, seizures and sudden death are associated with repeated abuse of gasoline or naphtha.

Chronic effects of ingestion and subsequent aspiration into the lungs may include pneumatocele (lung cavity) formation and chronic lung dysfunction.

Benzene, a component of this product, causes blood disorders and damages the bone marrow (certain types of anemia, leukemia, and lymphoma). It is also capable of causing changes in living cells' genetic material (chromosomes). Benzene is considered to be a mutagen and a cancer-causing agent (leukemogen).

Repeated and prolonged overexposure to n-hexane has been associated with peripheral nerve tissue damage. Adverse effects include numbness, tingling, pain, and loss of muscle control in the extremities, disorientation, impaired vision and reflexes, decline in motor function and paralysis.

Prolonged or repeated overexposure to toluene, a component of this product, has been associated with reproductive effects in experimental animals and in long-term chemical abuse situations. Long-term overexposure to toluene has been associated with impaired color vision. Also, long-term overexposure to toluene in occupational environments have been associated with hearing damage.

Prolonged or repeated overexposure to xylene, a component of this product, has been associated with hearing damage in laboratory animals. Repeated overexposure may cause injury to bone marrow, blood cells, kidney, and liver.

Refer to Section 11 of this MSDS for additional health-related information.

Conditions Aggravated by Exposure

Disorders of the following organs or organ systems that may be aggravated by significant exposure to this material or its components include: Skin, Respiratory System, Liver, Kidneys, Central Nervous System (CNS), Cardiovascular System, Blood-forming system

Target Organs

May cause damage to the following organs: blood, kidneys, lungs, the reproductive system, liver, mucous membranes, heart, peripheral nervous system, cardiovascular system, upper respiratory tract, skin, auditory system, bone marrow, central nervous system (CNS), eye, lens or cornea.

Carcinogenic Potential

This material may contain benzene, ethylbenzene, naphthalene or styrene at concentrations above 0.1%. Benzene is considered to be a known human carcinogen by OSHA, IARC and NTP. IARC has identified ethylbenzene, styrene, naphthalene, gasoline and gasoline engine exhaust as possibly carcinogenic to humans (Group 2B) based on laboratory animal studies.

CITGO Gasolines, All Grades Unleaded

OSHA Hazard Classification is indicated by an "X" in the box adjacent to the hazard title. If no "X" is present, the product does not exhibit the hazard as defined in the OSHA Hazard Communication Standard (29 CFR 1910.1200).

OSHA Health Hazard Classification		OSHA Physical Hazard Classification							
Irritant	<input checked="" type="checkbox"/>	Sensitizer	<input type="checkbox"/>	Combustible	<input type="checkbox"/>	Explosive	<input type="checkbox"/>	Pyrophoric	<input type="checkbox"/>
Toxic	<input type="checkbox"/>	Highly Toxic	<input type="checkbox"/>	Flammable	<input checked="" type="checkbox"/>	Oxidizer	<input type="checkbox"/>	Water-reactive	<input type="checkbox"/>
Corrosive	<input type="checkbox"/>	Carcinogenic	<input checked="" type="checkbox"/>	Compressed Gas	<input type="checkbox"/>	Organic Peroxide	<input type="checkbox"/>	Unstable	<input type="checkbox"/>

SECTION 4. FIRST AID MEASURES

Take proper precautions to ensure your own health and safety before attempting rescue or providing first aid. For more specific information, refer to Exposure Controls and Personal Protection in Section 8 of this MSDS.

Inhalation Immediately move victim to fresh air. If victim is not breathing, immediately begin rescue breathing. If heart has stopped, immediately begin cardiopulmonary resuscitation (CPR). If breathing is difficult, 100 percent humidified oxygen should be administered by a qualified individual. Seek medical attention immediately. If exposed to benzene in an emergency situation, a medical evaluation should be completed at the end of the work-shift in accordance with OSHA requirements.

Eye Contact Flush eyes with cool, clean, low-pressure water for at least 15 minutes. Hold eyelids apart to ensure complete irrigation of the eye and eyelid tissue. If easily accomplished, check for and remove contact lenses. If contact lenses cannot be removed, seek immediate medical attention. Do not use eye ointment. Seek medical attention.

Skin Contact Remove contaminated shoes and clothing. Flush affected area with large amounts of water. If skin surface is damaged, apply a clean dressing and seek medical attention. Do not use ointments. If skin surface is not damaged, clean affected area thoroughly with mild soap and water. Seek medical attention if tissue appears damaged or if pain or irritation persists.

Ingestion Do not induce vomiting. If spontaneous vomiting is about to occur, place victim's head below knees. If victim is drowsy or unconscious, place on the left side with head down. Never give anything by mouth to a person who is not fully conscious. Do not leave victim unattended. Seek medical attention immediately.

Notes to Physician INHALATION: Inhalation overexposure can produce toxic effects. Monitor for respiratory distress. If cough or difficulty in breathing develops, evaluate for upper respiratory tract inflammation, bronchitis, and pneumonitis. Administer supplemental oxygen with assisted ventilation, as required.

This material (or a component) sensitizes the heart to the effects of sympathomimetic amines. Epinephrine and other sympathomimetic drugs may initiate cardiac arrhythmias in individuals exposed to this material. Administration of sympathomimetic drugs should be avoided.

INGESTION: If ingested, this material presents a significant aspiration and chemical pneumonitis hazard. Induction of emesis is not recommended. Consider activated charcoal and/or gastric lavage. If patient is obtunded, protect the airway by cuffed endotracheal intubation or by placement of the body in a Trendelenburg and left lateral decubitus position.

CITGO Gasolines, All Grades Unleaded

SECTION 5. FIRE FIGHTING MEASURES

NFPA Flammability Classification	NFPA Class-IB flammable liquid.		
Flash Point	Closed cup: -43°C (-45°F). (Tagliabue [ASTM D-56])		
Lower Flammable Limit	AP 1.4 %	Upper Flammable Limit	AP 7.6 %
Autoignition Temperature	280°C (536°F)		
Hazardous Combustion Products	Carbon dioxide, carbon monoxide, smoke, fumes, unburned hydrocarbons, aldehydes and other products of incomplete combustion.		
Special Properties	Flammable Liquid! This material releases vapors at or below ambient temperatures. When mixed with air in certain proportions and exposed to an ignition source, its vapor can cause a flash fire. Use only with adequate ventilation. Vapors are heavier than air and may travel long distances along the ground to an ignition source and flash back. A vapor and air mixture can create an explosion hazard in confined spaces such as sewers. If container is not properly cooled, it can rupture in the heat of a fire.		
Extinguishing Media	SMALL FIRE: Use dry chemicals, carbon dioxide, foam, or inert gas (nitrogen). Carbon dioxide and inert gas can displace oxygen. Use caution when applying carbon dioxide or inert gas in confined spaces. LARGE FIRE: Use foam, water fog, or water spray. Water May Be Ineffective. Water may not extinguish the fire. Water fog and spray are effective in cooling containers and adjacent structures. However, water can be used to cool the external walls of vessels to prevent excessive pressure, autoignition or explosion. DO NOT use a solid stream of water directly on the fire as the water may spread the fire to a larger area.		
Protection of Fire Fighters	Firefighters must use full bunker gear including NIOSH-approved positive pressure self-contained breathing apparatus to protect against potential hazardous combustion or decomposition products and oxygen deficiencies. Evacuate area and fight the fire from a maximum distance or use unmanned hose holders or monitor nozzles. Cover pooling liquid with foam. Containers can build pressure if exposed to radiant heat; cool adjacent containers with flooding quantities of water until well after the fire is out. Withdraw immediately from the area if there is a rising sound from a venting safety device or discoloration of vessels, tanks, or pipelines. Be aware that burning liquid will float on water. Notify appropriate authorities of potential fire and explosion hazard if liquid enter sewers or waterways.		

SECTION 6. ACCIDENTAL RELEASE MEASURES

Take proper precautions to ensure your own health and safety before attempting spill control or clean-up. For more specific information, refer to the Emergency Overview on Page 1, Exposure Controls and Personal Protection in Section 8 and Disposal Considerations in Section 13 of this MSDS.

Flammable Liquid! Release causes an immediate fire or explosion hazard. Evacuate all non-essential personnel from immediate area and establish a "regulated zone" with site control and security. A vapor-suppressing foam may be used to reduce vapors. Eliminate all ignition sources. All equipment used when handling this material must be grounded. Stop the leak if it can be done without risk. Do not touch or walk through spilled material. Remove spillage immediately from hard, smooth walking areas. Prevent spilled material from entering waterways, sewers, basements, or confined areas. Absorb or cover with dry earth, sand, or other non-combustible material and transfer to appropriate waste containers. Use clean, non-sparking tools to collect absorbed material.

For large spills, secure the area and control access. Prevent spilled material from entering sewers, storm drains, other drainage systems, and natural waterways. Dike far ahead of a

CITGO Gasolines, All Grades Unleaded

liquid spill to ensure complete collection. Water mist or spray may be used to reduce or disperse vapors; but, it may not prevent ignition in closed spaces. This material will float on water and its run-off may create an explosion or fire hazard. Verify that responders are properly HAZWOPER-trained and wearing appropriate respiratory equipment and fire-resistant protective clothing during cleanup operations. In an urban area, cleanup spill as soon as possible; in natural environments, cleanup on advice from specialists. Pick up free liquid for recycle and/or disposal if it can be accomplished safely with explosion-proof equipment. Collect any excess material with absorbent pads, sand, or other inert non-combustible absorbent materials. Place into appropriate waste containers for later disposal. Comply with all applicable local, state and federal laws and regulations.

SECTION 7. HANDLING AND STORAGE

Handling

FLAMMABLE LIQUID AND VAPOR. USE ONLY as a motor fuel. DO NOT siphon by mouth. **DO NOT** use as a lighter fluid, solvent or cleaning fluid. Prior to handling or refueling, stop all engines and auxiliary equipment. Turn off all electronic equipment including cellular telephones. **DO NOT** leave nozzle unattended during filling or refueling a vehicle. **DO NOT** re-enter vehicle while refueling. Keep nozzle spout in contact with the container during the entire filling operations.

A static electrical charge can accumulate when this material is flowing through pipes, nozzles or filters and when it is agitated. A static spark discharge can ignite accumulated vapors particularly during dry weather conditions. Always bond receiving containers to the fill pipe before and during loading. Always keep nozzle in contact with the container throughout the loading process. Do not fill any portable container in or on a vehicle. Special precautions, such as reduced loading rates and increased monitoring, must be observed during "switch loading" operations (i.e., loading this material in tanks or shipping compartments that previously contained middle distillates or similar products).

A spill or leak can cause an immediate fire hazard. Keep containers closed and do not handle or store near heat, sparks, or any other potential ignition sources. Do not contact with oxidizable materials. Do not breathe vapor. Use only with adequate ventilation and personal protection. Never siphon by mouth. Avoid contact with eyes, skin, and clothing. Prevent contact with food and tobacco products. Do not take internally.

When performing repairs and maintenance on contaminated equipment, keep unnecessary persons away from the area. Eliminate all potential ignition sources. Drain and purge equipment, as necessary, to remove material residues. Follow proper entry procedures, including compliance with 29 CFR 1910.146 prior to entering confined spaces such as tanks or pits. Use gloves constructed of impervious materials and protective clothing if direct contact is anticipated. Provide ventilation to maintain exposure potential below applicable exposure limits. Use appropriate respiratory protection when concentrations exceed any established occupational exposure level (See Section 8). Promptly remove contaminated clothing. Wash exposed skin thoroughly with soap and water after handling.

Protect the environment from releases of this material. Prevent discharges to surface waters and groundwater. Maintain handling, transfer and storage equipment in proper working order.

Misuse of empty containers can be dangerous. Empty containers may contain material residues which can ignite with explosive force. **Cutting or welding of empty containers can cause fire, explosion, or release of toxic fumes from residues.** Do not pressurize or expose empty containers to open flame, sparks, or heat. Keep container closed and drum bungs in place. All label warnings and precautions must be observed. Return empty drums to a qualified reconditioner. Consult appropriate federal, state and local authorities before reusing, reconditioning, reclaiming, recycling, or disposing of empty containers and/or waste residues of this material.

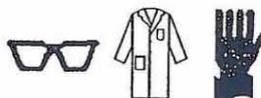
CITGO Gasolines, All Grades Unleaded

Storage Store and transport in accordance with all applicable laws. Keep containers tightly closed. Store in a cool, dry, well-ventilated place. Clearly label all containers. Do not allow containers to be kept in enclosed vehicles. Keep away from all ignition sources. Ground all equipment containing this material. Containers must be able to withstand pressures that are created from changes in product temperature. Product samples and other small containers of this flammable liquid should be stored in a separate safety cabinet or room. All electrical equipment in areas where this material is stored or handled should be installed and operated in accordance with applicable regulatory requirements and the National Electrical Code.

SECTION 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Engineering Controls Provide ventilation or other engineering controls to keep the airborne concentrations of vapor or mists below the applicable workplace exposure limits indicated below. All electrical equipment should comply with the National Electric Code. An emergency eye wash station and safety shower should be located near the work-station.

Personal Protective Equipment Personal protective equipment should be selected based upon the conditions under which this material is used. A hazard assessment of the work area for PPE requirements should be conducted by a qualified professional pursuant to OSHA regulations. The following pictograms represent the minimum requirements for personal protective equipment. For certain operations, additional PPE may be required.



Eye Protection Safety glasses equipped with side shields are recommended as minimum protection in industrial settings. Chemical goggles should be worn during transfer operations or when there is a likelihood of misting, splashing, or spraying of this material. A suitable emergency eye wash water and safety shower should be located near the work station.

Hand Protection Avoid skin contact. Use gloves (e.g., disposable PVC, neoprene, nitrile, vinyl, or PVC/NBR). Wash hands with plenty of mild soap and water before eating, drinking, smoking, use of toilet facilities or leaving work. DO NOT use this material as a skin cleaner.

Body Protection Avoid skin contact. Wear long-sleeved fire-retardant garments (e.g., Nomex®) while working with flammable and combustible liquids. Additional chemical-resistant protective gear may be required if splashing or spraying conditions exist. This may include an apron, boots and additional facial protection. If product comes in contact with clothing, immediately remove soaked clothing and shower. Promptly remove and discard contaminated leather goods.

Respiratory Protection For known vapor concentrations above the occupational exposure guidelines (see below), use a NIOSH-approved organic vapor respirator if adequate protection is provided. Protection factors vary depending upon the type of respirator used. Respirators should be used in accordance with OSHA requirements (29 CFR 1910.134). For airborne vapor concentrations that exceed the recommended protection factors for organic vapor respirators, use a full-face, positive-pressure, supplied air respirator. Due to fire and explosion hazards, do not enter atmospheres containing concentrations greater than 10% of the lower flammable limit of this product.

General Comments Warning! Use of this material in spaces without adequate ventilation may result in generation of hazardous levels of combustion products and/or inadequate oxygen levels for breathing. Odor is an inadequate warning for hazardous conditions.

Occupational Exposure Guidelines

Substance	Applicable Workplace Exposure Levels
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CITGO Gasolines, All Grades Unleaded

Gasoline	ACGIH (United States). TWA: 300 ppm 8 hour(s). STEL: 500 ppm 15 minute(s).
Toluene	ACGIH (United States). Skin TWA: 50 ppm 8 hour(s). OSHA (United States). TWA: 200 ppm 8 hour(s). CEIL: 300 ppm PEAK: 500 ppm
Xylene, all isomers	ACGIH (United States). TWA: 100 ppm 8 hour(s). STEL: 150 ppm 15 minute(s). OSHA (United States). TWA: 100 ppm 8 hour(s).
Tertiary-Amyl Methyl Ether (TAME)	ACGIH TLV (United States). TWA: 20 ppm 8 hour(s).
Methyl tertiary-Butyl Ether (MTBE)	ACGIH (United States). TWA: 50 ppm 8 hour(s).
Ethyl tertiary Butyl Ether (ETBE)	ACGIH TLV (United States). TWA: 5 ppm 8 hour(s).
n-Hexane	ACGIH (United States). Skin TWA: 50 ppm 8 hour(s). OSHA (United States). TWA: 500 ppm 8 hour(s).
Cumene	ACGIH (United States). TWA: 50 ppm 8 hour(s). OSHA (United States). Skin TWA: 50 ppm 8 hour(s).
Trimethylbenzenes, all isomers	ACGIH (United States). TWA: 25 ppm 8 hour(s).
Benzene	ACGIH (United States). Skin TWA: 0.5 ppm 8 hour(s). STEL: 2.5 ppm 15 minute(s). OSHA (United States). Skin Notes: See Table Z-2 for exclusions in 20 CFR 1910.1028 to the PEL. TWA: 1 ppm 8 hour(s). STEL: 5 ppm 15 minute(s).
Ethylbenzene	ACGIH (United States). TWA: 100 ppm 8 hour(s). STEL: 125 ppm 15 minute(s). OSHA (United States). TWA: 100 ppm 8 hour(s).
Cyclohexane	ACGIH (United States). TWA: 100 ppm 8 hour(s). OSHA (United States). TWA: 300 ppm 8 hour(s).
Naphthalene	ACGIH (United States). Skin TWA: 10 ppm 8 hour(s). STEL: 15 ppm 15 minute(s). OSHA (United States). TWA: 10 ppm 8 hour(s).
Styrene	ACGIH (United States). TWA: 20 ppm 8 hour(s). STEL: 40 ppm 15 minute(s). OSHA (United States). TWA: 100 ppm 8 hour(s). STEL: 200 ppm 15 minute(s). PEAK: 600 ppm

CITGO Gasolines, All Grades Unleaded

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES (TYPICAL)

Physical State	Liquid.	Color	Transparent, clear to amber or red.	Odor	Pungent, characteristic gasoline.
Specific Gravity	0.72 - 0.77 (Water = 1)	pH	Not applicable	Vapor Density	3 to 4 (Air = 1)
Boiling Range	38 to 204°C (100 to 400°F)			Melting/Freezing Point	Not available.
Vapor Pressure	220 to 450 mm Hg at 20°C (68°F) or 6 to 15 Reid-psia at 37.8°C (100°F).			Volatility	720 to 770 g/l VOC (w/v)
Solubility in Water	Hydrocarbon components of gasoline are slightly soluble in water. Oxygenate components, such as MTBE, are more soluble than the hydrocarbon components. Ethanol has greater solubility in water than hydrocarbon components or other oxygenate components.			Viscosity (cSt @ 40°C)	<1
Flash Point	Closed cup: -43°C (-45°F). (Tagliabue [ASTM D-56])				
Additional Properties	Average Density at 60°F = 6.0 to 6.4 lbs./gal. (ASTM D-2161)				

SECTION 10. STABILITY AND REACTIVITY

Chemical Stability	Stable.	Hazardous Polymerization	Not expected to occur.
Conditions to Avoid	Keep away from heat, flame and other potential ignition sources. Keep away from strong oxidizing conditions and agents.		
Materials Incompatibility	Strong acids, alkalis and oxidizers such as liquid chlorine, other halogens, hydrogen peroxide and oxygen.		
Hazardous Decomposition Products	No additional hazardous decomposition products were identified other than the combustion products identified in Section 5 of this MSDS.		

SECTION 11. TOXICOLOGICAL INFORMATION

For other health-related information, refer to the Emergency Overview on Page 1 and the Hazards Identification in Section 3 of this MSDS.

Toxicity Data	Gasoline: VAPOR (TELo) Acute: 140 ppm (Human) (8 hours) - Mild eye irritant. VAPOR (TELo) Acute: 500 ppm (Human) (1 hour) - Moderate eye irritant. INHALATION (TCLo) Acute: 900 ppm (Human) (1 hour) - CNS and pulmonary effects. DERMAL (TDLo) Acute: 53 mg/kg (Human) - Skin allergy effects. INHALATION (LC50) Acute: 101,200 ppm (Rat, Mouse, & Guinea Pig) (5 minutes).
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Gasoline Containing 15% MTBE: ORAL (LD50) Acute: >5,000 mg/kg (Rat screen level). DERMAL (LD50) Acute: >2,000 mg/kg (Rabbit screen level). INHALATION (LC50) Acute: >5,200 ppm (Rat screen level) (8 hours). DRAIZE EYE Acute: Mild eye irritant. (Rabbit).
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DRAIZE DERMAL Acute: Moderate skin irritant. (Rabbit).
BUEHLER DERMAL Acute: Non-sensitizing. (Guinea Pig).
28-Day DERMAL Sub-Chronic: Severe skin irritant. (Rabbit).

A major epidemiological study concluded that there was no increased risk of kidney cancer associated with gasoline exposures for petroleum refinery employees or neighboring residents. Another study identified a slight trend in kidney cancers among service station employees following a 30-year latency period. Two-year inhalation toxicity studies with fully vaporized unleaded gasoline (at concentrations of 67, 292 and 2,056 ppm in air) produced kidney damage and kidney tumors in male rats, but not in female rats or mice of either sex. Results from subsequent scientific studies suggest that the kidney damage, and probably the kidney tumor response, is limited to the male rat. The kidney tumors apparently were the result of the formation of alpha-2u-globulin, a protein unique to male rats. This finding is not considered relevant to human exposure. Under conditions of the study, there was no evidence that exposure to unleaded gasoline vapor is associated with developmental toxicity. Experimental studies with laboratory animals did suggest that overexposure to gasoline may adversely affect male reproductive performance. Also, in laboratory studies with rats, the maternal and developmental "no observable adverse effect level" (NOAEL) was determined to be 9,000 ppm (75% of the LEL value). Female mice developed a slightly higher incidence of liver tumors compared to controls at the highest concentration. In a four week inhalation study of Sprague Dawley® rats, gasoline vapor condensate was determined to induce sister chromatid exchanges in peripheral lymphocytes. IARC has listed gasoline as possibly carcinogenic to humans (Group 2B).

Pentanes, all isomers:

Studies of pentane isomers in laboratory animals indicate exposure to extremely high levels (roughly 10 vol.%) may induce cardiac arrhythmias (irregular heartbeats) which may be serious or fatal.

Toluene:

Effects from Acute Exposure:

Deliberate inhalation of toluene at high concentrations (e.g., glue sniffing and solvent abuse) has been associated with adverse effects on the liver, kidney and nervous system and can cause CNS depression, cardiac arrhythmias and death. Case studies of persons abusing toluene suggest isolated incidences of adverse effects on the fetus including birth defects.

Effects from Repeated or Prolonged Exposure:

Studies of workers indicate long-term exposure may be related to impaired color vision and hearing. Some studies of workers suggest long-term exposure may be related to neurobehavioral and cognitive changes. Some of these effects have been observed in laboratory animals following repeated exposure to high levels of toluene. Several studies of workers suggest long-term exposure may be related to small increases in spontaneous abortions and changes in some gonadotropic hormones. However, the weight of evidence does not indicate toluene is a reproductive hazard to humans. Studies in laboratory animals indicate some changes in reproductive organs following high levels of exposure, but no significant effects on mating performance or reproduction were observed. Case studies of persons abusing toluene suggest isolated incidences of adverse effects on the fetus including birth defects. Findings in laboratory animals were largely negative. Positive findings include small increases in minor skeletal and visceral malformations and developmental delays following very high levels of maternal exposure. Studies of workers indicate long-term exposure may be related to effects on the liver, kidney and blood, but these appear to be limited to changes in serum enzymes and decreased leukocyte counts. Studies in laboratory animals indicate some evidence of adverse effects on the liver, kidney, thyroid, and pituitary gland following very high levels of exposure. The relevance of these findings to humans is not clear at this time.

Heptane, all isomers:

n-Heptane was not mutagenic in the Salmonella/microsome (Ames) assay and is not considered to be carcinogenic.

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Xylene, all isomers:

Effects from Acute Exposure:

ORAL (LD₅₀), Acute: 4,300 mg/kg [Rat].

INHALATION (LC₅₀), Acute: 4,550 ppm for four hours [Rat].

DERMAL (LD₅₀), Acute: 14,100 uL/kg [Rabbit].

Overexposure to xylene may cause upper respiratory tract irritation, headache, cyanosis, blood serum changes, CNS damage and narcosis. Effects may be increased by the use of alcoholic beverages. Evidence of liver and kidney impairment were reported in workers recovering from a gross over-exposure.

Effects from Prolonged or Repeated Exposure:

Impaired neurological function was reported in workers exposed to solvents including xylene. Studies in laboratory animals have shown evidence of impaired hearing following high levels of exposure. Studies in laboratory animals suggest some changes in reproductive organs following high levels of exposure but no significant effects on reproduction were observed. Studies in laboratory animals indicate skeletal and visceral malformations, developmental delays, and increased fetal resorptions following extremely high levels of maternal exposure. Adverse effects on the liver, kidney, bone marrow (changes in blood cell parameters) were observed in laboratory animals following high levels of exposure. The relevance of these observations to humans is not clear at this time.

Ethyl tertiary Butyl Ether (ETBE):

ETBE can cause eye, skin and mucous membrane irritation. In a four week inhalation study, moderate ataxia was observed in rats at the highest dose level (4,000 ppm). The test animals appeared normal within 15 minutes of termination of exposure. A no observed adverse effect level (NOAEL) of 500 ppm was indicated by the study authors based on neurotoxic effects. In two unpublished 90 day inhalation studies, rats and mice were exposed six hour/day, five days/week at concentrations of 0, 500, 1750 and 5000 ppm of ETBE vapor. The male rats exhibited time and concentration-dependent nephropathy consistent with alpha-2μ-globulin formation. An ETBE NOAEL for male rats of 500 ppm was suggested based on a finding of testicular lesions. In human studies with eight males, slight, but significant (p<0.05) decreases in objective pulmonary function measures after exposure to ETBE at concentrations of 25 and 50 ppm for two hours.

Tertiary-Amyl Methyl Ether (TAME):

TAME was found to be negative for the induction of structural chromosome aberrations (both metabolically-activated and non-activated) in Chinese hamster ovary (CHO) cells. Inhalation of TAME vapors at concentrations above 250 ppm produced reversible CNS depression in rats and mice. In a four week inhalation study, increases in liver weights with no tissue injury were observed in rats exposed to a TAME concentration of 500 ppm. Birth defects in mice and fetotoxicity in both rats and mice were observed after inhalation exposures to maternally toxic concentrations of TAME.

Methyl tertiary-Butyl Ether (MTBE):

Acute symptoms associated with human exposure to MTBE appear to be mild and transient. In laboratory studies, rats and mice exposed to high doses of MTBE exhibited blood chemistry changes and liver and kidney abnormalities. In laboratory studies, MTBE vapor exposure at the high dose concentration was associated with an increased incidence of liver tumors in female mice. Also, at high dose concentration exposures, MTBE was associated with an increased incidence of kidney and testicular (Leydig cell) tumors in male rats. Additional oncogenicity studies on rats resulted in testicular tumors following administration by ingestion. These data are not generally considered relevant to humans. NTP has not identified MTBE as either a known carcinogen or reasonably anticipated to be carcinogenic to humans. In animal studies, developmental and reproductive toxicity related to MTBE inhalation exposures was observed only at concentrations that were maternally toxic. MTBE was shown to be maternally toxic at 4,000 and 8,000 ppm levels when mice were exposed for six hours per day during their pregnancy. Also, a decrease in the number of successful pregnancies and a reduction in birth weights were observed at these exposure levels. Birth defects (cleft palate) were observed at the high dose level. These data suggest that the risk of developmental and reproductive toxicity in humans is negligible as a result of anticipated

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exposures to MTBE.

Diisopropyl Ether (DIPE):

Increased kidney and liver weights were observed in rats and mice in subchronic and chronic inhalation studies of DIPE. Also, evidence of microscopic changes (hyaline droplets) were reported in liver tissue and kidney tubules of rabbits and male rats exposed to DIPE at concentrations of 7,100 ppm. These findings were similar those found in gasoline studies. Overexposure by inhalation of pregnant rats to DIPE at concentrations of 3,095 and 6,745 ppm increased the frequency of rudimentary 14th ribs in the offspring. This effect was not observed at exposure concentrations of 430 ppm. The significance of these findings to human exposure is unclear.

Ethanol:

Inhalation exposure to ethanol vapor at concentrations above applicable workplace exposure levels is expected to produce eye and mucus membrane irritation. Human exposure at concentrations from 1000 to 5000 ppm produced symptoms of narcosis, stupor and unconsciousness. Subjects exposed to ethanol vapor in concentrations between 500 and 10,000 ppm experienced coughing and smarting of the eyes and nose. At 15,000 ppm there was continuous lacrimation and coughing. While extensive acute and chronic effects can be expected with ethanol consumption, ingestion is not expected to be a significant route of exposure to this product.

Butane, all isomers:

Studies in laboratory animals indicate exposure to extremely high levels of butanes (1-10 or higher vol.% in air) may cause cardiac arrhythmias (irregular heartbeats) which may be serious or fatal.

n-Hexane:

This material contains n-hexane. Long-term or repeated exposure to n-hexane can cause permanent peripheral nerve damage. Initial symptoms are numbness of the fingers and toes. Also, motor weakness can occur in the digits, but may also involve muscles of the arms, thighs and forearms. The onset of these symptoms may be delayed for several months to a year after the beginning of exposure. Co-exposure to methylethyl ketone or methyl isobutyl ketone increases the neurotoxic properties of n-hexane. In laboratory studies, prolonged exposure to elevated concentrations of n-hexane was associated with decreased sperm count and degenerative changes in the testicles of rats.

Cumene:

Effects from Acute Exposure:

Overexposure to cumene may cause upper respiratory tract irritation and severe CNS depression.

Effects from Prolonged or Repeated Exposure:

Studies in laboratory animals indicate evidence of adverse effects on the kidney and adrenal glands following high level exposure. The relevance of these findings to humans is not clear at this time.

Trimethylbenzenes, all isomers:

Studies of Workers:

Levels of total hydrocarbon vapors present in the breathing atmosphere of these workers ranged from 10 to 60 ppm. The TClO for humans is 10 ppm, with somnolence and respiratory tract irritation noted.

Studies in Laboratory Animals:

In inhalation studies with rats, four of ten animals died after exposures of 2400 ppm for 24 hours. An oral dose of 5 mL/kg resulted in death in one of ten rats. Minimum lethal intraperitoneal doses were 1.5 to 2.0 mL/kg in rats and 1.13 to 12 mL/kg in guinea pigs. Mesitylene (1, 3, 5 Trimethylbenzene) inhalation at concentrations of 1.5, 3.0, and 6.0 mg/L for six hours was associated with dose-related changes in white blood cell counts in rats. No significant effects on the complete blood count were noted with six hours per day exposure

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for five weeks, but elevations of alkaline phosphatase and SGOT were observed. Central nervous system depression and ataxia were noted in rats exposed to 5,100 to 9,180 ppm for two hours.

Benzene:

ORAL (LD50): Acute: 930 mg/kg [Rat]. 4700 mg/kg [Mouse].
INHALATION (LC50):
(VAPOR): Acute: 10000 ppm 7 hour(s) [Rat]. 9980 ppm 8 hour(s) [Mouse].

Studies of Workers Over-Exposed to Benzene:

Studies of workers exposed to benzene show clear evidence that over-exposure can cause cancer of the blood forming organs (acute myelogenous leukemia) and aplastic anemia, an often fatal disease. Studies also suggest over-exposure to benzene may be associated with other types of leukemia and other blood disorders. Some studies of workers exposed to benzene have shown an association with increased rates of chromosome aberrations in circulating lymphocytes. One study of women workers exposed to benzene suggested a weak association with irregular menstruation. However, other studies of workers exposed to benzene have not demonstrated clear evidence of an effect on fertility or reproductive outcome in humans. Benzene can cross the placenta and affect the developing fetus. Cases of aplastic anemia have been reported in the offspring of persons severely over-exposed to benzene.

Studies in Laboratory Animals:

Studies in laboratory animals indicate that prolonged, repeated exposure to high levels of benzene vapor can cause bone marrow suppression and cancer in multiple organ systems. Studies in laboratory animals show evidence of adverse effects on male reproductive organs following high levels of exposure but no significant effects on reproduction have been observed. Embryotoxicity has been reported in studies of laboratory animals but effects were limited to reduced fetal weight and skeletal variations.

Ethylbenzene:

Effects from Acute Exposure:

ORAL (LD50), Acute: 3,500 mg/kg [Rat].
DERMAL (LD50), Acute: 17,800 uL/kg [Rabbit].
INTRAPERITONEAL (LD50), Acute: 2,624 mg/kg [Rat].

Effects from Prolonged or Repeated Exposure:

Findings from a 2-year inhalation study in rodents conducted by NTP were as follows: Effects were observed only at the highest exposure level (750 ppm). At this level the incidence of renal tumors was elevated in male rats (tubular carcinomas) and female rats (tubular adenomas). Also, the incidence of tumors was elevated in male mice (alveolar and bronchiolar carcinomas) and female mice (hepatocellular carcinomas). IARC has classified ethyl benzene as "possibly carcinogenic to humans" (Group 2B). Studies in laboratory animals indicate some evidence of post-implantation deaths following high levels of maternal exposure. The relevance of these findings to humans is not clear at this time. Studies in laboratory animals indicate limited evidence of renal malformations, resorptions, and developmental delays following high levels of maternal exposure. The relevance of these findings to humans is not clear at this time. Studies in laboratory animals indicate some evidence of adverse effects on the liver, kidney, thyroid, and pituitary gland.

Cyclohexane:

Cyclohexane can cause eye, skin and mucous membrane irritation, CNS depressant and narcosis at elevated concentrations. In experimental animals exposed to lethal concentrations by inhalation or oral route, generalized vascular damage and degenerative changes in the heart, lungs, liver, kidneys and brain were identified.

Cyclohexane has been the focus of substantial testing in laboratory animals. Cyclohexane was not found to be genotoxic in several tests including unscheduled DNA synthesis, bacterial and mammalian cell mutation assays, and in vivo chromosomal aberration. An increase in chromosomal aberrations in bone marrow cells of rats exposed to cyclohexane

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was reported in the 1980's. However, a careful re-evaluation of slides from this study by the laboratory which conducted the study indicates these findings were in error, and that no significant chromosomal effects were observed in animals exposed to cyclohexane. Findings indicate long-term exposure to cyclohexane does not promote dermal tumorigenesis.

Naphthalene:

Studies in Humans Overexposed to Naphthalene:

Severe jaundice, neurotoxicity (kernicterus) and fatalities have been reported in young children and infants as a result of hemolytic anemia from over-exposure to naphthalene. Persons with Glucose 6-phosphate dehydrogenase (G6PD) deficiency are more prone to the hemolytic effects of naphthalene. Adverse effects on the kidney have also been reported from over-exposure to naphthalene but these effects are believed to be a consequence of hemolytic anemia, and not a direct effect.

Studies in Laboratory Animals:

Hemolytic anemia has been observed in laboratory animals exposed to naphthalene. Laboratory rodents exposed to naphthalene vapor for 2 years (lifetime studies) developed non-neoplastic and neoplastic tumors and inflammatory lesions of the nasal and respiratory tract. Cataracts and other adverse effects on the eye have been observed in laboratory animals exposed to high levels of naphthalene. Findings from a large number of bacterial and mammalian cell mutation assays have been negative. A few studies have shown chromosomal effects (elevated levels of Sister Chromatid Exchange or chromosomal aberrations) *in vitro*.

Styrene:

Neurological injury associated with chronic styrene exposure include distal hypesthesia, decreased nerve conduction velocity, and altered psychomotor performance. These effects did not occur with exposures to airborne concentrations that were less than 100 ppm. Increased deaths from degenerative neurological disorders were found in a comprehensive epidemiological study of Danish reinforced plastics workers. These workers were reported to have a 2.5-fold increased risk for myeloid leukemia with clonal chromosome aberrations. Also, there are several studies that suggest potential reproductive effects in humans and experimental animals from overexposure to styrene. Styrene was not mutagenic in the standard (liquid phase) Ames Salmonella/microsome assay, but was weakly positive when tested in the vapor phase. IARC has listed styrene as possibly carcinogenic to humans (Group 2B).

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Unleaded gasoline is potentially toxic to freshwater and saltwater ecosystems. Various grades of gasoline exhibited range of lethal toxicity (LC₁₀₀) from 40 PPM to 100 PPM in ambient stream water with Rainbow Trout (*Salmo irideus*). A 24-hour TLm (Median Toxic Limit) was calculated to be 90 PPM with juvenile American Shad (*Squalius cephalus*). In Bluegill Sunfish (*Lepomis macrochirus*), Grey Mullet (*Chelon labrosus*) and Gulf Menhaden (*Brevoortia patronus*), gasoline exhibited a 96-hour LC₅₀ of 8 PPM, 2 PPM, and 2 PPM, respectively.

The aquatic toxicity of Methyl tertiary-Butyl Ether (MTBE) is considered to be relatively low. In the crustacean Harpacticoid Copepods (*Nitocra spinipes*), MTBE exhibited an LC₅₀ (96-hour) of 1,000 PPM to 10,000 PPM depending upon various water temperatures. In Bleak Fish (*Alburnus alburnus*), MTBE exhibited an LC₅₀ (24-hour) of 1,700 PPM and an LC₅₀ (96-hour) of 1,000 PPM at 10° C. In Golden Orfe Fish (*Leuciscus idus melanotus*), MTBE exhibited an LC₅₀ (48-hour) of 1,000 PPM and an LC₁₀₀ of 2,000 PPM.

Environmental Fate

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Avoid spilling gasoline. Spilled gasoline can result in environmental damage. Spilled gasoline can penetrate soil and contaminate ground water. Although gasoline is biodegradable, it may persist for prolonged time periods, particularly where oxygen levels are reduced. The hydrocarbon components of gasoline are slightly soluble in water. Gasoline hydrocarbon components do not readily dissolve in water but can be adsorbed to soils.

Gasoline contains components that are potentially toxic to freshwater and saltwater ecosystems. It will normally float on water. The components of gasoline will evaporate rapidly. Evaporated hydrocarbon components may contribute to atmospheric smog.

MTBE and other oxygenates are more soluble than other gasoline components. In addition, oxygenates such as MTBE do not adsorb to soils, sediments or suspended particulate matter as readily as other gasoline components. MTBE does not degrade as readily as other gasoline components once in ground water or subsoil. MTBE is not expected to bioconcentrate in the aquatic environment.

SECTION 13. DISPOSAL CONSIDERATIONS

Hazard characteristic and regulatory waste stream classification can change with product use. Accordingly, it is the responsibility of the user to determine the proper storage, transportation, treatment and/or disposal methodologies for spent materials and residues at the time of disposition.

Maximize material recovery for reuse or recycling. Recovered non-usable material may be regulated by US EPA as a hazardous waste due to its ignitibility (D001) and/or its toxic (D018) characteristics. Conditions of use may cause this material to become a "hazardous waste", as defined by federal or state regulations. It is the responsibility of the user to determine if the material is a RCRA "hazardous waste" at the time of disposal. Transportation, treatment, storage and disposal of waste material must be conducted in accordance with RCRA regulations (see 40 CFR 260 through 40 CFR 271). State and/or local regulations may be more restrictive. Contact your regional US EPA office for guidance concerning case specific disposal issues.

SECTION 14. TRANSPORT INFORMATION

The shipping description below may not represent requirements for all modes of transportation, shipping methods or locations outside of the United States.

US DOT Status	A U.S. Department of Transportation regulated material.		
Proper Shipping Name	Gasoline, 3, UN 1203, PG II Gasohol, 3, NA 1203, PGII (Use only for gasoline blended with less than 20% ethanol)		
Hazard Class	3 DOT Class: Flammable liquid.	Packing Group(s)	II
		UN/NA Number	UN1203 or NA1203
Reportable Quantity	A Reportable Quantity (RQ) has not been established for this material.		
Placard(s)		Emergency Response Guide No.	128
		MARPOL III Status	Not a DOT "Marine Pollutant" per 49 CFR 171.8.

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SECTION 15. REGULATORY INFORMATION

TSCA Inventory	This product and/or its components are listed on the Toxic Substances Control Act (TSCA) inventory.
SARA 302/304 Emergency Planning and Notification	The Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III requires facilities subject to Subparts 302 and 304 to submit emergency planning and notification information based on Threshold Planning Quantities (TPQs) and Reportable Quantities (RQs) for "Extremely Hazardous Substances" listed in 40 CFR 302.4 and 40 CFR 355. No components were identified.
SARA 311/312 Hazard Identification	The Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III requires facilities subject to this subpart to submit aggregate information on chemicals by "Hazard Category" as defined in 40 CFR 370.2. This material would be classified under the following hazard categories: fire, Acute (Immediate) Health Hazard, Chronic (Delayed) Health Hazard
SARA 313 Toxic Chemical Notification and Release Reporting	This product contains the following components in concentrations above de minimis levels that are listed as toxic chemicals in 40 CFR Part 372 pursuant to the requirements of Section 313 of SARA: Toluene [CAS No.: 108-88-3] Concentration: <20% Xylene, all isomers [CAS No.: 1330-20-7] Concentration: <18% Methyl tertiary-Butyl Ether (MTBE) [CAS No.: 1634-04-4] Concentration: <15% n-Hexane [CAS No.: 110-54-3] Concentration: <8% Cumene [CAS No.: 98-82-8] Concentration: <4% Benzene [CAS No.: 71-43-2] Concentration: <5% Ethylbenzene [CAS No.: 100-41-4] Concentration: <4% 1, 2, 4 Trimethylbenzene [CAS No.: 95-63-6] Concentration: <4% Cyclohexane [CAS No.: 110-82-7] Concentration: <3% Naphthalene [CAS No.: 91-20-3] Concentration: <2% Styrene [CAS No.: 100-42-5] Concentration: <1%
CERCLA	The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) requires notification of the National Response Center concerning release of quantities of "hazardous substances" equal to or greater than the reportable quantities (RQ's) listed in 40 CFR 302.4. As defined by CERCLA, the term "hazardous substance" does not include petroleum, including crude oil or any fraction thereof which is not otherwise specifically designated in 40 CFR 302.4. Chemical substances present in this product or refinery stream that may be subject to this statute are: Toluene [CAS No.: 108-88-3] RQ = 1000 lbs. (453.6 kg) Concentration: <20% Xylene, all isomers [CAS No.: 1330-20-7] RQ = 100 lbs. (45.36 kg) Concentration: <18% Methyl tertiary-Butyl Ether (MTBE) [CAS No.: 1634-04-4] RQ = 1000 lbs. (453.6 kg) Concentration: <15% n-Hexane [CAS No.: 110-54-3] RQ = 5000 lbs. (2268 kg) Concentration: <8% 2,2,4-Trimethylpentane [CAS No.: 540-84-1] RQ = 1000 lbs. (453.6 kg) Concentration: <5% Benzene [CAS No.: 71-43-2] RQ = 10 lbs. (4.536 kg) Concentration: <5% Cumene [CAS No.: 98-82-8] RQ = 5000 lbs. (2268 kg) Concentration: <4% Ethylbenzene [CAS No.: 100-41-4] RQ = 1000 lbs. (453.6 kg) Concentration: <4% Cyclohexane [CAS No.: 110-82-7] RQ = 1000 lbs. (453.6 kg) Concentration: <3% Naphthalene [CAS No.: 91-20-3] RQ = 100 lbs. (45.36 kg) Concentration: <2% Styrene [CAS No.: 100-42-5] RQ = 1000 lbs. (453.6 kg) Concentration: <1%
Clean Water Act (CWA)	This material is classified as an oil under Section 311 of the Clean Water Act (CWA) and the Oil Pollution Act of 1990 (OPA). Discharges or spills which produce a visible sheen on waters of the United States, their adjoining shorelines, or into conduits leading to surface waters must be reported to the EPA's National Response Center at (800) 424-8802.
California Proposition 65	

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This material may contain the following components which are known to the State of California to cause cancer, birth defects or other reproductive harm, and may be subject to the requirements of California Proposition 65 (CA Health & Safety Code Section 25249.5): Gasoline (Wholly Vaporized and Engine Exhaust), Benzene [CAS No. 71-43-3], Toluene [CAS No. 108-88-3], Ethylbenzene [CAS No.100-41-4] and Naphthalene [CAS No.91-20-3]

New Jersey Right-to-Know Label

Gasoline [NJDEP CAS No. 8006-61-9]

Additional Regulatory Remarks

As minimum requirements, CITGO recommends that the following advisory information be displayed on equipment used to dispense gasoline in motor vehicles. Additional warnings specified by various regulatory authorities may be required: "DANGER: Extremely Flammable. Use as a Motor Fuel Only. No Smoking. Stop Engine. Turn Off All Electronic Equipment including Cellular Telephones. Do Not Overfill Tank. Keep Away from Heat and Flames. Do Not leave nozzle unattended during refueling. **Static Sparks Can Cause a Fire, especially when filling portable containers.** Containers must be metal or other material approved for storing gasoline. PLACE CONTAINER ON GROUND. DO NOT FILL ANY PORTABLE CONTAINER IN OR ON A VEHICLE. Keep nozzle spout in contact with the container during the entire filling operation. **Harmful or Fatal if Swallowed. Long-Exposure Has Caused Cancer in Laboratory Animals.** Avoid prolonged breathing of vapors. Keep face away from nozzle and gas tank. Never siphon by mouth."

WHMIS Class B-2: Flammable liquid with a flash point lower than 37.8°C (100°F).

WHMIS Class D-2B: Material causing other toxic effects (TOXIC).

SECTION 16. OTHER INFORMATION

Refer to the top of Page 1 for the HMIS and NFPA Hazard Ratings for this product.

REVISION INFORMATION

Version Number 7.0
Revision Date 05/23/2005
Print Date Printed on 05/23/2005.

ABBREVIATIONS

AP: Approximately EQ: Equal >: Greater Than <: Less Than NA: Not Applicable ND: No Data NE: Not Established
ACGIH: American Conference of Governmental Industrial Hygienists AIHA: American Industrial Hygiene Association
IARC: International Agency for Research on Cancer NTP: National Toxicology Program
NIOSH: National Institute of Occupational Safety and Health OSHA: Occupational Safety and Health Administration
NPCA: National Paint and Coating Manufacturers Association HMIS: Hazardous Materials Information System
NFPA: National Fire Protection Association EPA: US Environmental Protection Agency

DISCLAIMER OF LIABILITY

THE INFORMATION IN THIS MSDS WAS OBTAINED FROM SOURCES WHICH WE BELIEVE ARE RELIABLE. HOWEVER, THE INFORMATION IS PROVIDED WITHOUT ANY WARRANTY, EXPRESSED OR IMPLIED REGARDING ITS CORRECTNESS. SOME INFORMATION PRESENTED AND CONCLUSIONS DRAWN HEREIN ARE FROM SOURCES OTHER THAN DIRECT TEST DATA ON THE SUBSTANCE ITSELF. THIS MSDS WAS PREPARED AND IS TO BE USED ONLY FOR THIS PRODUCT. IF THE PRODUCT IS USED AS A COMPONENT IN ANOTHER PRODUCT, THIS MSDS INFORMATION MAY NOT BE APPLICABLE. USERS SHOULD MAKE THEIR OWN INVESTIGATIONS TO DETERMINE THE SUITABILITY OF THE INFORMATION OR PRODUCTS FOR THEIR PARTICULAR PURPOSE.

THE CONDITIONS OR METHODS OF HANDLING, STORAGE, USE, AND DISPOSAL OF THE PRODUCT ARE BEYOND OUR CONTROL AND MAY BE BEYOND OUR KNOWLEDGE. FOR THIS AND OTHER REASONS, WE DO NOT ASSUME RESPONSIBILITY AND EXPRESSLY DISCLAIM LIABILITY FOR LOSS, DAMAGE OR EXPENSE ARISING OUT OF OR IN ANY WAY CONNECTED WITH HANDLING, STORAGE, USE OR DISPOSAL OF THE PRODUCT.

CITGO Gasolines, All Grades Unleaded

***** END OF MSDS *****



CITGO No. 1 Diesel Fuel, All Grades

Material Safety Data Sheet

CITGO Petroleum Corporation
P.O. Box 4689
Houston, TX 77210

MSDS No. AG1DF
Revision Date 5/31/2006

IMPORTANT: This MSDS is prepared in accordance with 29 CFR 1910.1200. Read this MSDS before transporting, handling, storing or disposing of this product and forward this information to employees, customers and users of this product.

Hazard Rankings		
	HMIS	NFPA
Health Hazard	* 1	0
Fire Hazard	2	2
Reactivity	0	0

* = Chronic Health Hazard

Emergency Overview			
Physical State	Liquid.		
Color	Clear to light amber.	Odor	Characteristic, kerosene-like.
WARNING!			
Combustible liquid; vapor may cause flash fire.			
Harmful or fatal if swallowed - can enter lungs and cause damage.			
Mist or vapor can irritate the respiratory tract.			
Liquid contact can cause eye or skin irritation.			
May be harmful if inhaled or absorbed through the skin.			
Overexposure can cause central nervous system (CNS) depression and/or other target organ effects.			
Diesel engine exhaust can cause upper respiratory tract irritation and reversible pulmonary effects.			
Spills may create a slipping hazard.			

Protective Equipment
Minimum Recommended See Section 8 for Details


SECTION 1. PRODUCT IDENTIFICATION

Trade Name	CITGO No. 1 Diesel Fuel, All Grades	Technical Contact	(832) 486-5940 or (918) 495-5939
Product Number	Various	Medical Emergency	(832) 486-4700
CAS Number	8008-20-6	CHEMTREC Emergency (United States Only)	(800) 424-9300
Product Family	Fuels.		
Synonyms	None		

SECTION 2. COMPOSITION

This product may be composed, in whole or in part, of any of the following refinery streams:

- Kerosene [CAS No.: 8008-20-6]
- Hydrodesulfurized Kerosine (Petroleum) [CAS No.: 64742-81-0]
- Hydrodesulfurized Middle Distillate (petroleum) [CAS No.: 64742-80-9]
- Straight-run Middle Distillate (Petroleum) [CAS No.: 64741-44-2]
- Hydrodesulfurized Light Catalytic Cracked Distillate (Petroleum) [CAS No.: 68333-25-5]
- Light Catalytic Cracked Distillate (Petroleum) [CAS No.: 64741-59-9]

This product contains the following chemical components:

Component Name(s)	CAS Registry No.	Concentration (%)
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ane, all isomers	Mixture.	20 - 30
ymethylbenzenes (Ethyltoluenes)	25550-14-5	1 - 3
Naphthalene	91-20-3	0 - 3
Trimethylbenzenes, all isomers	25551-13-7	0 - 2
Biphenyl (Diphenyl)	92-52-4	0 - 2
Ethylbenzene	100-41-4	0 - 1
Xylene, all isomers	1330-20-7	0 - 1
1, 2, 4 Trimethylbenzene	95-63-6	0 - 1
Cumene	98-82-8	0 - 1

SECTION 3. HAZARDS IDENTIFICATION

Also see Emergency Overview and Hazard Ratings on the top of Page 1 of this MSDS.

Major Route(s) of Entry Skin contact. Eye contact. Inhalation.

Signs and Symptoms of Acute Exposure

Inhalation Breathing mist or vapors concentrations well above occupational exposure levels can irritate the mucous membranes of the nose, throat, bronchi, and lungs and can cause transient central nervous system (CNS) depression. Signs and symptoms of CNS depression include headache, dizziness, nausea, blurred vision, slurred speech, flushed face, confusion, weakness, fatigue or loss of consciousness depending upon the concentration and/or duration of exposure. In severe cases, overexposure by inhalation can cause convulsions, coma, or death.

Eye Contact This product can cause eye irritation with short-term contact with liquid, mists or vapor. Symptoms include stinging, watering, redness, and swelling. In severe cases, permanent eye damage can result.

Skin Contact Animal test results on similar materials suggest that this product can cause moderate to severe skin irritation. Symptoms include redness, itching, and burning of the skin. Also, certain components of this material may be absorbed through the skin and produce CNS depression effects (see "Inhalation" above). If the skin is damaged, absorption increases. Prolonged and/or repeated contact may cause severe dermatitis and/or more serious skin disorders. Chronic symptoms may include drying, swelling, scaling, blistering, cracking, and/or severe tissue damage.

Ingestion If swallowed, this material may irritate the mouth, throat, and esophagus. It can be absorbed into the blood stream through the stomach and intestinal tract. Symptoms may include a burning sensation of the mouth and esophagus, nausea and vomiting. In addition, it can cause central nervous system effects characterized by dizziness, staggering, drowsiness, delirium and/or loss of consciousness.

Because of the low viscosity, this material can enter the lungs directly by aspiration during swallowing or subsequent vomiting. Aspiration of a small amount of liquid can cause severe lung damage and/or death.

Chronic Health Effects Summary Secondary effects of ingestion and subsequent aspiration into the lungs may cause pneumatocele (lung cavity) formation and chronic lung dysfunction.

This product contains petroleum middle distillates similar to those shown to produce skin tumors on laboratory rodents following repeated application. All tumors appeared during the latter portion of the typical 2-year lifespan of the animals. Certain studies have shown that washing the exposed skin of the test animal with soap and water between treatments greatly reduces the potential tumorigenic effects. These data suggest that good personal hygiene is effective in reducing the risk of this potential adverse health effect.

This material and/or its components have been associated with developmental toxicity, reproductive toxicity, genotoxicity, immunotoxicity, and/or carcinogenicity. Refer to Section 11 of this MSDS for additional health-related information.

Conditions Aggravated by Exposure Medical conditions aggravated by exposure to this material may include skin disorders, chronic respiratory diseases, neurological conditions, liver or kidney dysfunction.

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et Organs

May cause damage to the following organs: kidneys, liver, upper respiratory tract, skin, eyes, central nervous system (CNS).

Carcinogenic Potential

This material contains ethylbenzene and naphthalene at concentrations at or above 0.1%. Ethylbenzene is considered possibly carcinogenic to humans by IARC. (See Section 11.) NTP has determined that exposure to diesel exhaust particulates, a complex mixture of combustion products of diesel fuel, is reasonably anticipated to be a human carcinogen.

OSHA Hazard Classification is indicated by an "X" in the box adjacent to the hazard title. If no "X" is present, the product does not exhibit the hazard as defined in the OSHA Hazard Communication Standard (29 CFR 1910.1200).

OSHA Health Hazard Classification		OSHA Physical Hazard Classification							
Irritant	<input checked="" type="checkbox"/>	Sensitizer	<input type="checkbox"/>	Combustible	<input checked="" type="checkbox"/>	Explosive	<input type="checkbox"/>	Pyrophoric	<input type="checkbox"/>
Toxic	<input type="checkbox"/>	Highly Toxic	<input type="checkbox"/>	Flammable	<input type="checkbox"/>	Oxidizer	<input type="checkbox"/>	Water-reactive	<input type="checkbox"/>
Corrosive	<input type="checkbox"/>	Carcinogenic	<input type="checkbox"/>	Compressed Gas	<input type="checkbox"/>	Organic Peroxide	<input type="checkbox"/>	Unstable	<input type="checkbox"/>

SECTION 4. FIRST AID MEASURES

Take proper precautions to ensure your own health and safety before attempting rescue or providing first aid. For more specific information, refer to Exposure Controls and Personal Protection in Section 8 of this MSDS.

Inhalation Move victim to fresh air. If victim is not breathing, immediately begin rescue breathing. If breathing is difficult, 100 percent humidified oxygen should be administered by a qualified individual. Seek medical attention immediately. Keep the affected individual warm and at rest.

Eye Contact Check for and remove contact lenses. Flush eyes with cool, clean, low-pressure water for at least 15 minutes while occasionally lifting and lowering eyelids. Do not use eye ointment unless directed to by a physician. Seek medical attention if excessive tearing, irritation, or pain persists.

Skin Contact Remove contaminated shoes and clothing. Flush affected area with large amounts of water. If skin surface is damaged, apply a clean dressing and seek medical attention. Do not use ointments. If skin surface is not damaged, clean affected area thoroughly with mild soap and water. Seek medical attention if tissue appears damaged or if pain or irritation persists.

Ingestion Do not induce vomiting. If spontaneous vomiting is about to occur, place victim's head below knees. If victim is drowsy or unconscious, place on the left side with head down. Never give anything by mouth to a person who is not fully conscious. Do not leave victim unattended. Seek medical attention immediately.

Notes to Physician Inhalation overexposure can produce toxic effects. Monitor for respiratory distress. If cough or difficulty in breathing develops, evaluate for upper respiratory tract inflammation, bronchitis, and pneumonitis. Vigorous anti-inflammatory/steroid treatment may be required at first evidence of upper airway or pulmonary edema. Administer 100 percent humidified supplemental oxygen with assisted ventilation, as required.

If ingested, this material presents a significant aspiration/lipoid or chemical pneumonitis hazard. As a result, induction of emesis is not recommended. Consider administration of an aqueous slurry of activated charcoal followed by a cathartic such as magnesium citrate or sorbitol. Also, treatment may involve careful gastric lavage if performed soon after ingestion or in patients who are comatose or at risk of convulsing. Protect the airway by placement in Trendelenburg and left lateral decubitus position or by cuffed endotracheal intubation. If vital signs become abnormal or symptoms develop, obtain a chest x-ray and liver function tests. Antibiotics are indicated if pulmonary bacterial infection occurs. Monitor for cardiac function and arterial blood gases in severe exposure cases.

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SECTION 5. FIRE FIGHTING MEASURES

NFPA Flammability Classification	NFPA Class-II combustible liquid.		
Flash Point	Closed cup: 38°C (100°F). (Pensky-Martens. (Minimum))		
Lower Flammable Limit	AP 0.7 %	Upper Flammable Limit	AP 5 %
Autoignition Temperature	>254°C (489.2°F)		
Hazardous Combustion Products	Carbon dioxide, carbon monoxide, smoke, fumes, unburned hydrocarbons and oxides of sulfur and/or nitrogen.		
Special Properties	Combustible Liquid! This material releases vapors when heated above ambient temperatures. Vapors can cause a flash fire. Vapors can travel to a source of ignition and flashback. A vapor and air mixture can create an explosion hazard in confined spaces such as sewers. Use only with adequate ventilation. If container is not properly cooled, it can rupture in the heat of a fire.		
Extinguishing Media	SMALL FIRE: Use dry chemicals, carbon dioxide, foam, water fog, or inert gas (nitrogen). LARGE FIRE: Use foam, water fog, or water spray. Water fog and spray are effective in cooling containers and adjacent structures. However, water can cause frothing and/or may not extinguish the fire. Water can be used to cool the external walls of vessels to prevent excessive pressure, autoignition or explosion. DO NOT use a solid stream of water directly on the fire as the water may spread the fire to a larger area.		
Protection of Fire Fighters	Firefighters must use full bunker gear including NIOSH-approved positive pressure self-contained breathing apparatus to protect against potential hazardous combustion or decomposition products and oxygen deficiencies. Evacuate area and fight the fire from a maximum distance or use unmanned hose holders or monitor nozzles. Cover pooling liquid with foam. Containers can build pressure if exposed to radiant heat; cool adjacent containers with flooding quantities of water until well after the fire is out. Withdraw immediately from the area if there is a rising sound from a venting safety device or discoloration of vessels, tanks, or pipelines. Be aware that burning liquid will float on water. Notify appropriate authorities of potential fire and explosion hazard if liquid enter sewers or waterways.		

SECTION 6. ACCIDENTAL RELEASE MEASURES

Take proper precautions to ensure your own health and safety before attempting spill control or clean-up. For more specific information, refer to the Emergency Overview on Page 1, Exposure Controls and Personal Protection in Section 8 and Disposal Considerations in Section 13 of this MSDS.

Combustible Liquid! Release can result in a fire hazard. Evacuate all non-essential personnel from release area. Establish a regulated zone with site control and security. Eliminate all ignition sources. Stop the leak if it can be done without risk. A vapor-suppressing foam may be used to reduce vapors. Properly bond or ground all equipment used when handling this material. Avoid skin contact. Do not walk through spilled material. Verify that responders are properly trained and wearing appropriate personnel protective equipment. Dike far ahead of a liquid spill. Do not allow released material to enter waterways, sewers, basements, or confined areas. This material will float on water. Absorb or cover with dry earth, sand or other non-combustible material. Use clean, non-sparking tools to collect absorbed material. Place spent sorbent materials, free liquids and other clean-up debris into proper waste containers for appropriate disposal. Certain releases must be reported to the National Response Center (800/424-8802) and state or regulatory authorities. Comply with all laws and regulations.

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SECTION 7. HANDLING AND STORAGE

Handling

Combustible Liquid!

A static electrical charge can accumulate when this material is flowing through pipes, nozzles or filters and when it is agitated. A static spark discharge can ignite accumulated vapors particularly during dry weather conditions. Always bond receiving containers to the fill pipe before and during loading. Always keep nozzle in contact with the container throughout the loading process. Do not fill any portable container in or on a vehicle. Special precautions, such as reduced loading rates and increased monitoring, must be observed during "switch loading" operations (i.e., loading this material in tanks or shipping compartments that previously containing gasoline or similar low flash point products).

Fire hazard increases as product temperature approaches its flash point. Keep container closed and drum bungs in place. Remove spillage immediately from walking areas. Do not handle or store near heat, sparks or other potential ignition sources. Do not handle or store with oxidizing agents. Avoid breathing mist or vapor. Never siphon by mouth. Do not taste or swallow. Avoid contact with eyes, skin and clothing. Use gloves constructed of impervious materials and protective clothing if direct contact is anticipated. Provide ventilation to maintain exposure potential below applicable exposure levels. Avoid water contamination. Wash thoroughly after handling. Prevent contact with food or tobacco products.

When performing repairs and maintenance on contaminated equipment, keep unnecessary persons from hazard area. Eliminate heat, flame and other potential ignition sources. Drain and purge equipment, as necessary, to remove material residues. Remove contaminated clothing. Wash exposed skin thoroughly with soap and water after handling.

Storage

Store in a cool, dry, well-ventilated place. Keep containers tightly closed. Do not store this product near heat, flame or other potential ignition sources. Do not store with oxidizers. Do not store this product in unlabeled containers. Do not puncture or incinerate containers. Ground all equipment containing this material. All electrical equipment in areas where this material is stored or handled must meet all applicable requirements of the NFPA's National Electrical Code (NEC). Store and transport in accordance with all applicable laws.

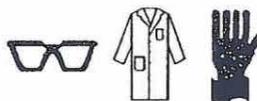
SECTION 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Engineering Controls

Provide ventilation or other engineering controls to keep the airborne concentrations of vapor or mists below the applicable workplace exposure limits indicated below. All electrical equipment should comply with the National Electric Code. An emergency eye wash station and safety shower should be located near the work-station.

Personal Protective Equipment

Personal protective equipment should be selected based upon the conditions under which this material is used. A hazard assessment of the work area for PPE requirements should be conducted by a qualified professional pursuant to OSHA regulations. The following pictograms represent the minimum requirements for personal protective equipment. For certain operations, additional PPE may be required.



Eye Protection

Safety glasses equipped with side shields are recommended as minimum protection in industrial settings. Chemical goggles should be worn during transfer operations or when there is a likelihood of misting, splashing, or spraying of this material. A suitable emergency eye wash water and safety shower should be located near the work station.

Hand Protection

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Avoid skin contact. Use heavy duty gloves constructed of chemical resistant materials such as Viton® or heavy nitrile rubber. Wash hands with plenty of mild soap and water before eating, drinking, smoking, use of toilet facilities or leaving work. DO NOT use gasoline, kerosene, solvents or harsh abrasives as skin cleaners.

Body Protection

Avoid skin contact. Wear long-sleeved fire-retardant garments (e.g., Nomex®) while working with flammable and combustible liquids. Additional chemical-resistant protective gear may be required if splashing or spraying conditions exist. This may include an apron, boots and additional facial protection. If product comes in contact with clothing, immediately remove soaked clothing and shower. Promptly remove and discarded contaminated leather goods.

Respiratory Protection

Airborne concentration will determine the level of respiratory protection required. Respiratory protection is normally not required unless the product is heated or misted. For known or anticipated vapor or mist concentrations above the occupational exposure guidelines (see below), use a NIOSH-approved organic vapor respirator equipped with a dust/mist prefilter if adequate protection is provided. Protection factors vary depending upon the type of respirator used. Respirators should be used in accordance with OSHA requirements (29 CFR 1910.134).

General Comments

Warning! Use of this material in spaces without adequate ventilation may result in generation of hazardous levels of combustion products and/or inadequate oxygen levels for breathing. Odor is an inadequate warning for hazardous conditions.

Occupational Exposure Guidelines

Substance

Applicable Workplace Exposure Levels

Nonane, all isomers

ACGIH (United States).
TWA: 200 ppm 8 hour(s).

Ethylmethylbenzene, all isomers
Menththalene

Not available.
ACGIH (United States). Skin
TWA: 10 ppm 8 hour(s).
STEL: 15 ppm 15 minute(s).

Trimethylbenzenes, all isomers

OSHA (United States).
TWA: 10 ppm 8 hour(s).
ACGIH (United States).
TWA: 25 ppm 8 hour(s).

Biphenyl (Diphenyl)

ACGIH TLV (United States).
TWA: 0.2 ppm 8 hour(s).
OSHA PEL Z2 (United States).
TWA: 0.2 ppm 8 hour(s).

Ethylbenzene

ACGIH (United States).
TWA: 100 ppm 8 hour(s).
STEL: 125 ppm 15 minute(s).
OSHA (United States).
TWA: 100 ppm 8 hour(s).

Xylene, all isomers

ACGIH (United States).
TWA: 100 ppm 8 hour(s).
STEL: 150 ppm 15 minute(s).
OSHA (United States).
TWA: 100 ppm 8 hour(s).

1, 2, 4 Trimethylbenzene
Cumene

Not available.
ACGIH (United States).
TWA: 50 ppm 8 hour(s).
OSHA (United States). Skin
TWA: 50 ppm 8 hour(s).

Sulfur

ACGIH (United States, 1996).
TWA: 2 ppm
STEL: 5 ppm
OSHA (United States).
TWA: 5 ppm

Diesel exhaust particulate

NIOSH
TWA: 2 ppm
STEL: 5 ppm
ACGIH (United States, 2001).

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Benzene	TWA: 0.05 mg/m ³ ACGIH (United States). Skin TWA: 50 ppm 8 hour(s). OSHA (United States). TWA: 200 ppm 8 hour(s). CEIL: 300 ppm PEAK: 500 ppm
Benzene	ACGIH (United States). Skin TWA: 0.5 ppm 8 hour(s). STEL: 2.5 ppm 15 minute(s). OSHA (United States). Skin Notes: See Table Z-2 for exclusions in 20 CFR 1910.1028 to the PEL. TWA: 1 ppm 8 hour(s). STEL: 5 ppm 15 minute(s).
Middle distillates, petroleum Kerosene	Not available. NIOSH REL (United States). TWA: 100 mg/m ³ 8 hour(s).
Hydrodesulfurized Kerosine (Petroleum)	Not available.
Hydrodesulfurized middle distillate (petroleum)	Not available.
Straight-run middle distillate (petroleum)	ACGIH (United States, 1998). Skin TWA: 100 mg/m ³
Distillates, petroleum, hydrodesulfurized light catalytic cracked	Not available.
Distillates, petroleum, light catalytic cracked	Not available.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES (TYPICAL)

Physical State	Liquid.	Color	Clear to light amber.	Odor	Characteristic, kerosene-like.
Specific Gravity	0.82 (Water = 1)	pH	Not Applicable.	Vapor Density	4 (Air = 1)
Boiling Range	AP 150° C (AP 302° F)	Melting/Freezing Point	Not available.		
Vapor Pressure	<0.3 kPa (<2 mm Hg) (at 20°C)	Volatility	AP 825 g/l VOC (W%) (ASTM D2369) =		
Solubility in Water	Very slightly soluble in cold water.	Viscosity (cSt @ 40°C)	AP 3		
Flash Point	Closed cup: 38°C (100°F). (Pensky-Martens. (Minimum))				
Additional Properties	Density = AP 6.8 lbs/gal.; Viscosity (ASTM D2161) = 30 - 40 SUS @ 100° F				

SECTION 10. STABILITY AND REACTIVITY

Chemical Stability	Stable.	Hazardous Polymerization	Not expected to occur.
Conditions to Avoid	Keep away from heat, flame and other potential ignition sources. Keep away from strong oxidizing conditions and agents.		
Materials Incompatibility	Strong acids, alkalis, and oxidizers such as liquid chlorine, other halogens, hydrogen peroxide and oxygen.		
Hazardous Decomposition Products	No additional hazardous decomposition products were identified other than the combustion products identified in Section 5 of this MSDS.		

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SECTION 11. TOXICOLOGICAL INFORMATION

For other health-related information, refer to the Emergency Overview on Page 1 and the Hazards Identification in Section 3 of this MSDS.

Toxicity Data

Naphthalene

Studies in Humans Overexposed to Naphthalene:

Severe jaundice, neurotoxicity (kernicterus) and fatalities have been reported in young children and infants as a result of hemolytic anemia from over-exposure to naphthalene. Persons with Glucose 6-phosphate dehydrogenase (G6PD) deficiency are more prone to the hemolytic effects of naphthalene. Adverse effects on the kidney have also been reported from over-exposure to naphthalene but these effects are believed to be a consequence of hemolytic anemia, and not a direct effect.

Studies in Laboratory Animals:

Hemolytic anemia has been observed in laboratory animals exposed to naphthalene. Laboratory rodents exposed to naphthalene vapor for 2 years (lifetime studies) developed non-neoplastic and neoplastic tumors and inflammatory lesions of the nasal and respiratory tract. Cataracts and other adverse effects on the eye have been observed in laboratory animals exposed to high levels of naphthalene. Findings from a large number of bacterial and mammalian cell mutation assays have been negative. A few studies have shown chromosomal effects (elevated levels of Sister Chromatid Exchange or chromosomal aberrations) *in vitro*.

Trimethylbenzenes, all isomers

Studies of Workers:

Levels of total hydrocarbon vapors present in the breathing atmosphere of these workers ranged from 10 to 60 ppm. The TClO for humans is 10 ppm, with somnolence and respiratory tract irritation noted.

Studies in Laboratory Animals:

In inhalation studies with rats, four of ten animals died after exposures of 2400 ppm for 24 hours. An oral dose of 5 mL/kg resulted in death in one of ten rats. Minimum lethal intraperitoneal doses were 1.5 to 2.0 mL/kg in rats and 1.13 to 12 mL/kg in guinea pigs. Mesitylene (1, 3, 5 Trimethylbenzene) inhalation at concentrations of 1.5, 3.0, and 6.0 mg/L for six hours was associated with dose-related changes in white blood cell counts in rats. No significant effects on the complete blood count were noted with six hours per day exposure for five weeks, but elevations of alkaline phosphatase and SGOT were observed. Central nervous system depression and ataxia were noted in rats exposed to 5,100 to 9,180 ppm for two hours.

Biphenyl (Diphenyl)

Studies in Humans Overexposed to Biphenyl:

Evidence of adverse effects on the liver and the nervous system have been described in studies of workers exposed to high levels for prolonged periods.

Studies in Laboratory Animals:

Evidence of adverse effects on the kidney and liver, and changes in whole blood (reduced hematocrit and hemoglobin levels) have been observed in laboratory rodents following subchronic exposure to biphenyl.

Genotoxicity & Carcinogenicity:

Biphenyl tested negative in bacteriological systems but some evidence of positive responses have been reported in mammalian cell systems in the presence of metabolic activation. The EPA has determined human and animal data are inadequate to classify the carcinogenic potential of biphenyl.

Ethylbenzene

Effects from Acute Exposure:

ORAL (LD50), Acute: 3,500 mg/kg [Rat].

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DERMAL (LD50), Acute: 17,800 uL/kg [Rabbit].

INTRAPERITONEAL (LD50), Acute: 2,624 mg/kg [Rat].

Effects from Prolonged or Repeated Exposure:

Findings from a 2-year inhalation study in rodents conducted by NTP were as follows: Effects were observed only at the highest exposure level (750 ppm). At this level the incidence of renal tumors was elevated in male rats (tubular carcinomas) and female rats (tubular adenomas). Also, the incidence of tumors was elevated in male mice (alveolar and bronchiolar carcinomas) and female mice (hepatocellular carcinomas). IARC has classified ethyl benzene as "possibly carcinogenic to humans" (Group 2B). Studies in laboratory animals indicate some evidence of post-implantation deaths following high levels of maternal exposure. The relevance of these findings to humans is not clear at this time. Studies in laboratory animals indicate limited evidence of renal malformations, resorptions, and developmental delays following high levels of maternal exposure. The relevance of these findings to humans is not clear at this time. Studies in laboratory animals indicate some evidence of adverse effects on the liver, kidney, thyroid, and pituitary gland.

Diesel exhaust particulate

Lung tumor and lymphomas were identified in rats and mice exposed to unfiltered diesel fuel exhaust in chronic inhalation studies. Further, epidemiological studies have identified increase incidences of lung cancer in US railroad workers and bladder cancer in bus and truck drivers possibly associated with exposure to diesel engine exhaust. NTP has determined that exposure to diesel exhaust particulates, a complex mixture of combustion products of diesel fuel, is reasonably anticipated to be a human carcinogen. In addition, NIOSH has identified complete diesel exhaust as a potential carcinogen.

Hydrodesulfurized middle distillate (petroleum)

INHALATION LC50, Acute: 4.6 to 7.64 mg/L for four hours [Rat] - Dyspnea, nasal discharge, alopecia and excessive salivation.

ORAL LD50, Acute >500 g/kg [Rat Screening Level] Diarrhea, hyperactivity, ptosis and somnolence.

DERMAL LD50, Acute: >2,000 mg/kg [Rabbit Screening Level]

BUEHLER DERMAL, Acute: Non-sensitizing [Guinea Pig].

14-Day DERMAL, Subchronic: 0.05 ml/kg applied 3 times per week [Mouse, Human skin grafted to Athymic nude Mice] - Irritation and epidermal hyperplasia.

62-Week DERMAL, Chronic: 0.05 ml/kg applied 3 times per week [Mouse] - Extreme skin irritation; moderate increase in contact-point skin tumors.

Straight-run middle distillate (petroleum)

INHALATION, LC50, Acute: 1.72 mg/L for four hours [Male Rat].

INHALATION, LC50, Acute: 1.82 mg/L for 4 hours [Female Rat].

ORAL, LD50, Acute: >5,000 mg/kg [Rat screening level] - Diarrhea, hypoactivity and somnolence.

DERMAL, LD50, Acute: >2,000 mg/kg [Rabbit screen].

BUEHLER DERMAL, Acute: Non-sensitizing [Guinea Pig].

28-Day DERMAL, Subchronic: Moderate irritation at 200 to 2,000 mg/kg with no other treatment-related clinical effects observed.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Freshwater Toxicity:

Concentration: 2400 ppm Exposure: 48 hrs. Species: Juven. Am. Shad (*Squalius cephalus*) Effect: TLM

Concentration: >127 ppm Exposure: 96 hrs. Species: Bluegill (*Lepomis macrochirus*) Effect: LC50

Saltwater Toxicity

Concentration: 10 ppm Exposure: 96 hrs. Species: Menhaden (*Brevoortia patronus*) Effect: LC50

Concentration: 10 ppm Exposure: 96 hrs. Species: Grass Shrimp Effect: LC50

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Environmental Fate

If spilled, this material will normally evaporate. Hydrocarbon components may contribute to atmospheric smog. If released to the subsoils, petroleum middle distillate fuels will strongly adsorb to soils. Groundwater should be considered as an exposure pathway. Liquid and vapor can migrate through the subsurface and preferential pathways (such as utility line backfill) to downgradient receptors.

Middle distillates are potentially toxic to freshwater and saltwater ecosystems. Distillate fuels will normally float on water. In stagnant or slow-flowing waterways, a hydrocarbon layer can cover a large surface area. As a result, this oil layer can limit or eliminate natural atmospheric oxygen transport into the water. With time, if not removed, oxygen depletion in the waterway can cause a fish kill or create an anaerobic environment. Also, this coating action can also kill plankton, algae, and water birds.

SECTION 13. DISPOSAL CONSIDERATIONS

Hazard characteristic and regulatory waste stream classification can change with product use. Accordingly, it is the responsibility of the user to determine the proper storage, transportation, treatment and/or disposal methodologies for spent materials and residues at the time of disposition.

Maximize material recovery for reuse or recycling. If spilled material is introduced into a wastewater treatment system, chemical and biological oxygen demand (COD and BOD) will likely increase. Vapor emissions from a bio-oxidation process contaminated with this material might be a potential health hazard.

Recovered non-usable material may be regulated by US EPA as a hazardous waste due to its ignitibility characteristic (D001). In addition, conditions of use may cause this material to become a hazardous waste, as defined by Federal or State regulations. It is the responsibility of the user to determine if the material is a hazardous waste at the time of disposal. Transportation, treatment, storage, and disposal of waste material must be conducted in accordance with RCRA regulations (see 40 CFR Parts 260 through 271). Contact your regional US EPA office for guidance concerning case specific disposal issues. State and/or local regulations might be even more restrictive.

SECTION 14. TRANSPORT INFORMATION

The shipping description below may not represent requirements for all modes of transportation, shipping methods or locations outside of the United States.

US DOT Status

A U.S. Department of Transportation (DOT) regulated material. The following U. S. DOT hazardous materials shipping description applies to bulk packaged material that is transported by highway or rail. Alternate shipping descriptions may be required for product transported by marine vessel, air or other method and for non-bulk packaged material.

Proper Shipping Name

Diesel Fuel, No. 1, Combustible liquid, NA1993, PG III

Hazard Class

DOT Class: Combustible liquid with a flash point greater than 37.8°C (100°F). **Packing Group(s)** III

UN/NA Number

NA 1993 or UN 1202

Reportable Quantity

A Reportable Quantity (RQ) has not been established for this material.

Placard(s)



Emergency Response Guide No.

128

MARPOL III Status

Not a DOT "Marine Pollutant" per 49 CFR 171.8.

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SECTION 15. REGULATORY INFORMATION

TSCA Inventory	This product and/or its components are listed on the Toxic Substances Control Act (TSCA) inventory.
SARA 302/304 Emergency Planning and Notification	The Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III requires facilities subject to Subparts 302 and 304 to submit emergency planning and notification information based on Threshold Planning Quantities (TPQs) and Reportable Quantities (RQs) for "Extremely Hazardous Substances" listed in 40 CFR 302.4 and 40 CFR 355. No components were identified.
SARA 311/312 Hazard Identification	The Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III requires facilities subject to this subpart to submit aggregate information on chemicals by "Hazard Category" as defined in 40 CFR 370.2. This material would be classified under the following hazard categories: fire, Acute (Immediate) Health Hazard, Chronic (Delayed) Health Hazard
SARA 313 Toxic Chemical Notification and Release Reporting	This product contains the following components in concentrations above <i>de minimis</i> levels that are listed as toxic chemicals in 40 CFR Part 372 pursuant to the requirements of Section 313 of SARA: Naphthalene [CAS No.: 91-20-3] Concentration: 1.5% Biphenyl (Diphenyl) [CAS No.: 92-52-4] Concentration: 1% Ethylbenzene [CAS No.: 100-41-4] Concentration: 0.5%
CERCLA	The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) requires notification of the National Response Center concerning release of quantities of "hazardous substances" equal to or greater than the reportable quantities (RQ's) listed in 40 CFR 302.4. As defined by CERCLA, the term "hazardous substance" does not include petroleum, including crude oil or any fraction thereof which is not otherwise specifically designated in 40 CFR 302.4. Chemical substances present in this product or refinery stream that may be subject to this statute are: Naphthalene [CAS No.: 91-20-3] RQ = 100 lbs. (45.36 kg) Concentration: 1.5% Ethylbenzene [CAS No.: 100-41-4] RQ = 1000 lbs. (453.6 kg) Concentration: 0.5% Xylene, all isomers [CAS No.: 1330-20-7] RQ = 100 lbs. (45.36 kg) Concentration: 0.5% Cumene [CAS No.: 98-82-8] RQ = 5000 lbs. (2268 kg) Concentration: 0.5% Benzene [CAS No.: 71-43-2] RQ = 10 lbs. (4.536 kg) Concentration: 0.045%
Clean Water Act (CWA)	This material is classified as an oil under Section 311 of the Clean Water Act (CWA) and the Oil Pollution Act of 1990 (OPA). Discharges or spills which produce a visible sheen on waters of the United States, their adjoining shorelines, or into conduits leading to surface waters must be reported to the EPA's National Response Center at (800) 424-8802.
California Proposition 65	This material may contain the following components which are known to the State of California to cause cancer, birth defects or other reproductive harm, and may be subject to the requirements of California Proposition 65 (CA Health & Safety Code Section 25249.5): Naphthalene: 1.5% Ethylbenzene: 0.5% Diesel exhaust particulate Toluene: 0.045% Benzene: 0.045%
New Jersey Right-to-Know Label	Diesel Fuel
Additional Remarks	Federal Hazardous Substances Act, related statutes, and Consumer Product Safety Commission regulations, as defined by 16 CFR 1500.14(b)(3) and 1500.83(a)(13): This product contains "Petroleum Distillates" which may require special labeling if distributed in a manner intended or packaged in a form suitable for use in the household or by children. Precautionary label dialogue should display the following: DANGER: Contains Petroleum Distillates! Harmful or fatal if swallowed! Call Physician Immediately. KEEP OUT OF REACH OF CHILDREN!

CITGO No. 1 Diesel Fuel, All Grades

SECTION 16. OTHER INFORMATION

Refer to the top of Page 1 for the HMIS and NFPA Hazard Ratings for this product.

REVISION INFORMATION

Version Number 2.0
Revision Date 5/31/2006
Print Date Printed on 5/31/2006.

ABBREVIATIONS

AP: Approximately	EQ: Equal	>: Greater Than	<: Less Than	NA: Not Applicable	ND: No Data	NE: Not Established
ACGIH: American Conference of Governmental Industrial Hygienists				AIHA: American Industrial Hygiene Association		
IARC: International Agency for Research on Cancer				NTP: National Toxicology Program		
NIOSH: National Institute of Occupational Safety and Health				OSHA: Occupational Safety and Health Administration		
NPCA: National Paint and Coating Manufacturers Association				HMIS: Hazardous Materials Information System		
NFPA: National Fire Protection Association				EPA: US Environmental Protection Agency		

DISCLAIMER OF LIABILITY

THE INFORMATION IN THIS MSDS WAS OBTAINED FROM SOURCES WHICH WE BELIEVE ARE RELIABLE. HOWEVER, THE INFORMATION IS PROVIDED WITHOUT ANY WARRANTY, EXPRESSED OR IMPLIED REGARDING ITS CORRECTNESS. SOME INFORMATION PRESENTED AND CONCLUSIONS DRAWN HEREIN ARE FROM SOURCES OTHER THAN DIRECT TEST DATA ON THE SUBSTANCE ITSELF. THIS MSDS WAS PREPARED AND IS TO BE USED ONLY FOR THIS PRODUCT. IF THE PRODUCT IS USED AS A COMPONENT IN ANOTHER PRODUCT, THIS MSDS INFORMATION MAY NOT BE APPLICABLE. USERS SHOULD MAKE THEIR OWN INVESTIGATIONS TO DETERMINE THE SUITABILITY OF THE INFORMATION OR PRODUCTS FOR THEIR PARTICULAR PURPOSE.

THE CONDITIONS OR METHODS OF HANDLING, STORAGE, USE, AND DISPOSAL OF THE PRODUCT ARE BEYOND OUR CONTROL AND MAY BE BEYOND OUR KNOWLEDGE. FOR THIS AND OTHER REASONS, WE DO NOT ASSUME RESPONSIBILITY AND EXPRESSLY DISCLAIM LIABILITY FOR LOSS, DAMAGE OR EXPENSE ARISING OUT OF OR IN ANY WAY CONNECTED WITH HANDLING, STORAGE, USE OR DISPOSAL OF THE PRODUCT.

***** END OF MSDS *****

APPENDIX B

SPECIFIC HEALTH AND SAFETY PROCEDURES

NOTE: Health and safety procedures that will be utilized during the project are listed below. A copy of all the Health and Safety Procedures (HS001-999) is available on the Intranet (Insider).

HS020	Accident Prevention Program: Reporting Investigation and Review
HS021	Accident Prevention Program: Management Safety Reviews
HS045	Job Safety Analysis
HS051	Tailgate Safety Meeting
HS060	Hazard Communication Program
HS303	Pressurized Cleaning and Cutting Equipment
HS307	Excavation and Trenching
HS308	Underground/Overhead Utility Contact Prevention
HS400	Working in Hot Environments
HS402	Hearing Conservation
HS600	Personal Protection Program
HS800	Motor Vehicle Operation: General Requirements



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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 necessary to prevent incident re-occurrence. 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 Corporate Safety Department, for safe keeping, 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; the business line President and the Legal Department.
- All OSHA recordable injuries/illnesses, chargeable vehicle accidents, fatalities, major injury/illness, or incidents resulting in significant property damage are subject to being classified as A Confidential Attorney-Client / Attorney Work Product investigation status.
- All business line Health & Safety Managers are required to submit a Monthly Loss Report, by the 10th of the following month, summarizing all chargeable vehicle accidents and all injury/illness cases requiring outside medical care that took place during the previous reporting 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
- 4.0 Definitions
- 5.0 Text
 - 5.1 Incident Reporting Process
 - 5.2 Supervisor's Employee Injury Report



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- 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
- 8.0 Attachments

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 \$1,000.00.
- When an employee is driving a personal vehicle while on company business and damage exceeds \$1,000.00.

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.

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



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- 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

Note: Employers may stop counting days away from work and days of restricted work activity once the total of either or the combination of both reaches 180 days.

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

OSHA Recordable Case - See Attachment 7

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.

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 Safety Officers / Managers or any supervisor (but preferably the supervisor directly responsible for the involved employees) with first-hand knowledge of an incident is required to:

- Immediately arrange for appropriate medical attention and notify the responsible health and safety representative.
- As soon as practical but not longer than one hour after occurrence, notify the Shaw Notification Hotline/Helpdesk by calling 1-866-299-3445 of any injury requiring off-site medical treatment, any chargeable vehicle accident or equipment incident involving property damage exceeding \$1,000 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 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.



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- 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 Officer / Manager 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 accident.

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 Site Safety Officer and Supervisor shall initiate/complete the appropriate company documentation in accordance with the following incident classifications:

OSHA Recordable Cases

- Supervisor's Employee Injury/Illness Report (Attachment 2)
- Incident Investigation Report (Attachment 5)
- Witness Statement Form (Attachment 6)
- Accident Review Board (Attachment 7)

First Aid Cases

- Supervisor's Employee Injury/Illness Report (Attachment 2)
- Incident Investigation Report (Attachment 5)

Chargeable Vehicle Accidents

- Vehicle Accident Report (Attachment 3)
- Incident Investigation Report (Attachment 5)
- Witness Statement (Attachment 6)
- Accident Review Board (Attachment 7)
- Driving Record Certification (Procedure HS800)

Non-Chargeable Vehicle Accidents

- Vehicle Accident Report (Attachment 3)
- Incident Investigation Report (Attachment 5)
- Witness Statement (Attachment 6)



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- Incidents Involving Equipment
 - a. Incident Investigation Report (Attachment 5)
 - b. Witness Statement Form (Attachment 6)
 - c. Equipment, General Liability, Property Damage, and Loss Report (Attachment 5).
 - Near Miss
 - a. Incident Investigation Report (Attachment 5)
 - Property Damage/General Liability
 - a. Equipment, General Liability, Property Damage, and Loss Report (Attachment 4).
 - b. Witness Statement (Attachment 6)
- 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 comments. Upon completion of review and comments the report should be forwarded to the Shaw Corporate Claims department in Baton Rouge.
- 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 comments. Upon completion of review and comments the report should be forwarded to the Shaw Corporate Claims department in Baton Rouge.
- 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 \$1,000.00. 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, then forward it to the project/location manager. The Corporate Claims Department 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:



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- Collect the facts;
 - Describe and document (include sketch, photos, etc.) how the incident occurred;
 - List witnesses and collect written statements;
 - If applicable, contact the employee's Functional Manager in an effort to gain relative information
 - Identify the causative factors;
 - Identify potentially unsafe acts or unsafe conditions that may have contributed to the incident;
 - Identify potential systematic deficiencies; and
 - List the corrective actions which are to be taken to prevent re-occurrence of the incident, the person responsible for the corrective action, and the date by which action is to be completed.
- The investigation will be started as soon as possible after the incident and a written report submitted to the appropriate health and safety representative within 72 hours. In addition to the previous information, reports from external sources (police, insurance carriers, testing laboratories, etc.) are to be obtained as soon as they become available and forwarded to the Business Line Safety Manager.
- 5.6 Witness Statement Form (Attachment 6)**
The witness statement form was created to allow for consistency in the development of the investigation process. If there are witnesses to the accident/incident, this form should be completed and signed by the subject witness and attached to the incident investigation report. It is essential that the witness statement be executed immediately following the incident to ensure an accurate account of the events.
- 5.7 Accident Review Board (ARB) (Attachment 7)**
As a directive of the Corporate Legal Department, each of the respective Business Line Health and Safety Managers whose project/location experiences an OSHA recordable or a chargeable vehicle accident is required to convene an ARB within 10 days of the accident. The purpose of the Accident Review Board is to review the information, gathered for each incident, and take appropriate action to prevent its recurrence. The Accident Review Board shall be composed of the project/location manager, the employee's direct supervisor, a health and safety representative, and the employee(s) involved in the incident.
- 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



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Line Health and Safety Manager, a representative of other internal sources of expertise should be involved where applicable.

All OSHA recordable injuries/illnesses, chargeable vehicle accidents, fatalities, major injury/illness, or incidents resulting in significant property damage are subject to being classified under a Confidential Attorney-Client / Attorney Work Product investigation status. The determination as to whether the ARB is classified as a Confidential Attorney-Client / Attorney Work Product investigation status must be executed as soon as possible and always prior to initiation of the ARB process. If the determination is made to initiate the ARB under a Confidential Attorney-Client / Attorney Work Product status, all documents concerning the investigation process, including the ARB, will be submitted to the Corporate Safety Department, for purposes of confidentiality and safe keeping, on behalf of the Legal Department, in anticipation of litigation.

Unless the investigation is considered as a Confidential Attorney-Client / Attorney Work Product investigation, the ARB report shall be completed as soon as practicable and forwarded to the Corporate Safety Department, via the Corporate Claims fax number. Upon completing review of the draft ARB, the Business Line Safety Manager will be notified and the ARB shall be completed by the Business Line Safety Manager and signed by all members of the ARB.

It is generally not acceptable to discipline an employee for having an accident. However, if the Accident Review Board determines that the accident resulted from an intentional unsafe act or 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).

5.7 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



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2. Supervisor's Employee Injury/Illness Report
3. Vehicle Accident Report
4. Equipment, General Liability, Property Damage, and Loss Report
5. Incident Investigation Report
6. 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.



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ATTACHMENT 1

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

Action	Procedure Section	Responsible Party					
		Employee	Supervisor	Project/Location Manager	Health and Safety Officer	Business Line 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				
Complete Investigation of Incident	5.5		X	X	X		
Conduct Accident Review Board	5.6		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 228-932-2638.
 Phone all Injured Illnesses to Shaw Notification Hotline/Helpdesk
 1-888-289-3445

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	Female	Date of Birth:	Hire Date:
Dependents:		Dependents Under 18:	
Occupation:		Department Name:	
State Hired:		Currently Weekly Wage:	
Hours/Days Worked Per Week:		Days Per Week:	
Employment Status:		Employee Report No.:	
Salaried Continued:		Paid For Date of Injury:	
Ever injured on the Job:		Supervisor Name & Phone:	
Employee ID No.:		Education No. of Years:	
Hourly Wage:			
Hours Worked Per Day:			
N/A			
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?

If 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?

Lost 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

N/A

Clinic - Name, Address, Phone Number:

ADDITIONAL COMMENTS & INFORMATION

REPORT PREPARED BY

Name: Title:

Signature: 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 _____

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

IF 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 _____

OTHER VEHICLE
 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)



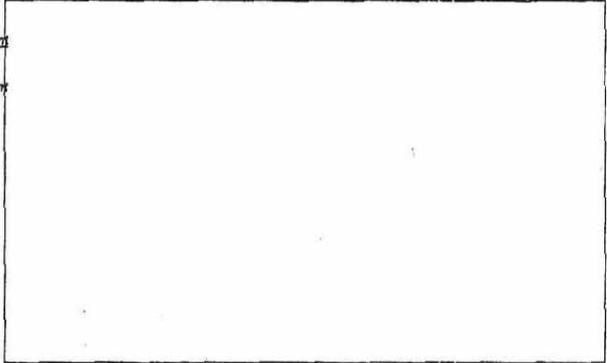
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VEHICLE ACCIDENT REPORT

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WEATHER: Clear Cloudy Fog Rain Sleet Snow Other _____
 PAVEMENT: 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 ○
- Yield △
- 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: 226-632-2636)
 WITHIN 24 HOURS, OR NOT LATER THAN NEXT BUSINESS DAY
 REPORT ALL VEHICLE ACCIDENTS TO SHAW NOTIFICATION HOTLINE/HELPDESK
 (PHONE: 1-866-269-3445)



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ATTACHMENT 4

EQUIPMENT, GENERAL LIABILITY, PROPERTY DAMAGE, AND LOSS REPORT

This report is to be completed for all losses or damage to company property in excess of \$1,000.00 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: 226-632-2636)
 WITHIN 24 HOURS, OR NOT LATER THAN NEXT BUSINESS DAY



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ATTACHMENT 5
 INCIDENT INVESTIGATION REPORT

*** MUST BE COMPLETED WITHIN 72 HOURS ***

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 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

(Attach Additional Pages if Needed)



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ATTACHMENT 6
 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



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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:	
THE FOLLOWING INFORMATION <u>MUST</u> BE PROVIDED BY THE REVIEW BOARD FOR THIS INCIDENT (PRINT):			
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:	_____ (Project/Location Manager)	REJECTED FOR:	_____
APPROVED:	_____ (Business Line Health and Safety Manager or Designee)	REJECTED FOR:	_____
APPROVED:	_____ (Business Line Vice President)	REJECTED FOR:	_____

The determination as to whether the ARB is classified as being considered as a Confidential Attorney-Client / Attorney Work Product investigation must be executed as soon as possible and always prior to initiation of the ARB process.



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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)

Loss of Consciousness - If an employee loses consciousness as the result of a work-related injury/illness, the case must be recorded no matter what type of treatment was provided. The rationale behind this recording requirement is that loss of consciousness is generally associated with more serious injuries.

Restriction of Work or Motion - Restricted work activity occurs when the employee, when as the result of a job-related injury or illness, an employer or LHCP keeps, or recommends keeping, an employee from doing the routine functions of his or her job or from working the full workday that the employee would have been scheduled to work before the injury or illness occurred.



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Transfer to Another Job - Injuries requiring transfer of the employee to another job are also considered serious enough to be recordable regardless of the type of treatment provided. Transfers are seldom the sole criterion for recordability because injury cases are almost always recordable on other grounds, primarily medical treatment or restriction of work or motion.



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**ATTACHMENT 9
 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: _____ Date: _____

Physician Signature: _____

**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.**



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**ATTACHMENT 9B
 MEDICAL FORMS**

AUTHORIZATION FOR RELEASE OF PROTECTED MEDICAL INFORMATION

Patient Identification

Printed Name: _____ Date of Birth: _____
 Address: _____
 Social Security #: _____ Home Telephone: _____

Authority to Release Protected Health Information

I hereby authorize the release of information, identified in this authorization form, from the medical records associated with my occupational injury / illness 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	

Other, (specify) _____

Purpose of the Requested Disclosure of Protected Health Information

I am authorizing the release of my Protected Health Information as a result of an occupational injury or illness.

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 previous drug and/or alcohol abuse, psychiatric care, sexually transmitted disease, hepatitis B or C testing, 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.



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Signature of Patient or Personal Representative Who May Request Disclosure

I understand that I do not have to sign this authorization, and my treatment or payment for services will not be denied if I do not sign this form. 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) 350-2641. 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



PROCEDURE

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

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

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	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
5.0	Exception Provisions
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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.



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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

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

6.0 CROSS REFERENCES

HS013 Health and Safety Procedure Variances

7.0 ATTACHMENTS

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



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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	



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 _____

FIRST AID

YES NO N/A

- 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? _____



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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)?	_____	_____	_____



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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 ₂ 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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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:

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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>AISSLES 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?	_____	_____	_____



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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?	_____	_____	_____



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	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 <u>FOR EACH HAZARDOUS CHEMICAL</u> 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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ATTACHMENT 4
LABORATORY SAFETY INSPECTION REPORT

LOCATION _____ DATE _____

	YES	NO	N/A
I. <u>FIRST AID</u>			
1. Are first aid kit locations identified and accessible?	_____	_____	_____
2. Are emergency eye wash/safety showers available and inspected monthly?	_____	_____	_____
3. Is access to eye wash units and safety showers unimpeded?	_____	_____	_____
II. <u>PERSONAL PROTECTIVE EQUIPMENT</u>			
1. Are employees wearing safety glasses in the laboratory?	_____	_____	_____
2. Are laboratory coats worn by all employees and visitors when working with chemicals and/or samples?	_____	_____	_____
3. Are gloves worn when chemicals and samples are handled?	_____	_____	_____
III. <u>FIRE PREVENTION/FIRE PROTECTION</u>			
1. Are employees smoking only in designated outdoor areas?	_____	_____	_____
2. Are flammable storage cabinets available and used when needed?	_____	_____	_____
3. Has a fire alarm system been established?	_____	_____	_____
4. Are fire extinguishers available and inspected monthly?	_____	_____	_____
5. Do employees know the location and use of fire extinguishers?	_____	_____	_____
6. Are fire extinguisher locations posted?	_____	_____	_____
7. Have fire extinguishers been professionally inspected during the last year?	_____	_____	_____
IV. <u>EMERGENCY PLANS</u>			
1. Are emergency telephone numbers posted?	_____	_____	_____
2. Have emergency escape routes been designated?	_____	_____	_____
3. Are employees familiar with the emergency signal?	_____	_____	_____
4. Are appropriate spill kit supplies available?	_____	_____	_____
5. Are emergency exits marked?	_____	_____	_____
6. Are sprinkler heads unobstructed?	_____	_____	_____
V. <u>ELECTRICAL</u>			
1. Are extension cords kept out of wet areas?	_____	_____	_____
2. Are extension cords arranged so that they are not placed over radiators, steam pipes, through doorways, or under carpets?	_____	_____	_____
3. Are cords, panels, receptacles, and plugs in good condition?	_____	_____	_____
4. Are extension cords not being used in lieu of permanent wiring?	_____	_____	_____
5. Are extension cords not plugged into other extension cords?	_____	_____	_____
6. Are multi-outlet strips not plugged into other multi-outlet strips?	_____	_____	_____
7. Has a lockout/tagout system been established?	_____	_____	_____
8. Are GFCIs being used on all temporary electrical systems and as needed?	_____	_____	_____
9. Are warning signs exhibited on high voltage equipment (250V or greater)?	_____	_____	_____
10. Are circuit breakers or fuse panels properly labeled, kept closed, and accessible?	_____	_____	_____
VI. <u>COMPRESSED GAS CYLINDERS</u>			
1. Are like cylinders segregated and stored in well ventilated areas?	_____	_____	_____
2. Is smoking prohibited in cylinder storage areas?	_____	_____	_____
3. Are cylinders stored secure and upright?	_____	_____	_____
4. Are cylinders protected from snow, rain, etc.?	_____	_____	_____



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5. Are cylinder caps in place for storage and movement?

YES	NO	N/A
_____	_____	_____

VIII. WALKING AND WORKING SURFACES

- | | YES | NO | N/A |
|---|-------|-------|-------|
| 1. Are accessways, stairways, and ramps clean of ice, mud, snow, or debris? | _____ | _____ | _____ |
| 2. Are stairways and floor openings guarded? | _____ | _____ | _____ |
| 3. Are handrails and siderails installed along the unprotected sides of stairways having 4 or more risers or rising more than 30 inches? | _____ | _____ | _____ |
| 4. Are tripping hazards from electrical cords, phone outlets, or other protrusions on the floor prevented by arrangement of furniture or equipment? | _____ | _____ | _____ |
| 5. Are floors free of loose tiles and projections that can create a tripping hazard? | _____ | _____ | _____ |

VIII. HAZARD COMMUNICATION

- | | | | |
|--|-------|-------|-------|
| 1. Is there a copy of the Chemical Hygiene Plan (CHP) on site? | _____ | _____ | _____ |
| 2. Have employees been trained in accordance with the CHP? | _____ | _____ | _____ |
| 3. Are all containers properly labeled as to content, hazard, etc.? | _____ | _____ | _____ |
| 4. Is there an updated list of chemicals maintained at the laboratory? | _____ | _____ | _____ |
| 5. Are there MSDSs for the chemicals present in the laboratory? | _____ | _____ | _____ |
| 6. Do employees know and understand the effects of exposure from the chemicals they work with? | _____ | _____ | _____ |

IX. DOCUMENTATION

- | | | | |
|--|-------|-------|-------|
| 1. Is an OSHA 300A Log maintained on site and posted between February 1 and May 1? | _____ | _____ | _____ |
| 2. Are accident report forms available? | _____ | _____ | _____ |

X. FURNITURE AND EQUIPMENT

- | | | | |
|--|-------|-------|-------|
| 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. Are cabinets, bookcases, and shelves secured to prevent their falling over? | _____ | _____ | _____ |
| 4. Is adequate and sufficient lighting provided in all work areas? | _____ | _____ | _____ |
| 5. Are work stations arranged to be comfortable without unnecessary strains on backs, arms, necks, etc.? | _____ | _____ | _____ |
| 6. Do machines with exposed moving parts have guards? | _____ | _____ | _____ |

XI. LABORATORY FUME HOODS

- | | | | |
|---|-------|-------|-------|
| 1. Are face velocities posted on each hood? | _____ | _____ | _____ |
| 2. Is the average face velocity at least 100 ft/min.? | _____ | _____ | _____ |
| 3. Is the sash position marked or otherwise indicated to show the acceptable position for achieving the desired airflow rate? | _____ | _____ | _____ |
| 4. Has the hood face velocity been measured with a calibrated instrument in the last 6 months? | _____ | _____ | _____ |
| 5. Are signs posted on hoods that are not working correctly? | _____ | _____ | _____ |
| 6. Does the hood contain visual indicators that it is working properly (e.g., manometer, magnehelic gauge, etc.)? | _____ | _____ | _____ |



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LOCATION _____ DATE _____

YES NO N/A

XII. GENERAL LABORATORY RULES

- | | | | |
|--|-------|-------|-------|
| 1. Are open-toed shoes and sandals prohibited in the laboratory? | _____ | _____ | _____ |
| 2. Are eating, drinking, chewing gum or tobacco products prohibited in the laboratory? | _____ | _____ | _____ |
| 3. Are food refrigerators labeled such as to prevent chemical storage or vice versa? | _____ | _____ | _____ |

XIII. HOUSEKEEPING

- | | | | |
|---|-------|-------|-------|
| 1. Are lab benches orderly? | _____ | _____ | _____ |
| 2. Are laboratories free of liquid spills? | _____ | _____ | _____ |
| 3. Are sinks free of accumulated glassware? | _____ | _____ | _____ |
| 4. Are waste disposal containers available and labeled? | _____ | _____ | _____ |



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

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	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.



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- **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.



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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



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- 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



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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.

<p>PERMITS</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>PERSONAL PROTECTIVE EQUIP. (PPE)</p> <p>_____ Type of Gloves</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 (vented/non-vented)</p> <p>_____ Face Shield</p> <p>_____ Respirator</p> <p>_____ Fresh Air</p> <p>_____ Ear Protection</p> <p>_____ Safety Harness</p> <p>_____ Burning Goggles</p> <p>_____ Other _____</p> <p>TOOLS</p> <p>_____ Current Inspection</p> <p>_____ Proper Tools for the Job</p> <p>_____ Good Tool Condition</p> <p>_____ Qualifications</p> <p>_____ Other _____</p> <p>EMERGENCY EQUIPMENT</p> <p>_____ Fire Extinguishers</p> <p>_____ Safety Shower</p> <p>_____ Evacuation Route</p> <p>_____ Other _____</p> <p>ACCESS</p> <p>_____ Scaffold (properly inspected)</p> <p>_____ Ladder (Tied off)</p> <p>_____ Manlift</p> <p>_____ Personnel Basket (inspected & approved)</p> <p>_____ Operator Training</p> <p>_____ Special Provisions</p> <p>_____ Other _____</p>	<p>WELDING</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>OVERHEAD WORK</p> <p>_____ Barricades</p> <p>_____ Signs</p> <p>_____ Hole Cover</p> <p>_____ Handrail</p> <p>_____ Other _____</p> <p>ELECTRICAL</p> <p>_____ Locked & 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>LIFTING</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 Certificate</p>	<p>HAZARDS (ENVIRONMENTAL)</p> <p>_____ Electrical Shock</p> <p>_____ Heat Stress</p> <p>_____ Heavy Objects</p> <p>_____ Hot/Cold Surf. Or Mat.</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>HAZARDS/CHEMICALS</p> <p>_____ Chemical Burn Shin/Eyes</p> <p>_____ Flammable</p> <p>_____ Ingestion</p> <p>_____ Inhalation</p> <p>_____ Skin Contamination</p> <p>HAZARDS/BODY</p> <p>_____ Fall Potential</p> <p>_____ Pinch Points</p> <p>_____ Slip-Trip Potential</p> <p>_____ Other _____</p> <p>OTHER WORK IN AREA</p> <p>_____ Others Working Overhead</p> <p>_____ Type Work Others Doing</p> <p>_____ PPE Due to Other Work</p> <p>_____ Other _____</p> <p>Confined Space Know the Following:</p> <ul style="list-style-type: none"> • 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.
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SUPERVISOR/FOREMAN RECOMMENDATION: _____



JOB SAFETY ANALYSIS

DATE:
 JOB#:
 PERMIT#:
 ISSUED BY:

Location of Job (Unit/Location on Project):		
Required PPE:	Safety Access/ Location	Supervisor of Work:
<p style="text-align: center;"><u>Pre-Job Preparation</u></p> <ol style="list-style-type: none"> 1. Fill out JSA 2. Review JSA (EVERYONE) 3. Sign JSA (EVERYONE) 	Safe Haven:	JSA Prepared By:
	Wind Direction:	Are other crews in area?
	Evacuation Route:	New: <input type="checkbox"/>
	Assembly Point:	Revised: <input type="checkbox"/>
Job Task (What are You Doing)		Audit the Job <u>Audit Time:</u>
Potential Hazards		<u>Supervisors Comments</u>
Recommended Action or Procedure		<u>Supervisor's Initials:</u>
Crew Name Signatures:		



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
- 2.0 Table of Contents
- 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.



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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: _____

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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4.0	Definitions
5.0	Text
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
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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



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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.



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- 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



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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.



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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;



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- 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.



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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



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ATTACHMENT 1
HAZARD COMMUNICATION PROGRAM

Responsibility Matrix

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



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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



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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: PRESSURIZED WATER CLEANING AND CUTTING EQUIPMENT

1.0 PURPOSE AND SUMMARY

This procedure covers the personnel requirements, operator training, operating procedures, and recommended equipment performance/design for the proper operation of all types of pressure water jet cleaning and cutting equipment as normally used by industries concerned with construction, maintenance, repair, cleaning, cutting, and demolition work.

The term "high-pressure water jetting" covers all water jetting operations, including the use of additives or abrasives at pressures above 1000 psig.

Any person required to operate or maintain pressure water jetting equipment shall have been trained and have demonstrated the ability and knowledge to do so in accordance with the original equipment manufacturer's instructions, specifications, and training programs.

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3.0 RESPONSIBILITY MATRIX



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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

Dump System

The discharge orifice operator-controlled, manually operated device or system that reduces the pressure to a level that yields a pressure flow at the nozzle that is considerably below the risk threshold.

High-Pressure Water Cleaning

The use of high-pressure water, with or without the addition of other liquids or solid particles, to remove unwanted matter from various surfaces, where the pressure of the liquid jet exceeds 1000 psig at the orifice.

Warning: The limit of 1000 psig does not mean that pressures below 1000 psig cannot cause injury or require any less attention to the principles of this practice. Adequate precautions, similar to those of this practice, are required at all pressures.

High-Pressure Water Cutting

The use of high-pressure water, with or without the addition of other liquids or solid particles, to penetrate into the surface of a material for the purpose of cutting that material, where the pressure of the liquid jet exceeds 1000 psig at the orifice.

Hose Assembly

A hose with safety coupling attached in accordance with manufacturer's specifications.

Lance

A rigid metal tube used to extend the nozzle from the end of the hose.

Lancing

An application whereby a lance and nozzle combination is inserted into, and retracted from, the interior of a pipe or tubular product.

Moleing

An application whereby a hose fitted either with a nozzle or with a nozzle attached to a lance is inserted into, and retracted from, the interior of a tubular product. It is a system commonly intended for cleaning the internal surfaces of tubes, pipes, or drains. It can be self-propelled by its backward-directed jets and is manufactured in various shapes, sizes, and combinations of forward- and backward-directed jets.

Nozzle



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A device with one or more openings where the fluid discharges from the system. The nozzle restricts the area of flow of the fluid, accelerating the water to the required velocity and shaping it to the required flow pattern and distribution for a particular application. Combinations of forward and backward nozzles are often used to balance the thrust. Such nozzles are commonly referred to as tips, jets, orifices, etc.

Operator

A person who has been trained in accordance with the original manufacturer's instructional training program and has been qualified through demonstrating the knowledge, experience, and ability to perform the assigned task.

Operator Trainee

A person not fully qualified due to the lack of sufficient knowledge or experience, or both, to perform the assigned task without supervision.

Pressure Water Jet System

Water delivery systems that have nozzles or other openings whose function is to increase the speed of liquids that may cause injury. Solid particles or additional chemicals may also be introduced, but the exit in all cases will be in a free stream. The system shall include the pumps (pressure-producing devices), hoses, lances, nozzles, valves, safety devices, and personal protective equipment, as well as any heating elements or injection systems, attached thereto.

Shotgunning

An application whereby a lance or nozzle combination can be manipulated in virtually all planes of operation.

5.0 TEXT

This procedure is intended to provide guidance on the proper operation of pressure water jet cleaning and cutting equipment.

This procedure is also applicable at lower pressures at which there is foreseeable risk of injury.

All equipment shall be operated in a manner consistent with the manufacturer instructions for the specific model of equipment to be used. Such instructions and manuals shall be kept in a waterproof compartment with the equipment. (NOTE: Rental equipment shall not be accepted without the manufacturer's manual.)

5.1 Qualified Operators

Only personnel who have undergone a proper training program and who have demonstrated the knowledge and skill, and gained the experience to perform all likely assigned tasks shall operate water jetting equipment. They may also supervise the training of new operators.

5.2 Training

Before being assigned to their first water jetting jobs, associates shall receive proper training. A core module for pressurized water systems is available from the Training Department. This shall be supplemented with site-specific, hands-on training per the



manufacturer's instructions for the specific equipment in use. Training shall cover the following topics.

5.2.1 Cutting Action. The cutting action of a water jet and the potential hazard it poses to the human body shall be demonstrated through the use of audiovisual aids or actual use of equipment (by cutting through a piece of lumber, a concrete block, etc.).

5.2.2 System Operation. The operation of water jetting systems shall be explained by pointing out potential problems and proper corrective actions.

5.2.3 Operating Pressure. The need to operate equipment at or below the manufacturer's recommended working pressure shall be stressed.

5.2.4 Control Devices. The operation of all control devices shall be explained. The importance of not tampering with any control devices, as well as the importance of keeping them in proper working order, shall be stressed.

5.2.5 Equipment Maintenance. The importance of the proper and timely care and maintenance of water jetting equipment shall be presented. Instructions shall be provided on the procedures to follow in maintaining equipment and when the equipment must be returned for care by more qualified associates.

Stress that equipment shall not be repaired, or connections tightened, when the unit is in operation or the pump is running.

5.2.6 Valve Maintenance. Point out that valves and seating surfaces in pressure regulating devices encounter high wear during water jetting. These items require frequent inspections, maintenance, and/or replacement to ensure proper operation.

5.2.7 Hose. The proper method of identifying and connecting hoses, including laying out without kinks, protecting hoses from excessive wear, identifying a worn or unsafe hose, and proper tools to use on couplings and fittings shall be explained. Fittings and couplings on hoses shall not be tightened or tampered with while the hose is pressurized. Safety connectors (whipchecks) should be used across all hose connections.

5.2.8 Stance. The proper stance for sound footing and how to use the various devices for lancing, shotgunning, and moleing shall be demonstrated. The trainee, under close supervision, shall be trained to use the various devices while the unit is slowly pressurized and is operating at its normal working capacity.

5.2.9 Proficiency. Personnel shall demonstrate knowledge and skill in the proper operation of equipment through practical applications before performing indirectly supervised work.

5.3 Personal Protective Equipment



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The minimum personal protective equipment (PPE) shall be explained. Instructions shall be given as to when and how specific clothing and other types of protective devices shall be worn according to the type of work performed, locations, etc.

- 5.3.1 **Compliance.** All applicable recommended practices and regulations, instructions, and warnings covering PPE shall be followed as prescribed by the original equipment manufacturer's programmed instructional material.
- 5.3.2 **Head Protection.** All operators shall wear hard hats with attached face shields.
- 5.3.3 **Eye Protection.** Suitable eye protection (adequate for the purpose and of adequate fit on the person) shall be provided to all operators of pressure water jetting equipment and must be worn within the working area. Where liquids liable to cause eye damage (see Material Safety Data Sheets) are encountered, it is necessary to use either a combination of visor and impact-resistant goggles, or a full hood with shield.
- 5.3.4 **Body Protection.** All operators shall be supplied with suitable waterproof clothing and jet-resistant PPE (i.e., foot and leg guards) having application for the type of work being undertaken. Garments shall provide full protective cover to the operator, including arms. Liquid- or chemical-resistant suits shall be worn where there is a reasonable probability of injury (see Material Safety Data Sheets) that can be prevented by such equipment.
- 5.3.5 **Hand Protection.** Adequate hand protection shall be supplied to all operators and shall be worn when there is a reasonable probability of injury that can be prevented by such equipment. (See original equipment manufacturer specifications.)
- 5.3.6 **Foot and Leg Protection.** All operators shall be supplied with waterproof boots with steel toecaps and shanks. **Metatarsal guards and leg guards shall be used by the jetting gun operators.**
- 5.3.7 **Hearing Protection.** Pressure water jetting operations may produce noise levels in excess of 90 dB(A). Suitable ear protection issued in accordance with the recommended practices of the original equipment manufacturer must be worn. Provision shall be made for regular inspection and maintenance, including daily cleaning of hearing protection devices that are of the reusable type. All personnel and operators shall receive instruction in the correct use of ear protectors such that noise exposure lies within the limits as specified by the original equipment manufacturer's instructions.
- 5.3.8 **Respiratory Protection.** A respiratory protection program shall be implemented where there is a reasonable probability of injury that can be prevented by such a program.



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5.3.9 Equipment Limitations. It should be recognized that some protective equipment may not necessarily protect the operator from injury by direct high-pressure water jet impact. Shields and guards shall be used as provided in the original equipment operator's instructions and training programs to prevent any injury.

5.4 Pre-operating Procedures

5.4.1 Planning. Preplan each job. Follow the steps outlined in the original manufacturer's instructions and programmed training materials. Personnel familiar with the item to be cleaned, the material to be cut, and the work environment shall meet with the personnel that will be performing the work and outline potential hazards of the work area, environmental problems, safety standards, and emergency aid procedures.

5.4.2 Checklist. Use the manufacturer's checklist, or listing of critical items, to ensure that the proper equipment selection is followed (see Attachment 2).

5.4.3 Dump Valve. All systems shall incorporate at least one fluid shut-off or dump device. The orifice operator must always be able to shut down the water jet by releasing pressure on the trigger, switch, or foot valve pedal.

5.4.4 Warning Barriers. Erect suitable barriers to encompass the hazard area and post signs to warn personnel they are entering a hazardous area. The perimeter should be outside the effective range of the jet wherever possible. Barriers may be of rope, safety tape, barrels, etc., as long as they give an effective warning and are highly visible.

5.4.5 Hook-ups. Hose shall be arranged so that a tripping hazard does not occur. Support hoses, pipes, and fittings to prevent excessive sway or wear, or both, created by vibration or stress on the end connections when laid on the ground, over sharp objects or on vertical runs, shall be used. Check all hoses for evidence of damage, wear, or imperfections. The check shall be made periodically during the operation.

5.4.5.1 Fittings. Clean and lubricate all fittings before installing in the system. Be sure all fittings, hoses, and nozzles are fit for the purpose.

5.4.5.2 Pre-flushing. Flush the system completely with sufficient water to remove any contaminants before installing the nozzle.

5.4.5.3 Nozzles. Remove nozzles and check all orifices for any blockage or damage, or both, or for imperfections.

5.4.5.4 Electrical Equipment. Any electrical equipment in the immediate area of the operation that presents a hazard to the operator shall be de-



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energized, shielded, or otherwise made safe. GFCIs shall be used for any necessary power hook-ups.

5.5 Operational Procedures

- 5.5.1 Work Area.** Isolate the workpieces/items to be jetted from any unprotected areas to a protected pressure water jetting area. Cutting or cleaning in place or adjacent to the installed position can be done with the necessary clearance and permission of the occupier and equipment/facility owner.
- 5.5.2 Area Limits.** Area limits applicable to the cutting or cleaning operations shall be defined by barriers and should be marked with notices to warn against access to other personnel and specific hazards present. Suitable barriers shall be an approved form of hazard warning, rope, or tape, as a minimum. Alternatively, a suitable barrier shield is acceptable at any reasonable distance. Notices should read "Danger - Keep Clear, Pressure Water Jetting in Operation - Severe Injury May Result", or other suitable wording.
- 5.5.3 Corrosive Materials.** Where there is a possibility of encountering corrosive or toxic material, the general contractor or employer or owner shall be requested to inform the person in charge of pressure water jetting of any precautions that may be necessary, including the collection and disposal of waste materials.
- 5.5.4 Work Surface.** Operators should have good access to the workpiece, safe walking and working surfaces, and secure footing. The work area should be kept clear of loose items and debris to prevent tripping and slipping hazards.
- 5.5.5 Unauthorized Access.** Prevent access by unauthorized persons into the area where pressure water jet cleaning or cutting, or both, is taking place. The area shall be secured as described in Section 5.5.2. The perimeter should be outside the effective range of the jet wherever possible.
- 5.5.6 Approaching the Operator.** Personnel having reasons to enter the pressure water jet cleaning and cutting area must wait until the jet is stopped and their presence is known. Personnel wishing to have the jet stopped shall approach a team member other than the jet operator. The jet operator shall not be distracted until the jet has been stopped.
- 5.5.7 Side Protection.** Suitably placed side shields shall be provided to safeguard personnel and equipment against contact with grit or solids removed by the jet.
- 5.5.8 Pressurizing the System.** Increase pressure slowly on the system while it is being inspected for leaks or faulty components, or both. Repair or replace components only when the equipment is properly locked out and tagged. The system shall be depressurized, shut down, and the key removed for repairs.



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5.5.9 Team Operations. In jetting operations a minimum of two persons, one at the pump and one at the orifice or gun, shall be employed at all times.

5.5.10 Supervision. All pressure water jetting operations shall be controlled by a supervisor who has been trained in accordance with the instructions of the original equipment manufacturer in all aspects of the jetting operation.

5.5.11 Number of Operators. The operators of the pressure water jetting equipment should consist of two or more operators according to the equipment being used and the nature of the job. These operators shall work as a team, with one member designated in charge. The operator of the gun or lance shall take the lead role while jetting is in progress.

5.5.12 Gun Operator. One operator from the team shall hold the lance, gun, or delivery hose with the nozzle mounted on it. That operator's primary duty is to direct the jet.

5.5.13 Second Operator. The second operator of the team shall attend the pump unit, keep close watch on the first operator for signs of difficulty or fatigue, and watch the surrounding area for intrusion by other persons or unsafe situations. If required, the operator will shut off the pressure until any unsafe acts or conditions have been corrected and it is safe to continue.

Warning: Exercise caution in shutting off the pressure rapidly, as this can cause loss of footing by the gun operator.

5.5.14 Additional Operators. Additional operators are required in the following circumstances:

- To assist the first operator with the handling of the lance if it is too long or too heavy for one person; or
- To provide communication if the lance operator is out of sight of the pump unit operator.

5.5.15 Job Rotation. The team members should rotate their duties during any job to minimize fatigue to the operator holding the lance or gun.

5.5.16 Team Leader. The team leader is responsible for basic equipment checks, the preparation of the working area for safe operation, and for obtaining a permit to work (if applicable).

5.5.17 Code of Signals. Before starting a jetting operation, the team members, one of who must be in charge, shall agree on signals to be used during the operation of the equipment.



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5.5.18 Fitness. The operator and other team members shall be capable of performing the required operations safely. All shall be capable of speaking and reading the instructions and warnings in the language of their place of work.

5.6 Single Person Operation

Single person operation is allowed where the pressure does not constitute a hazard to personnel. Single person operations are prohibited at operating pressures exceeding 1000 psig and may be deemed unsafe at lower pressures due to jobsite conditions.

(NOTE: All HAZWOPER operations are required to use the buddy system.)

5.6.1 Single Operator Guidelines. All other recommendations pertaining to team operations shall apply.

5.7 Shotgunning

5.7.1 Controls. The person operating the nozzle shall have direct control of the dump system.

5.7.2 Attendance. The pressurized system shall never be left unattended.

5.7.3 Multiple Operation. When more than one shotgunning operation is being performed within the same area, install a physical barrier or maintain adequate spacing between operators to prevent the possibility of injury from the pressure water.

5.7.4 Target Holding. Never manually hold objects to be cleaned.

5.7.5 Connection Protection. The point where the hose connects to the gun shall be shrouded by a protective device such as a heavy duty hose, shoulder guard, and the like, to prevent injury to the operator should the hose, pipe, or fitting rupture.

5.7.6 Minimum Length. When used, the minimum length of the shotgun lance extension shall be 4 feet (1.2 m) from the triggering device to the nozzle.

5.7.7 Hose Protection. Use steel-braided hoses on air-operated, fail-safe systems to keep the system from being activated by someone stepping on the hose or running over it.

5.8 Moleing or Flex Lancing

5.8.1 Control. The operator shall have direct control of the dump system.

5.8.2 Reversing. A positive method shall be used to prevent the nozzle from reversing direction inside the item being cleaned. Safety guards for this purpose shall be used.

5.8.3 Retrojets. During manual operations, the entrance to a line or pipe shall not be cleaned with a nozzle containing back jets without adequate shielding.



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- 5.8.4 **Clearance.** The clearance between the outside diameter of the hose, lance, and nozzle assembly and the inside wall of the item being cleaned shall be sufficient to allow adequate washout of water and debris.
- 5.8.5 **Pressurization.** During manual operation, insert the nozzle into the tube prior to pressurizing. Conversely, depressurize the system before removing the nozzle from the tube.
- 5.8.6 **End Identification.** Hoses shall be conspicuously marked no closer than 24 inches (600 mm) from the nozzle to warn the operator of the nozzle location.
- 5.8.7 **Nozzle Support.** Where the length of the nozzle and rigid coupling is less than the inside diameter of the pipe, a length of rigid pipe of not less than the diameter of the pipe being cleaned shall be fitted directly behind the nozzle, or a suitable safety shield shall be provided to protect the operator. This is to prevent the nozzle from turning around 180 degrees and doubling back towards the operator. Specific safety guards shall be used for this purpose.

5.9 Ridge Lancing

- 5.9.1 **Control.** The operator inserting the nozzle shall have direct control of the dump system.
- 5.9.2 **Clearance.** The clearance between the outside diameter of the lance and nozzle and the inside wall of the item being cleaned shall be sufficient to allow adequate washout of water and debris.
- 5.9.3 **Pressurization.** When under manual operation the nozzle shall be inserted into the tube prior to pressurizing. Conversely, the system shall be depressurized before removal of the nozzle from the tube, unless proper shielding is provided.
- 5.9.4 **Shields.** When lancing tubes with a rigid lance, a guard shall be installed around the lance to prevent a lance nozzle from being inadvertently withdrawn and causing injury.

5.10 Additives

Any water additive (chemical, detergent, or solid particle) shall be used in accordance with the manufacturer's recommendations.

5.11 Proper Operation

- 5.11.1 **Start-up.** Do not start the pump unit and bring it up to pressure unless each team member is in his designated position, the nozzle is held in or directed at the workpiece, and the lance or gun is securely held.



- 5.11.2 Adjustments.** Apart from operational procedures, no attempt shall be made to perform maintenance or adjust any nut, hose connection, fitting, etc., while the system is under pressure. Stop the pumps, discharge any pressure in the line, and remove the key prior to making any such adjustment. Take care to release the pressure in the dry shut-off gun and the line when the unit is switched off.
- 5.11.3 Equipment Malfunction.** If for any reason the water flow does not shut off when the trigger or foot pedal is released, cease work until the item has been serviced, repaired, or changed by properly trained personnel. Equipment shall be shut down, depressurized, and the key removed prior to making repairs.
- 5.11.4 Reaction Force.** The operators shall be allowed to experience the reaction force of the jet progressively until the required operating pressure is reached. Use the lowest pressure compatible with the work to be done. Do not adjust the pressure without the operator being aware of this operation.
- 5.11.5 Effect of Line Pulses.** Operators shall be made aware of the reactive effect of pressure in the line that can transmit a severe jolt to the operator when the dump valve or dry shut-off valve is operated. To minimize this effect, keep total hose lengths as short as possible. Damping devices shall be introduced into the system in accordance with the original equipment manufacturer's designs or instructions.
- 5.11.6 Thermoplastic Hoses.** Thermoplastic hose shall not be used for water jetting unless specifically designed for this purpose.
- 5.11.7 Operator Position.** While operating, the team members shall be safely positioned. Stop the jetting if any person encroaches into the working area.
- 5.11.8 Work Stoppage.** Stop work in the following cases:
- In the event that leaks or damage become apparent;
 - If any person becomes aware of any change in conditions or of any hazards being introduced or existing;
 - If plant or work alarms are sounded; or
 - If any of the practices in this procedure are not being followed.
- 5.11.9 Hose Protection.** Protect all hoses from being run over and crushed by vehicles, fork lift trucks, and the like.
- 5.11.10 Back Thrust.** The back thrust from a linearly directed jet can be calculated from the equation:
- $$B = 0.052 Q(P)^{0.5}$$
- where:
- B = Back thrust, lb(kg)
 - Q = Flow rate, gal/min (or metric equivalents), and
 - P = Jet pressure (psi)



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It is not recommended that one person be required to withstand a back thrust of more than one third of his or her body weight for any extended period of time.

5.12 Use of Lances and Nozzles

- 5.12.1 Lances.** Lances that are rigid or semirigid, having nozzles fitted to them with any combination of forward, backward, or 90 degrees angle jets, shall be used with either a dump system or dry shut-off control valve. When a flexible lance or nozzle mounted on a hose is in use, do not operate the jet at pressure unless the nozzle is properly positioned inside the workpiece or the operator is protected by screens or proper shielding from the rear-facing jets. If necessary, clean the lead-in to the workpiece by other methods.
- 5.12.2 Flexible Lances.** Flexible lances, used to clean pipes where the inside diameter of the pipe is not small enough to prevent the lance from turning back on itself, shall have a piece of rigid straight tube, slightly longer than the diameter of the pipe, fitted immediately behind the nozzle to prevent this from happening.
- 5.12.3 Distance Indicator.** When using an assembly that allows the nozzle to enter the workpiece with restricted visibility, clearly mark the lance, hose, or floor in a manner that enables the operator to judge how far the nozzle is in the workpiece before pressure is applied and, conversely, so that pressure is released before the apparatus is completely withdrawn from the workpiece.
- 5.12.4 Lance Length.** The length of a rigid lance or combination of lances shall be such that the operator can maintain control at all times.
- 5.12.5 Jet Pressure.** Operators shall select the nozzle and minimum operating pressure to allow effective and efficient jetting.
- 5.12.6 Improper Use.** Should an operator enter a manhole or access port for any purpose (with the jetting machine turned off), the hose shall not be used to support his weight when climbing up or down.
- 5.12.7 "T" Pieces.** A "T" piece or nozzle carrier "T" (devices for producing two equal and opposite jets at the end of the lance and at right angles to the normal flow) shall be inserted into a tube or vessel, or between two surfaces, before the system is pressurized. This is necessary to ensure that should one jet be larger than the other, or one jet become blocked or partially blocked, the operator of the lance will not be spun out of control. When a "T" piece is used to provide a balancing jet on a long lance to clean a single surface, it is not always possible to check for equal thrust from both jets in the above described manner; therefore, check these lances by progressive pressure increases.

Caution: This shall also apply to any form of multi-jet nozzle having a radial component.

5.13 Health and Safety Plan



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The HS professional for the job shall include appropriate assessment and hazard control information in the project HASP.

6.0 EXCEPTION PROVISIONS

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

7.0 CROSS REFERENCES

ASTM E-1575-93, *Standard Practice for Pressure Water Cleaning and Cutting*
Water Jet Technology Association's *Recommended Practices for the Use of Manually Operated High Pressure Water Jetting Equipment*

8.0 ATTACHMENTS

1. Responsibility Matrix
2. Reservice and Operational Checklist for Pressure Water Jet Cleaning and Cutting Equipment



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ATTACHMENT 1
PRESSURIZED WATER CLEANING AND CUTTING EQUIPMENT

Responsibility Matrix

Action	Procedure Section	Responsible Party			
		Location Manager	Site Supervisor	Project Manager	HS
Provide training	5.2	X		X	
Job set-up/checklist	5.4.2		X	X	
Incorporate requirements in HASP	5.13			X	X



**ATTACHMENT 2 - RESERVICE & OPERATIONAL CHECKLIST FOR PRESSURE
 WATER JET CLEANING AND CUTTING EQUIPMENT**

The following information shall be verified before starting work:

ITEM #	DESCRIPTION	⊗
1.	Date (Print): _____	
2.	Location: _____	
3.	Equipment being cleaned (Print): _____	
4.	Is the area, including the other end of unit being cleaned, properly secured?	
5.	Have precautions been taken to protect all electrical equipment?	
6.	Is there any hazard to personnel resulting from damage to the equipment such as release of corrosive chemicals, flammable liquids, gases, or the like?	
7.	Are all fittings of the correct pressure rating?	
8.	Are all hoses of the correct pressure rating?	
9.	Are all fittings in good operating condition?	
10.	Are all hoses in good operating condition?	
11.	Are all nozzles free from plugging and in good operating condition?	
12.	Have precautions been taken to prevent line-mole reversal?	
13.	Is the filter on the pump suction clean and in good operating condition?	
14.	Is there an adequate water supply?	
15.	Have precautions been taken against freezing?	
16.	Do all personnel have proper personal protective equipment for this job?	
17.	Do all personnel have proper training for this job?	
18.	Are all personnel qualified to perform this work?	
19.	Has the complete hook-up been flushed and air removed from the system prior to installing the nozzle?	
20.	Has hook-up, including pipes, hoses, and connections, been pressure tested with water at the maximum operating pressure?	
21.	Is the dump system operating properly (will it dump when released)?	
22.	Are all control systems operational?	
23.	Is the location of emergency medical aid known?	



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.

2.0 TABLE OF CONTENTS

- 1.0 Purpose and Summary
- 2.0 Table of Contents
- 3.0 Responsibility Matrix
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 - 5.2.11 Protection from Loose Rock or Soil
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5.2.13 Fall Protection

- 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

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;



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- 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



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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% O₂) 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.



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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

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



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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



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ATTACHMENT 1
EXCAVATION AND TRENCHING

Responsibility Matrix

Action	Procedure Section	Responsible Party					
		Employee	Supervisor	Registered Professional Engineer	VP 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				
Determine 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: _____

		☑		
		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				
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: <i>One or more visual tests are required for each classification and each time conditions change.</i>		
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:	
Water condition:	a. evidence of surface water c. depth of water table :	b. layers sloped towards excavation b. water seeping from sides
7. Vibration present:	a. area adjacent to excavation	b. area within excavation

II. MANUAL TESTS- <i>One or more manual tests are required for classification and each time soil conditions change.</i>	
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: <i>(These tests are to be run on a large clump of material as soon as it is excavated.)</i>	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: <i>(Saturated Soil Needed)</i>	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: <i>(A dry soil sample 1" thick X 6' diameter is needed)</i>	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.

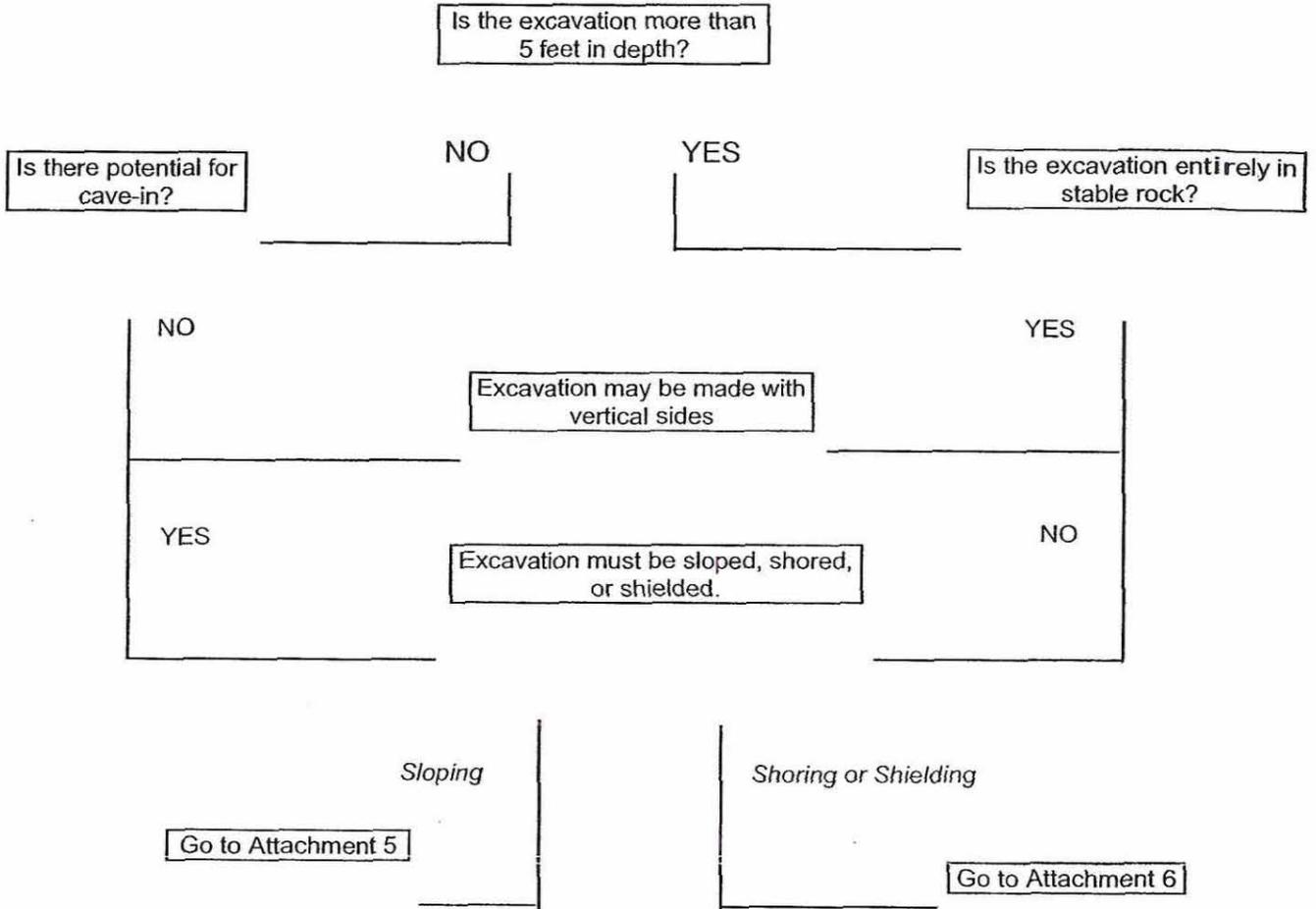
SOIL CLASSIFICATION: Type A Type B Type C Stable Rock Other _____

COMPETENT PERSON: _____ _____ _____ _____ _____

Print Name Signature Date



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

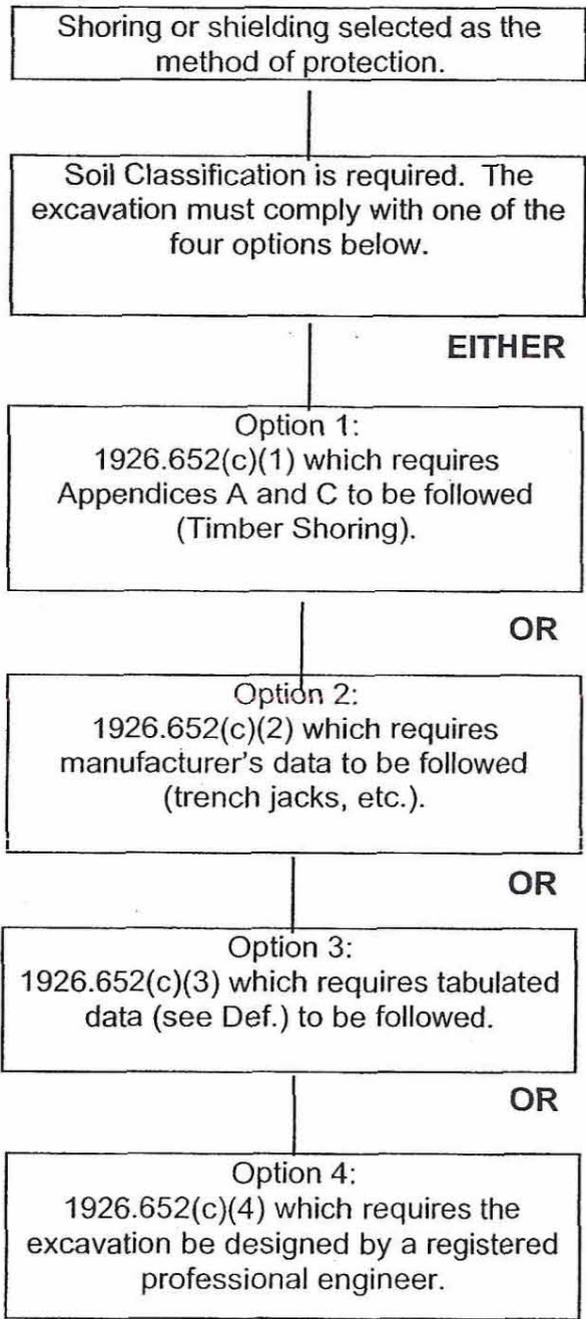
Option 3:
1926.652(b)(4) which requires the excavation be designed by a registered professional engineer.

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**





PROCEDURE

Subject: UNDERGROUND/OVERHEAD UTILITY CONTACT PREVENTION

1.0 PURPOSE AND SUMMARY

This procedure prescribes the steps to be followed in order to prevent accidents involving the contact with or damage of underground/overhead utilities. The company provides the operational and training practices required to safely execute work where underground/overhead utility hazards may exist.

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 Preliminary Requirements
 - 5.2 Operating Requirements
 - 5.2.1 Underground Utilities Requirements
 - 5.2.2 Overhead Utilities Requirements
 - 5.2.3 Other Requirements
 - 5.3 Training Requirements
 - 5.4 Incident Reporting Requirements
 - 5.5 Local Jurisdiction Requirements
- 6.0 Exception Provisions
- 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. Also, see Attachment 1 for matrix of responsibilities.
- 3.2 **Action/Approval Responsibilities**

The Responsibility Matrix is Attachment 1.



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4.0 DEFINITIONS

Company

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

Competent Person – Drilling Oversight (CPDO) Training

When drilling activity is to take place the Shaw's Field Team Leader (FTL) must have successfully completed Shaw's in-house training pertinent to competent person drilling oversight (CPDO Training). The FTL is required not only to have successfully completed CPDO training but to have an appropriate educational background, coupled with field experience and, the authority to make changes to correct deficiencies, or to stop the job if need be.

NOTE: The CPDO training requirement will become effective September 1st 2006. This means that every FTL will have successfully completed CPDO Training prior to August 31, 2006.

Competent Person - Excavation and Trenching

A person who is capable of identifying existing and predictable hazards in the excavation/trenching work area and who has the authority to take prompt corrective measures to eliminate them. NOTE: Excavation/Trenching training is required when trenching/excavation hazards are present/anticipated (i.e. spoil piles, use of three foot (3') or larger diameter augers, or other circumstances) but only recommended when trenching/excavation hazards are not present/anticipated.

Excavation

Any manmade cut, cavity, trench or depression in an earth surface formed by earth removal.

Underground Utility

Any active or inactive subsurface or buried structure that is or was designed to service a public or private facility. These may include, but are not limited, to the following:

- Electric power lines
- Natural gas lines
- Telephone lines
- Telephone cables and fiber optic lines
- Water lines
- Steam and pneumatic lines
- Sewer lines
- Drain lines
- Underground storage tanks
- Septic tanks
- Process or product lines



Overhead Utility

Any active or inactive overhead structure that is or was designed to service a public or private facility. These may include, but are not limited, to the following:

- Overhead power lines
- Overhead telephone lines
- Overhead fiber optic lines
- Overhead cables
- Overhead supports
- Overhead piping
- Traffic lights
- Utility Bridges

One Call Center

Each state has a One Call, Dig Safe, Miss Dig, etc. dial-in number for requesting mark-out of buried public utilities, such as gas lines, electrical lines, telephone/cable lines, sewer lines, and water lines. This number is typically called a minimum of 72 hours prior to subsurface activities depending on the particular state the work will be conducted. The One Call Center will notify the local public utilities for a line location mark-out for the particular location. The individual public utilities must locate and mark-out the utilities upon request. In most cases, the markouts will not be performed on private property. A confirmation number is established and confirmation report generated and submitted to the requester.

As-Built Drawings

As-built drawings are blueprints that are usually obtained from the facility owner or client. They show original buried utilities and any modifications which have been made.

Private Utility Locating Service

A private utility locating service is a firm established to locate underground utilities using specialized locating equipment, such as ground penetrating radar location devices or radio transmitter type utility locating equipment.

Fiber Optic Service Lines

Fiber optic service lines are communication lines that are buried underground. When damaged, these lines are very expensive to replace. Fiber optic companies routinely provide on-site supervision, if requested. The company encourages this practice.

Field Team Leader (FTL)

The FTL is the person with whom the responsibility of the execution of the field work resides. This person may be the project manager, senior geologist, staff geologist, etc. This individual must have the sufficient experience, training and, field knowledge to ensure all site configuration information is collected and analyzed.



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Site Survey

A site survey is an inspection of the work site to look for signs of other buried utilities that may not be indicated through as-built drawings or through utility locating services. The survey typically involves inspection of overhead electrical services, inspection of basements, utility rooms, garages, etc., for signs of old electrical conduits or fuel/water/septic lines. The FTL must contact the appropriate site representative to provide any additional information that may be marked on the as-builts.

5.0 TEXT

Underground/overhead utilities may be encountered at any job site. The guidelines established in this procedure were developed to help identify and mitigate the potential hazards associated with this type of work.

Any subsurface activity is subject to the underground utility locating regulations for the state where the work will be conducted. This procedure authorizes the use of state, local or other required practices, but requires that the practice which most limits the liability to Shaw for damaged utilities is utilized. No variance is required under these circumstances, but the project-specific Health and Safety Plan (HASP) or work plan shall fully document these more protective procedures.

5.1 Preliminary Requirements

The Project Manager or designee must visit the site to mark the boring/excavation locations so they can be clearly identified and then contact the One Call Center for the state in which the work is to be performed in to formally request a utility mark out at the particular work location(s).

Prior to assignment of work the Field Team Leader (FTL) will assure that all affected employees receive an overview of the hazards of encountering underground/overhead utilities. The FTL is responsible to review this procedure, the work practices to control these hazards, and the roles and responsibilities of each worker with the work crew. This procedure and other requirements that may be contained in the site specific HASP shall be reinforced during daily tailgate safety meetings.

5.2 Operating Requirements

5.2.1 Underground Utilities Requirements

Prior to conducting any project site activities, the FTL must ensure that all existing underground/overhead utilities in the work area are located per the state or local mark-out protocols. Documentation of utility mark-out must be completed using the Utility Mark-out Documentation form (Attachment 3). No boring/excavation work is to be performed until all utility mark-outs are verified.



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While on-site, the FTL must conduct a site survey to search for signs of other buried or overhead utilities. This will include areas such as garages, basements, etc. The results of such surveys must be documented on the Utility Markout Documentation form (Attachment 3). The property owner, client, or facility operator must be consulted on the issue of underground utilities. All knowledge of past and present utilities must be evaluated prior to conducting work..

After all mark outs have been completed, and the boring locations have been accepted by the FTL prior to drilling, each borehole location must be hand dug to a minimum of five feet bgs.

If the investigation requires boreholes in an area not covered by a municipal one call system (on private property), then the FTL must utilize appropriate geophysical techniques, hand held utility locating devices, a private utility locating firm, or other approved method to determine the locations of underground utilities. The current accepted geophysical methods for the investigation and location of buried utilities include: Ground Penetrating Radar (GPR), Time Domain and/or Frequency Domain Electromagnetic methods, Magnetometer, and Inductive/Conductive Radio-Magnetic methods. The geophysical methods can be very useful for locating buried utility lines in areas where hand digging is not possible or practical. However, it must be noted that these methods do have limitations that are a function of soil conditions, depth of investigation, imaging resolution, or other factors.

If it is determined that a non-invasive geophysical investigation may be needed, assistance with selecting the appropriate method(s) can be obtained from the Shaw E & I Science and Technology Division, Geophysics & Mapping Group, and a variance request must be submitted and approved prior to the inception of intrusive field activity.

Should the local geology be prone to refusal or should there be any other reason the boring location cannot be cleared to a minimum of 5' bgs then the appropriate aforementioned alternative methods should be utilized to ensure the boring location is clear of utilities 5' bgs, and a variance request must be submitted for review.

5.2.2 Overhead Utilities Requirements

Overhead utility locations must be marked (warning tape, flags, etc.) where heavy equipment, or other equipment, has the potential for contacting overhead utilities. Conduct a site inspection on a daily basis to determine where activities will take place and the location of overhead utilities and overhead obstructions. Once they have been 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 all site personnel during the tailgate safety meeting.



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Maintain at least 10 feet from overhead power lines, up to 50 kV. For voltages over 50 kV, add 0.4 inches per kV to obtain the safe distance between equipment and power lines. If voltage is unknown, remain at least 20 feet from overhead power lines.

As a precaution, a spotter must be used at all times when it is possible to violate the minimum distance requirements for overhead utilities. If contact is deemed unavoidable, consult with the client and the respective health and safety representative to evaluate the area to determine if the particular overhead utility can be removed prior to engaging in the activity.

5.2.3 Other Requirements

Only hand digging is permitted within 3 feet of underground high voltage, product or gas lines. Once the line is exposed heavy equipment can be used but must remain at least 3 feet from the exposed line.

Only experienced, demonstrably proficient equipment operators will be used to operate such heavy equipment as drill rigs, backhoes, front-end loaders, cranes, etc.

Due the sensitivity and costs associated with damage to fiber optic cables the FTL must have documented verbal contact and an agreement with the fiber optic company for all work within 50' of the fiber optic cables. Subsurface investigations near fiber optic cables are more fully discussed in site specific HASP's. Contact your division Health and Safety Professional for specific information on this subject.

5.3 Training Requirements

Competent Person Drilling Oversight (CPDO) Training

The FTL (at least one onsite Shaw person will be performing the drilling oversight) will be required to have successfully completed the approved internal Competent Person Drilling Oversight (CPDO) training.

Prior to assignment of work the Field Team Leader (FTL) will assure that all affected employees receive an overview of the hazards of encountering underground/overhead utilities. The FTL is responsible to review this procedure, the work practices to control these hazards, and the roles and responsibilities of each worker with the work crew. This procedure and other requirements that may be contained in the site specific HASP shall be reinforced during daily tailgate safety meetings.

Trenching/Excavation Training

The Field Team Leader or at least one onsite Shaw employee will be required to have successfully completed Trenching/Excavation training prior to the inception of site work activity when trenching excavation hazards (i.e. spoil piles, use of 3' diameter augers, or anytime similar hazards are present) are present/anticipated. NOTE: This training is now recommended rather than required when trenching/excavation hazards are NOT anticipated/required



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5.4 Incident Reporting Requirements

Employees are required to immediately report to their direct supervisor any overhead or underground utility contact incident, or near miss incidents. Any supervisor (but preferably the supervisor directly responsible for the involved employees) with first-hand knowledge of an incident is required to investigate the incident. The Project Manager and respective Health and Safety Manager or Representative shall be informed of the incident immediately.

At a minimum, the incident investigation will require completion of the incident investigation report and General Liability Property Damage and Loss Report form found in H&S Procedure HS020.

In addition, Attachment 5 provides a "Tip Sheet" to help properly assess and investigate the incident causes and recommendations or requirements.

5.5 Local Jurisdiction Requirements

Where local jurisdictions or clients have established requirements different from those in this procedure, the practice which most limits the liability to Shaw for damaged utilities shall be utilized. No variance is required under these circumstances but the project-specific Health and Safety Plan or work plan shall fully document the alternate procedures.

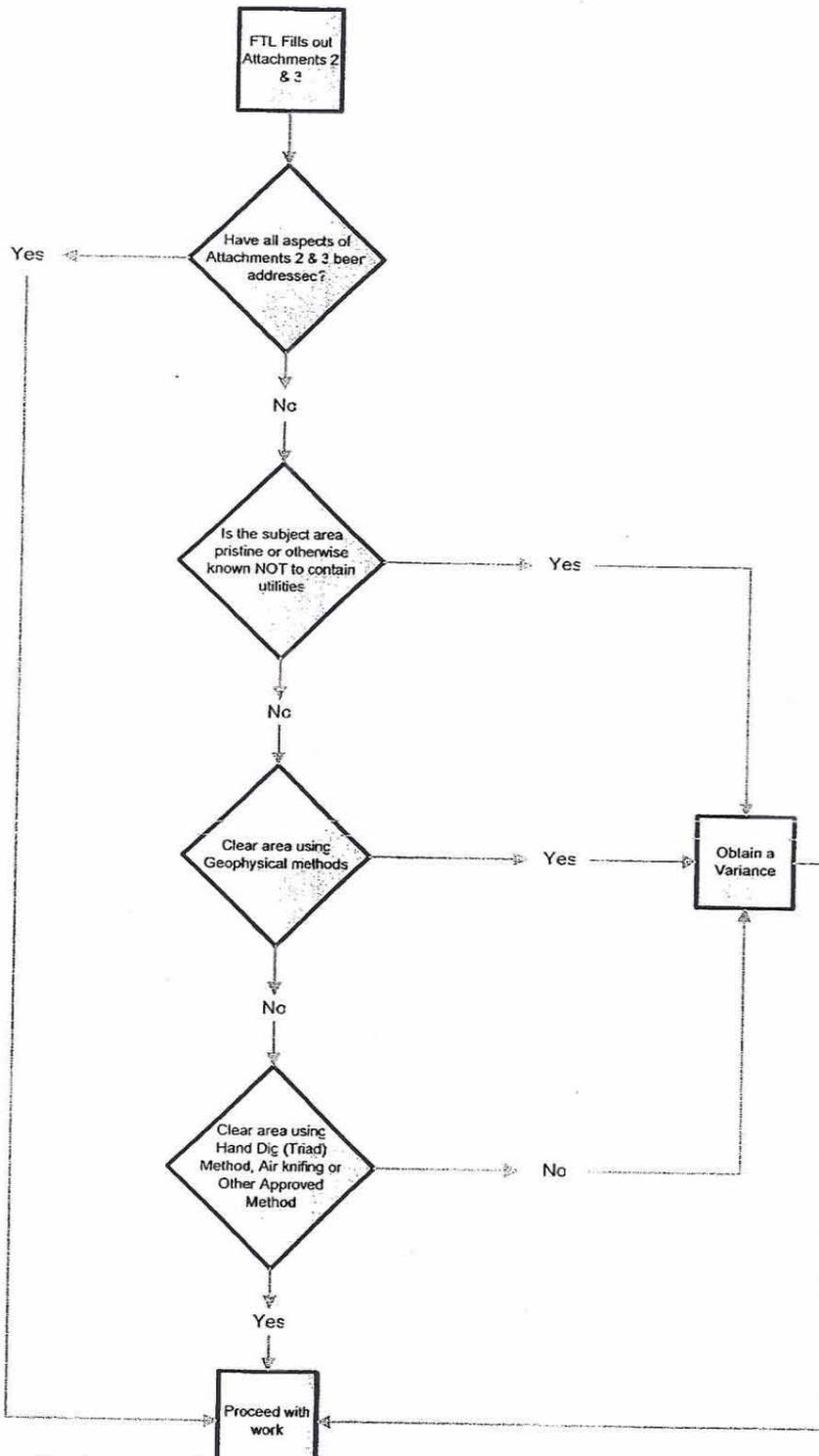
6.0 EXCEPTION PROVISIONS

Anytime a minimum of a 5' clearance cannot be obtained by either hand digging or by using geophysical means, the FTL must obtain a variance from the Regional VP (or equivalent level such as Operations Director for Federal Business Line) or designee to proceed with drilling operations in that area. This would include an initial verbal variance documented in the field log followed up by a written (email) approval from either the Regional VP (or equivalent level or title) or designee. The record of communication will be noted in the field log for the project and, a record of the approval or denial will be placed in the project file.

A variance form can be obtained in HS 013. A flowchart to assist one in determining how and when a variance should be obtained can be found immediately following this section.



HS 308 Flow Chart





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7.0 CROSS REFERENCES

HS013	Health and Safety Procedure Variances
HS020	Accident Prevention Program: Reporting, Investigation, and Review
HS050	Training Requirements
HS307	Excavation and Trenching

8.0 ATTACHMENTS

1. Responsibility Matrix
2. Pre Drilling Checklist
3. Utility Markout Documentation
4. Underground Utility Hits → Tip Sheet for Incident Investigations
5. Frequently Asked Questions



**ATTACHMENT 1 - UNDERGROUND/OVERHEAD UTILITY CONTACT PREVENTION
 Responsibility Matrix**

Action	Procedure Section	Vice President	Project Manager	Field Team Leader	HS Representative
Project-specific HASP or Work Plan shall document the practices to be used at a particular site.	1.0		X	X	X
Contact the One Call Center for mark out of utilities at the site	5.1		X		
Complete Utility Markout Documentation Form	5.2		X	X	
As-built drawings shall be reviewed	5.2			X	
Only experienced demonstrably proficient equipment operators will be used to operate such heavy equipment as backhoes, front-end loaders, cranes, etc.	5.3			X	
Provide training*	5.3				
Incident Investigation and Reporting	5.4		X	X	X
Exceptions to Procedure	6.0	X	X	X	X

*Provided by Shaw's Training Department



ATTACHMENT 2 - PRE - DRILLING/BORING/GEOPROBE Checklist

Purpose: This form is designed to help the FTL make decisions drilling/boreholing/geoprobng around underground/overhead utilities.

DATE _____ PROJECT NAME/NUMBER _____

Field Team Leader Name: _____

DURATION/SUMMARY OF WORK TO BE PERFORMED: _____

Consideration	Check	Check	Explanation	Initial
Has the state one-call been contacted?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
Are any as-built drawings available? If so, do they show any utilities?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
Has a visual inspection of the work area(s) been completed?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
If one-call not available has a private locating service or Shaw S&T group been contacted?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
Were any utilities identified through private locating service? If so, indicate on site drawings.	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
Are there any fiber optic cables within 50 feet of hole locations?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
If fiber optic cables are within 50 feet has an agreement with the fiber optic company been established?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
Can a test borehole be advanced by hand digging, probing, post hole digging, and/or air knifed to 5 feet bgs?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
If hand digging, probing, post hole digging, and or air knifing to 5 feet bgs is not possible, can a non-invasive geophysical investigation be conducted? If not, why?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
Are you comfortable with approving this authorization?	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
Other considerations:				



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ATTACHMENT 3 - UTILITY MARK-OUT DOCUMENTATION

Project Name: _____ Location: _____
 FTL Name: _____ Date: _____
 Utility Called: _____ Confirmation #: _____
 Subcontractor: _____ Task/Activity: _____
 County of work: _____ Municipality of work: _____

Before work is done on any site, contact the appropriate local utility locating service (One Call, Miss Dig, Uloco, etc.) or a local utility contractor to have sub grade utilities marked. NOTE: Boring locations to be placed not in the public right of way are typically not marked out by the public utility mark out, and a private utility locate service must be engaged. Indicate to the utility locator the nearest intersecting street for the site: _____ Confirmation No: _____

List utility firms (public and private) and the utility they will mark.

Utility Marker Emergency Telephone Numbers			
Major Utilities Marked by Color Code			
Name of Utility Company	Utility	Color Code	Emergency Telephone Number
	Water	Blue	
	Gas	Yellow	
	Electric	Red	
	Telephone/ Cable/ Communication	Orange	
	Sewer	Green	

"ALL UNDERGROUND UTILITIES MAY NOT BE LOCATED BY THE LOCAL UTILITY SERVICE". Accordingly, you must list other known utilities in the area that the "One Call" service will not contact:

Attach photos of the area prior to placing boreholes.
 Take photos of the area indicating minimum 5' hand dig, post hole dig, probe, GPR or other:
 NOTE: For any borehole, should 5' minimum clearance not be obtained, you must contact Business Line VP or equivalent (Operations Director or other on the Federal Business Line) and obtain a variance.



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Completed by: _____
Name Signature Date

ATTACHMENT 3 – UNDERGROUND UTILITY HITS TIP SHEET FOR INCIDENT INVESTIGATIONS

1. Location of the incident.
2. The time of day the incident occurred.
3. What type of utility was hit?
4. How deep was the line hit (in feet)?
5. Who called Designated Locator Service?
6. Note the "One Call" number on the Incident Investigation Follow-up report.
7. Attach the "One Call" record keeping documentation.
8. Were mark-outs completed by the utilities? If so, please identify.
9. Were mark-outs legible at the site?
10. Was the mark-out of the line that was hit accurate?
11. Was the mark-out misinterpreted?
12. Is there a utility damage sheet attached to the Incident Investigation Follow-up Report?
13. Have there been any faults or oversights by any 3rd party? If so, is it documented on the Incident Investigation Follow-up Report?
14. Did the FTL interview the property owner/manager prior to the incident?
15. Was pre-screened by hand digging 5 feet?
16. Were any supplemental utility locator devices used? If so, did we obtain them? If so, were they used on site?
17. Were there blueprints/as built plans available? If so, did we obtain them? If so, were they used on site?
18. Who is paying for the repairs?
19. Please define the total hours and cost estimate/impact to address the utility damage incident:

_____ Site time in hours (not billed to the job)
_____ PM time hours (not billed to the job)
_____ H&S time in hours (not billed to the job)
_____ BLM Time in hours (not billed to the job)
_____ Rework/non-billable time (estimate)
_____ Subcontractor rework/non-billable costs (estimate)
_____ Repair costs to company (estimate)
_____ Repair cost to customer (estimate)

20. Has the FTL completed Shaw's in-house CPDO training?
21. Has the FTL completed trenching/excavation training?
22. Is he/she current with the OSHA 40 hour and 8 hour refresher? If so, what are the dates of the training?
23. Who was the Site Safety Officer on the job site?
24. Does he/she have OSHA 8 hour supervisor training? If so, what are the dates of the training?
25. What was the name of the drilling subcontractor that was on site?
26. Have we researched the training background for this vendor?
27. Was a JSA performed at least once during the day that covered utility contacts and associated hazards?
28. Does this vendor have approved status?
29. Was there a tailgate safety meeting that took place?
30. Were utility mark-outs addressed at the tailgate safety meeting?
31. Were there any markings nearby the "hit" area?



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ATTACHMENT 5 – Frequently Asked Questions (FAQs)

During the roll-out of this revision of HS 308 a variety of questions/comments/concerns arose. These concerns have been put in the form of most frequently asked questions (FAQs) and their respective responses. These FAQs will clear up misunderstanding pertaining to this procedure, and provide valuable information that will help our workforce have a better understanding of how this procedure should be implemented. Please review the FAQs below:

- 1. No other competitor of Shaw has felt the need to do anything as extreme as this procedure to ensure minimization of utility hits. Instituting this procedure will put us out of business.*

Response: After thorough review of claims and incidents involving drilling activities and underground utilities, the committee believes that our business/client needs are best served by adopting this policy. And that the likelihood of being put out of business is much greater from continuing to do business the way we currently do it than by adopting this improved policy. The committee realized that 100% adherence to this procedure at all work sites is likely not possible. For those cases where legitimate reasons exist for non-compliance, the committee realized that an effective responsive (variance) system must be in place. The committee believes that the variance procedure, as stated in the policy, should address the exceptions as they occur.

The Committee is not aware of any specific ASTM or true “industry standard”. However, the committee is aware that best practices can vary tremendously and many times are client dependent. For example one extremely large Shaw client requires that we continuously probe. On the other end of the spectrum some clients look completely to Shaw for guidance in these matters.

- 2. Our clients want us to do the work but do not wish to pay the additional fees involved with this new procedure. Could we offer them a two tiered pricing, one to do it the old way, and one to do it the new way?*

Response: The committee believes that contacting an underground utility of any type, no matter who is at fault or who ultimately pays for fixing, the outcome is a “black eye” for all involved. When these events occur, even if Shaw is not at fault, the committee believes that continued good client relations, and the potential for obtaining future business lessens as utility hits/incidents occur. This procedure is designed to minimize health and safety risks to our workers AND to mitigate liability to Shaw. Receiving the necessary compensation for the precautionary measures outlined in the procedure would be expected, and should be itemized in the initial proposal including a statement as to what will specifically be done in the field to mitigate risks relative to underground utilities and WHY Shaw believes these steps are necessary. However, if the client is willing to assume the entire liability resulting from “hitting” an underground utility, the contract should be written to reflect this

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and a variance would be in order. Keep in mind that Shaw cannot allow a client's desires to take on liability to affect the health and safety of workers. No matter what the client desires might be, Shaw would still expect the basic procedures to be followed for health and safety purposes. The training though yet to be finalized will provide project manager's examples of wording to be used in proposals and contracts.

3. *Hand digging to 5' is impossible during frost conditions in Minnesota, Wisconsin and many northern areas. How should this be addressed?*

Response: When conditions present themselves that do not allow for hand digging each borehole, other methods must be used for clearance and a variance must be obtained. The alternative methods include a range of non-invasive geophysical survey techniques designed specifically for locating buried utilities, pipelines, tank (UST), and other buried objects that can interfere with drilling. These non-invasive geophysical methods are suggested and mentioned in the procedure.

4. *What if the field crew runs into refusal during hand dig clearance?*

Response: If refusal occurs and moving to an alternate spot presents the same problem, hand digging may not be possible as mentioned in #2 above. When conditions present themselves that do not allow for hand digging each borehole, other methods must be used for clearance and/or a variance must be obtained. Of course, we expect that the dig safe folks to be contacted, and that a private locating service be utilized if available. Should a private locating service not be available, we can use trained internal sources.

The alternative methods include a range of non-invasive geophysical survey techniques designed specifically for locating buried utilities, pipelines, tank (UST), and other buried objects that can interfere with drilling. The current accepted geophysical methods for the investigation and location of buried utilities include: Ground Penetrating Radar (GPR), Time Domain and/or Frequency Domain Electromagnetic methods, Magnetometer, and Inductive/Conductive Radio-Magnetic methods. These non-invasive geophysical methods are suggested and discussed in the procedures. The geophysical methods can be very useful for locating buried utility lines in areas where drilling and digging are not possible or practical, but these methods do have some limitations that are a function of soil conditions, depth of investigation, and imaging resolution.

If it is determined that a non-invasive geophysical investigation may be needed, assistance with selecting the appropriate method(s) can be obtained from the Shaw E & I Science and Technology Division, Geophysics & Mapping Group. Of course, it is expected that the "dig safe" folks will be contacted, and that a private utility locating service be utilized when appropriate (utility location method is known to be feasible), and if available. Should a private locating service not be available, we can use trained internal Shaw E & I personnel resources to perform utility line location work. Finally, if the Project Manager has determined that a variance to the procedure is justified, a variance request should be submitted for review.



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5. *Why is trenching/excavation training required for putting in Geoprobe® boreholes? This seems like tremendous overkill.*

Response: The committee believes that, in general, trenching/excavation training is a good educational tool that promotes overall health and safety awareness and provides important information/techniques for our field staff. Trenching/excavation training provides insights into fall hazards, spoil pile placement, and many other related safety issues. Many of our drilling jobs have involved oversized auger bits (3' in diameter) where a large deep borehole is created. The committee agrees that when the diameter of the borehole lessens (i.e. use of a Geoprobe®), the impact of trenching/excavation training decreases. Trenching excavation training is now a requirement only when large boreholes are created or other hazards as mentioned above are present, but only recommended training when Geoprobe® or similar equipment is being used and the result is trenching excavation type hazards do NOT exist. NOTE: Specific training pertinent to drilling/Geoprob®/boring (CPDO training) will be provided and will be mandatory. Additionally, CPDO and trenching / excavation training are both required on projects where 3' or larger diameter boreholes are to be drilled.

6. *Are there any training requirements besides trenching/excavation training?*

Response: The committee evaluated a need for training specific to the HS 308 policy (drilling) and solicited the assistance of the training department and certain operations employees to develop CPDO training. This CPDO training includes basic steps needed to be taken from call the dig-safe number, private utility searches, geo-physical capabilities, probing, hand augering, air knifing, water pumping/knifing, hand digging and others.

7. *Hand diggings creates heat stress, tripping hazards, back injuries, and other hazards and is unnecessary.*

Response: The committee did not envision using a spade and a strong back to dig various 5' holes at the field site. The committee does envision using an air knife, water knife, probe, or other method rather than a hand shovel. The committee understands that not all methods may be acceptable in all states, municipalities or to all clients. The committee was also aware that when all else fails one could consider using a 1" diameter stainless steel auger placing 5' bgs hand borings in a triangular pattern where the auger bit could be placed in between these small hand borings. The committee envisions this theme and methodology to be expanded within the upcoming training. Additional information on augering techniques will be provided in the specific training (CPDO) mentioned above.

8. *I need to put borings in pristine farmland next door to a contamination zone. There are no and have never been any utilities in this area. What should I do?*

Response: Once you go through the proper utility locate procedure and are confident that no utilities



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exist in the subject area, you need to obtain a variance. This would also hold true for pristine forest preserves, wildlife refuges, or other areas not affected by utilities.

9. *Who needs to sign off on a variance?*

Response: Variances are signed by the Area Vice President (or designee, which may be delegated to the BLM for each office) along with the Project/Program Manager/Director. When we know in advance that HS308 cannot be adhered to, one should make plans to get a formal variance approval and appropriate paperwork developed two weeks prior to field activity. Variances can also be obtained when field conditions arise that make adherence to HS308 impossible. The variance can be obtained via cell phone in the field with the PM and appropriate management with the outcome noted in the field logbook followed up by an appropriate e-mail. This e-mail should be kept in the project file as proof of variance approval. It is recommended that variances be obtained as soon as it is known that they will be required.

10. *What constitutes a "probe"? I assume a Geoprobe® is not valid?*

Response: A Geoprobe® is NOT a valid probe in that Geoprobess® have caused damage to sewer lines and other utilities. Probes are typically made of a fiberglass-like material that have a pointed end but will not damage subsurface utilities and allows for the field staff to sense if underground items are encountered.

11. *Under 5.1, is a subcontractor a designee?*

Response: Although a subcontractor can make arrangements to contact dig safe and more, Shaw must ensure that the sub has, in fact, done what they had agreed to do. It should be remembered that typically on drilling projects, from many of our customer's perspective, the liability remains with Shaw, and they will look to Shaw, not our subs, for resolution of any events that occur. Hence, it is incumbent on Shaw to insure that our procedures are followed by Shaw and Shaw subs.

12. *Does ground surface include concrete, asphalt or other man-made coverings?*

Response: A simple NO. Some of our projects include drilling through airport runways or tarmacs which can be up to 15" in depth. Manmade surfaces do NOT count in the 5' hand dig clearance specification. If we are attempting to advance boreholes below existing concrete surfaces, the geology below the concrete will be exposed by cutting the concrete and removal of the concrete. After the concrete is removed and the geology is exposed, a hand auger can then be used. Hopefully, the twelve concerns above and the responses to these comments will have helped users understand the implementation of this HS 308 policy. More importantly the committee realizes that information on this subject will be provided during the training mentioned above. It is the committee's belief that once this program has been completely rolled out the need for variances will be minimal and the interactions of the safety department with operations management with this entire process will make ensure success.



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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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

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 ☞ 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.



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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



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**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: HEARING CONSERVATION PROGRAM

1.0 PURPOSE AND SUMMARY

The purpose of this procedure is to establish guidelines for the company hearing conservation program. Regulatory requirements mandate that the company administer a hearing conservation program whenever employee sound exposures equal or exceed an 8-hour time-weighted average (TWA) sound level of 85 decibels (dB).

Evidence is well established that worker exposure to sound of sufficient intensity and duration can result in hearing damage. This procedure prescribes the control measures required to prevent employee exposure to excessive sound levels and includes provisions for:

- Monitoring of the workplace to determine employee exposures.
- An audiometric testing program which includes baseline and annual audiograms.
- An employee training and information program.
- Description of various control measures that can be used to decrease exposures.
- Providing hearing protection to all affected employees when administrative or engineering controls fail to reduce sound levels to below the action level.
- Recordkeeping requirements.

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- 5.5.1 Sound Control at the Source
- 5.5.2 Sound Control in the Transmission Path
- 5.5.3 Protection for the Receiver
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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

Action Level - An 8-hour TWA of 85 dB or a dose of 50 percent.

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

Standard Threshold Shift (STS) - Change in hearing threshold relative to the baseline audiogram of 10 dB or more at 2,000, 3,000, and 4,000 hertz (Hz) in either ear.

5.0 TEXT

5.1 General

The company hearing conservation program will be implemented and protection against the effects of sound exposure will be provided whenever sound levels exceed the action level.

5.2 Monitoring

Monitoring of employee exposures to sound will be conducted whenever it is anticipated that exposure may exceed the action level. This monitoring will be conducted by a qualified individual who, through professional credentials, training, or experience, has the necessary qualifications to specify and use the type of monitoring equipment (area or personal) that will best represent employee exposures. This monitoring will be repeated whenever changes in the work environment lead to the possibility of additional exposures or inadequacy of selected hearing protection. Employees will be provided the opportunity to observe monitoring and will be notified when the results exceed the action level.



Sound level monitoring instrumentation will be operated on the A-weighted scale in slow response mode. Employee sound exposures will be computed in accordance with Attachment 2 and without regard to any attenuation provided by the use of hearing protection.

5.3 Audiometric Testing

Audiometric testing will be provided to all employees exposed at or above the action level. Testing will be in accordance with Procedure HS100, Medical Policies and Procedures.

5.3.1 Baseline Audiogram. Audiometric test results obtained from the pre-hire medical examination will be used as the baseline audiogram. Testing to establish a baseline audiogram shall be preceded by at least 14 hours without exposure to workplace sound. Employees will also be notified of the need to avoid high levels of non-occupational sound exposure during this 14-hour period.

5.3.2 Annual Audiograms. Annual audiograms will be conducted for all employees exposed at or above the action level during the preceding year. Each annual audiogram will be compared to that employee's baseline audiogram to determine if the audiogram is valid and if a STS has occurred.

5.4 Employee Training and Information

All employees who are exposed to sound levels above the action level are required to participate in a formal training program. This program will be presented by a health and safety representative and include, as a minimum, the following information:

- The effects of sound on hearing.
- The purpose of hearing protection; the advantages, disadvantages, and attenuation of various types; and instructions on selection, fitting, use, and care.
- The specific nature of operations which could result in exposure to excessive sound levels.
- The purpose of audiometric testing and an explanation of the test procedures.
- The engineering controls and administrative practices associated with the employee's job assignment.

This training program will be repeated annually. Participating employees are required to complete the Hearing Protection Training Completion Record (Attachment 3). This record will be maintained by the company Training Department in Knoxville. In addition, tailgate safety meetings will be periodically used to instruct employees on the need for hearing protection in designated areas.



The project/location manager will make available to affected employees or their authorized representatives a copy of 29 Code of Federal Regulations (CFR) 1910.95 and will also post a copy in the workplace.

5.5 Control Measures

A straightforward method of controlling sound exposure is to examine the problem in terms of its three basic elements including:

- Sound arises from a source;
- Travels over a path; and
- Affects a receiver or listener.

The solution to a given sound problem might require alteration or modification of any or all of these three basic elements including:

- Modifying the source to reduce its sound output;
- Altering or controlling the transmission path to reduce the sound level reaching the listener; or
- Providing the receiver with hearing protection (but only if the sound source or path cannot be controlled).

5.5.1 Sound Control at the Source. Perhaps the best method for controlling sound at its source is the initial equipment selection process. The following summarizes those features that the buyer should look for and steps to be taken in selecting equipment:

- Low-sound certification.
- Advertisement of “quiet” operation, evidence of sound control design.
- Evidence of “lower” and “slower” operating characteristics.
- Conductance of side-by-side sound tests of equipment.
- Request an “on-site” or “in operation” inspection of mechanical equipment before purchase.

Most mechanical devices are complex sound generators. Though it is impractical to discuss all possible solutions to all sound problems, some general control measures and methods have been provided below:



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- Reduce impact or impulse sound by reducing the weight, size, or height of fall of impacting mass.
- Reduce speed in machines and flow velocities and pressure in fluid conveyance systems.
- Balance rotating parts to control machinery sound and vibration of fans, fly wheels, pulleys, cams, shafts, etc.
- Reduce frictional resistance between rotating, sliding, or moving parts by frequent lubrication and proper alignment; static and dynamic balancing of rotating parts; and/or correction of eccentricity or “out-of-roundness” of wheels, gears, rollers, pulleys, etc.
- Reduce resistance in air or fluid systems by use of low flow velocities, smooth surfaces of duct or pipe systems, and long-radius turns and flared sections in pipes, etc., to reduce turbulence.
- Isolate vibration elements in machinery; install motors, pumps, etc., on most massive part of machine; use belt or roller drives in place of gear trains; use flexible hoses and wiring instead of rigid piping and stiff wiring; etc.
- Apply vibration damping materials such as liquid mastics; pads of rubber, felt, foam, or fibrous blankets; or sheet metal viscoelastic laminates or composites to vibrating machine surface.
- Reduce sound leakage from the interior of machines such as compressors by sealing or covering all openings or applying acoustical materials to machine interiors.

5.5.2 Sound Control in the Transmission Path. Another effective way to limit employee exposure to sound is through the use of transmission path controls. These controls may include, but are not necessarily limited to:

- Separation of the sound source and receiver.
- Use of sound absorbing materials on ceiling, floor, or wall surfaces.
- Use of sound barriers and deflectors in the sound path.
- Use of acoustical lining on inside surfaces of passageways, ducts, pipe chases, or electrical channels.



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- Use of mufflers or silencers on all gasoline or diesel engines, regardless of size, and particularly on equipment when large quantities of high-pressure, high-velocity gases, liquids, steam, or air are discharged.
- Use vibration isolators and flexible couplers where the sound transmission path is structural in character.

5.5.3 Protection for the Receiver. When engineering controls fail to reduce sound levels to below the action level, hearing protection will be provided. Hearing protection will be provided at no cost to employees and will be replaced as necessary.

Supervisors will ensure that hearing protection is worn by all employees who are exposed at or above the action level. Employees will be given the opportunity to select their hearing protection from a variety of suitable protection devices that attenuate their exposure to the action level or below. Attenuations are determined by subtracting 7 dB from the noise reduction rating (NRR) of the protector and subtracting the remainder from the TWA sound level.

5.6 Recordkeeping

The company will maintain records of all audiometric test records required by this procedure and retain them for at least the following periods:

- Sound exposure measurement records will be retained for two (2) years.
- Audiometric test records will be retained for the duration of the affected employee's employment.

All records required by this procedure will be provided upon request to employees, former employees, representatives designated by the individual employee, and any authorized government representative.

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
HS100 Medical Policies and Procedures

8.0 ATTACHMENTS

1. Responsibility Matrix
2. Sound Exposure Computation
3. Hearing Protection Training Completion Record



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**ATTACHMENT 1
HEARING CONSERVATION PROGRAM**

Responsibility Matrix

Action	Procedure Section	Responsible Party		
		Health and Safety Representative	Project/Location Manager	Vice President, Health and Safety
Issue, Revise, and Maintain Procedure	3.1			X
Monitor Employee Exposures	5.2	X		
Provide Training	5.4	X		
Make Available/Post 29 CFR 1910.95	5.4		X	



ATTACHMENT 2

SOUND EXPOSURE COMPUTATION

Computation of Employee Sound Exposure

- A. Sound dose is computed using Table 1 as follows:

When the sound level is constant over the entire work shift, the sound dose (D), in percent, is given by:

$$D = 100 C/T$$

Where C is the total length of the work day, in hours, and T is given in Table 1.

- B. When the work shift sound exposure is composed of two or more periods of sound at different levels, the total sound dose over the work day is given by:

$$D = 100 (C_1/T_1 + C_2/T_2 \dots + C_n/T_n)$$

Where C_n indicates the total time of exposure at a specific sound level and T_n indicates the reference duration for that level as given by Table 1.

- C. The eight-hour TWA sound level, in decibels, may be computed from the dose, in percent, by means of the formula:

$$TWA = 16.61 \log_{10} (D/100) + 90$$

For an eight-hour work shift with the sound level constant over the entire shift, the TWA is equal to the measured sound level.

Conversion Between ◀Dose▶ and ◀8-Hour TWA▶ Sound Level

Sound exposure is usually measured with an audio dosimeter which gives a readout in terms of "dose." Dosimeter readings can be converted to an 8-hour TWA sound level.

In order to convert the reading of a dosimeter into TWA, use Table 2. This table applies to dosimeters that are set to calculate dose or percent exposure according to the relationships in Table 1. So, for example, a dose of 91 percent over an 8-hour day results in a TWA of 89.3 decibels and a dose of 50 percent corresponds to a TWA of 85 decibels.

If the dose as read on the dosimeter is less than or greater than the values found in Table 2, the TWA may be calculated by using the formula:

$$TWA = 16.61 \log_{10} (D/100) + 90$$

Where TWA equals 8-hour TWA sound level and D equals accumulated dose in percent exposure.



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Table 1
 Permissible Sound Exposure

A-Weighted Sound Level (decibels)	Permitted Duration Per Workday (T) (hours)	A-Weighted Sound Level (decibels)	Permitted Duration Per Workday (T) (hours)
80	32.0	106	0.87
81	27.9	107	0.76
82	24.3	108	0.66
83	21.1	109	0.57
84	18.4	110	0.50
85	16.0	111	0.44
86	13.9	112	0.38
87	12.1	113	0.33
88	10.6	114	0.29
89	9.2	115	0.25
90	8.0	116	0.22
91	7.0	117	0.19
92	6.1	118	0.16
93	5.3	119	0.14
94	4.6	120	0.125
95	4.0	121	0.11
96	3.5	122	0.095
97	3.0	123	0.082
98	2.6	124	0.072
99	2.3	125	0.063
100	2.0	126	0.054
101	1.7	127	0.047
102	1.5	128	0.041
103	1.3	129	0.036
104	1.1	130	0.031
105	1.0		



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Table 2
Conversion From ◀Percent Sound Exposure▶ or ◀Dose▶ To ◀8-Hour TWA Sound Level▶

Dose or Percent Sound Exposure (D)	TWA	Dose or Percent Sound Exposure (D)	TWA	Dose or Percent Sound Exposure (D)	TWA	Dose or Percent Sound Exposure (D)	TWA
10	73.4	104	90.3	260	96.9	640	103.4
15	76.3	105	90.4	270	97.2	650	103.5
20	78.4	106	90.4	280	97.4	660	103.6
25	80.0	107	90.5	290	97.7	670	103.7
30	81.3	108	90.6	300	97.9	680	103.8
35	82.4	109	90.6	310	98.2	690	103.9
40	83.4	110	90.7	320	98.4	700	104.0
45	84.2	111	90.8	330	98.6	710	104.1
50	85.0	112	90.8	340	98.8	720	104.2
55	85.7	113	90.9	350	99.0	730	104.3
60	86.3	114	90.9	360	99.2	740	104.4
65	86.9	115	91.1	370	99.4	750	104.5
70	87.4	116	91.1	380	99.6	760	104.6
75	87.9	117	91.1	390	99.8	770	104.7
80	88.4	118	91.2	400	100.0	780	104.8
81	88.5	119	91.3	410	100.2	790	104.9
82	88.6	120	91.3	420	100.4	800	105.0
83	88.7	125	91.6	430	100.5	810	105.1
84	88.7	130	91.9	440	100.7	820	105.2
85	88.8	135	92.2	450	100.8	830	105.3
86	88.9	140	92.4	460	101.0	840	105.4
87	89.0	145	92.7	470	101.2	850	105.4
88	89.1	150	92.9	480	101.3	860	105.5
89	89.2	155	93.2	490	101.5	870	105.6
90	89.2	160	93.2	500	101.6	880	105.7
91	89.3	165	93.6	510	101.8	890	105.8
92	89.4	170	93.8	520	101.9	900	105.8
93	89.5	175	94.0	530	102.0	910	105.9
94	89.6	180	94.2	540	102.2	920	106.0
95	89.6	185	94.4	550	102.3	930	106.1
96	89.7	190	94.6	560	102.4	940	106.2
97	89.8	195	94.8	570	102.6	950	106.2
98	89.9	200	95.0	580	102.7	960	106.3
99	89.9	210	95.4	590	102.8	970	106.4
100	90.0	220	95.7	600	102.9	980	106.5
101	90.1	230	96.0	610	103.0	990	106.5
102	90.1	240	96.3	620	103.2	999	106.6
103	90.2	250	96.6	630	103.3		



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ATTACHMENT 3

HEARING PROTECTION TRAINING COMPLETION RECORD

INITIAL

1. I have been informed about the health hazards associated with exposure to excessive sound levels and its potential effect on hearing.
2. I have been informed about the types of work that may result in exposure to excessive sound levels, and the necessary protective steps to prevent excessive exposure, including engineering controls and administrative practices.
3. I understand the purpose for, proper use, and limitations of hearing protection devices, and I have received instructions on selection, fitting, use, and care of such devices.
4. I have been informed about the purpose of audiometric testing and an explanation of the test procedures.
5. Copies of the applicable regulations governing occupational exposure to excessive sound have been made available to me.

PRINT NAME: _____

SIGNATURE: _____

EMPLOYEE NUMBER: _____

DATE: _____

Please File Completed Forms and Forward a Copy to the Knoxville Training Department

Wilson, Deborah

From: Lambert, Patricia
Sent: Wednesday, September 27, 2006 1:14 PM
To: Wilson, Deborah
Subject: FW: Weekly Wal-Mart Fueling Station Status Call - Thursday 9/21/06 - 8 AM CST (9 AM EST)
Attachments: 06_09_21_SCFS Open Items Report 090106 thru 013107.pdf

Patricia Lambert, PG
Shaw Environmental, Inc.
Tulsa, OK
918-712-7180 office
918-712-9775 fax
patricia.lambert@shawgrp.com

PRIVILEGED AND CONFIDENTIAL COMMUNICATION FOR PROVIDING LEGAL COUNSEL - ENVIRONMENTAL AUDIT / ATTORNEY WORK PRODUCT: This e-mail message including attachments, if any, is intended for the person or entity to which it is addressed and may contain confidential and/or privileged material. Any unauthorized review, use, disclosure or distribution is prohibited. If you are not the intended recipient, please contact the sender by reply e-mail and destroy all copies of the original message. Thank you.

From: McLaughlin, Dawn
Sent: Wednesday, September 20, 2006 3:53 PM
To: 'sean.canoy@wal-mart.com'; 'Bill Meyers (william.meyers@wal-mart.com)'; 'Amy Thrasher (amy.thrasher@wal-mart.com)'; 'dlucas@constserv.com'; Wojtowicz, Chris; 'Kevin Allen'; Wilson, Deborah; Lambert, Patricia; 'Mark Opoka (mopoka25@verizon.net)'; 'ronmcgovern'; 'Pamela Woods'
Cc: 'Roy Covert'; 'Lori Cottrell'; 'Mike Buttram'; 'rahayes@wal-mart.com'; 'Dan Gross'; 'Don Etheredge'; 'Don Richey'; 'Marty Dyrhood'; 'Hubert.loudermilk@samsclub.com'; 'tmschra@wal-mart.com'; Sorvillo, Robert; 'Tim Farrar'; 'Eric.Burgess@samsclub.com'
Subject: Weekly Wal-Mart Fueling Station Status Call - Thursday 9/21/06 - 8 AM CST (9 AM EST)

Call-in #: 1-866-600-2304 and passcode: 471717#

Agenda:

- "Soon to Open" (within next month) – 2 sites: 6354 (VA), 4820 (GA) – we will discuss final inspection dates, projected turnover dates, and any outstanding licenses
- "Under Construction" – 6 sites: 6686 (UT), 6254 (MN), 6438 (NY), 4933 (ND), 8208 (KS), 6203 (SC) – FSD and CSI will give us any updated schedules and status
- "Upcoming Projects" – 9 sites: 8136 (OH), 4947 (OH), 4936 (WV), 4940 (ID), 8172 (ND), 8213 (GA), 6609 (CA), 4973 (IA), 6413 (NE), – we will only discuss if schedule updates are available
- Car Wash only – 2 sites: 6482 (TX), 4926 (IN),
- Takeover Projects – 1 site: 4950 (NC)
- Safety Topic

Dawn McLaughlin
Client Program Manager
Shaw Environmental and Infrastructure
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757.318.5150 direct
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757.318.4887 fax
www.shawgrp.com

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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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 - 5.7 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).



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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.



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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			
		EH&S 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: 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). This certification will be evaluated via the established point system to determine driving privilege status.
- All new hire candidates shall complete and be familiar with the company Rules for Motor Vehicle Operation (Attachment 2). 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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 - 5.1 Company Rules for Motor Vehicle Operation
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 - 5.2 Pre-employment Evaluation
 - 5.3 Driving Record Point System
 - 5.3.1 Pre-Employment Driving Record Point System Evaluation
 - 5.3.2 Existing Employee Driving Record Point System
 - 5.4 Employee Evaluation Criteria
 - 5.4.1 Minor Citation
 - 5.4.2 Major Citation
 - 5.4.3 Failure to Notify
 - 5.4.4 At-Fault Accident
 - 5.4.5 Driving Under the Influence and Hit & Run (Leaving the Scene)
 - 5.5 Training
 - 5.6 Reinstatement of Driving Privilege
 - 5.7 Non-Shaw Employee Vehicle Use Requirements
 - 5.8 DRIVER SAFETY NOTIFICATION STICKER
 - 5.9 Insurance
- 6.0 Exception Provisions
- 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

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.



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Company - Shaw Environmental & Infrastructure, Inc. (Shaw E & I) and its subsidiaries and affiliates.

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 & Employee Driving Record Certification (Attachment 2) prior to such operation. The signed form shall be retained by the Baton Rouge, LA Health & Safety Records Department. Each year, the company shall reserve the right to 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.

Those employees who are assigned to use an Employer vehicle which they take home with them must meet the following conditions:

- a) The Employee's supervisor signs an Authorization for Assignment Form (See Attachment 7)
- b) The Employee signs and agrees to be bound to a Vehicle Usage Agreement (See Attachment 8)
- c) The Employee provides proof of insurance on the Employee's personal vehicle which lists the Employee as an insured driver on the insurance and such insurance contains minimum coverage required by law and acknowledges that the Employee's personal insurance will provide primary coverage of the Employee's use of a Company owned vehicle when such use is not in the course and scope of employment. The



authorizing supervisor shall attach a copy of the proof or personal insurance to Attachment 8 for future reference.

The Vehicle Usage Agreement is an agreement by the Employee that his own personal vehicle insurance will be primary as to any claims arising from the Employee's NON COMPANY use of Company Vehicles.

Employees operating Company Vehicles without compliance with these requirements, as well as any supervisor who allowed or granted such use, will be deemed to be in violation of Company policy and will be subject to discipline up to and including termination from 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



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life activities to be conducted, a written authorization, from the Project Manager or the appointed Site Manager/Supervisor, is required to travel further distances.

- For normal routine travel to and from work, employees shall utilize their own personal transportation.
- 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.
- Employees may drive a Shaw-owned, leased or rented vehicle home during off hours only when authorized in writing by a business line manager, who must hold a position at least one level above the site / project manager to whom the authorized employee reports. In other words, the approval must be signed by the employee's, supervisor's, supervisor or a higher level manager.
- In making vehicle use decisions the authorizing manager shall consider the risk of vehicle accidents, Shaw's liability risks, client and project specific needs, distances to be traveled, employee driving history, and any other relevant factors. Attachments 7 and 8, (Authorization for Assignment and Vehicle Use Agreement forms), shall be used to facilitate this process.

5.2 Pre-employment Evaluation

Human Resources shall distribute a copy of this procedure to all new hire candidates for the completion of Attachment 2 & 3. Information provided should be evaluated via the point system in Section 5.3. Human Resources and the hiring manager will be 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 Baton Rouge, LA Corporate Health and Safety Records Department at (225) 987-3714. The driving status of the prospective employee will be reported to the appropriate Human Resources Department. Health & Safety 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 2 of this policy. Attachment 2 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, seatbelt violation	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 "Company Rules for Motor Vehicle Operation & Employee Driving Record Certification" (Attachment 2), and "Notification of Work Related Citation" form (Attachment 3). Both Attachment 2 and 3 shall then be immediately forwarded to the Baton Rouge, LA 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 Attachment 2 (Company Rules for Motor Vehicle Operation & Employee Driving Record Certification), and it shall then be immediately forwarded to the Baton Rouge, LA 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 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 2 , forward it to the Baton Rouge, LA 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 "Company Rules for Motor Vehicle Operation & Employee Driving Record Certification" (Attachment 2 & 3) and forward it to the Baton Rouge, LA Health & Safety Records Department.



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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 Company Rules for Motor Vehicle Operation & Employee Driving Record Certification form (Attachment 2 & 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 **Baton Rouge, LA 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 any work or non-work related 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.



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5.4.4 At-Fault Accident

Whenever an employee is operating a company owned/leased/rented vehicle or their personal vehicle on company business and 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 or their personal vehicle on company business 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



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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 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 Baton Rouge, LA 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.



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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 operator. The primary / responsible operator shall contact the Equipment Division in Findlay, OH, at 1-800-225-6464 ext. 6051 or direct dial 419-425-6051, 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.

6.0 EXCEPTION PROVISIONS

Variations and exceptions, not explained herein, may be requested pursuant to the provisions of Procedure HS013, Health and Safety Procedure Variations.



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7.0 CROSS REFERENCES

HR207 Employee Disciplinary Action
HS013 Health and Safety Procedure Variances
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. Driving Record Certification
4. Notification of Work-Related Citation
5. Non-Shaw Employee Driver Questionnaire
6. Memo Template for Employers of Non-Shaw Drivers
7. Vehicle Use Authorization Form



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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	
Distribute HS800 to New Hire Candidates for Completion of Attachment 2	5.2					X	
Request Evaluation of New Hire Driving Record	5.2	X		X		X	
Obtain Driving Record and Determine Driving Status	5.2	X					
Initiate Corrective Actions	5.4			X		X	
Ensure Completion and Distribution of Attachment 3	5.4	X					
Accident Review	5.4.4				X		
Ensure Drivers Meet Training Requirements	5.5		X	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			



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. The motor vehicle operator is also responsible for the Driver Safety Notification sticker (Sec. 5.8)
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) (Sec. 5.7)
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.



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- 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. Employees may not drive company owned, leased, or rented vehicles home when off of duty except when authorized in writing by a designated business line manager and in accordance with Sec. 5.1.1.
 27. Employees needing to use a mobile phone or engage in other potentially distracting activity while operating a Motor Vehicle are advised to pull off the road when safe to do so for the duration of the activity.

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 Signature

Date



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ATTACHMENT 3
DRIVING RECORD CERTIFICATION

Fair Credit Reporting Act Disclosure Statement

In accordance with the provisions of Section 604 (b)(2)(A) of the Fair Credit Reporting Act, Pubic Law 91-508, as amended by the Consumer Credit Reporting Act of 1996 (title II, Subtitle D, Chapter I, of Pubic Law 104-208), you are being informed that reports verifying your driving record may be obtained on you for employment purposes. These reports are required by Sections 382.413, 391.23 and 391.25 of Federal Motor Carrier Safety Regulations. You have the right to receive a copy of the reports and have the prescribed allotment of time by law to have any errors corrected and the reports obtained after corrections have been posted.

	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, seatbelt violation	3
Major citation: reckless driving, tailgating, suspended license, speed contest, improper lane usage, open container (non-work related)	6
Driving under the influence or Hit and Run (Leaving the Scene)	8
Open Alcohol Container (Work Related)	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. _____

Driver's Lic. State of Issuance _____

Expiration Date _____

Date of Birth _____

Print Name _____

Social Security Number _____

Signature _____

Date _____



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PLEASE FAX THIS FORM TO THE BATON ROUGE H & S RECORDS DEPARTMENT AT (225) 987-3714



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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 BATON ROUGE H & S RECORDS DEPARTMENT AT (225) 987-3714



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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



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ATTACHMENT 7
AUTHORIZATION FOR ASSIGNMENT FORM

I, the hereby undersigned Supervisor / Manager, give my consent and approval for the Employee listed below to be assigned a Company Owned and/or Rented vehicle ("Company Vehicle") as specified herein and in accordance with the Company Motor Vehicle Use Policy and the Company Rules for Motor Vehicle Operation. I have given a copy of the Rules and the Policy to the Employee listed below and the Employee has signed and agreed to be bound by the Vehicle Usage Agreement.

Employee Name _____
VIN Number of Vehicle _____
Company Vehicle ID Number _____
Period of Allowance _____
Phone: _____
Company by which employed: _____

I, the undersigned Supervisor, personally attest that the following things have been done and are in proper order: *(Please check off when complete and attach appropriate documents)*

- Employee Driving Record Complete within the last six months
- Employee Driving Record rating allows operation of motor vehicle in accordance with policy
(List Rating _____ Date Completed _____)
- Employee has presented a valid driver's license *(attach a copy)*
- Employee has signed the Vehicle Use Agreement and a copy has been obtained by the Company
(attach a copy)
- Employee has been given a copy of Motor Vehicle Use Policy and Company Rules for Motor Vehicle Operation
- Employee has provided sufficient Proof of Insurance as required by the Policy *(attach a copy)*

SUPERVISOR SIGNATURE: _____
Printed Name: _____
Date: _____
Phone Number: _____

FAX A COPY OF THIS FORM TO THE EQUIPMENT DIVISION IN FINDLAY, OHIO @ 419-425-6295. ALSO NOTE THAT THE AUTHORIZED EMPLOYEE AND THE AUTHORIZING MANAGER IS RESPONSIBLE FOR MAINTAINING COPIES OF THIS FORM FOR FUTURE REFERENCE AND AUDITING.

DO NOT FAX THIS FORM TO THE BATON ROUGE H & S RECORDS DEPARTMENT



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**ATTACHMENT 8
VEHICLE USE AGREEMENT**

THIS VEHICLE USE AGREEMENT made and entered into this _____ day of _____, _____, between the undersigned Employee listed below ("Employee") and the undersigned Company below ("Company")

WITNESSETH:

WHEREAS, Employee has been granted permission to be assigned a Company owned/leased vehicle ("Company Vehicle") as is set forth and approved on the AUTHORIZATION FOR ASSIGNMENT FORM

In consideration of being assigned use of a Company Vehicle, Employee agrees to the following:

1. Employee will not use the Company Vehicle for personal use. .
2. Employee will follow all rules and requirements set forth in the Company's Motor Vehicle Use Policy, a copy of which Employee has received;
3. Employee certifies that Employee has automobile insurance on a personal vehicle of Employee, Employee has provided to Company a copy of such insurance, and a copy is attached to this agreement;
4. Employee agrees that for any claims for damage, injury or death related to Employee's operation of the Company Vehicle while operating the vehicle on non-company business (personal use), that Employee's own personal automobile liability insurance will be primary and will pay the claim **FIRST AND BEFORE** any insurance of Company. In the event that Employee fails to secure and maintain personal automobile insurance coverage and there is a claim for damage or injury related to Employee's operation of the vehicle for personal use, the Employee will then be responsible and accepts liability for any claims paid by Company up to the minimum limits of insurance required in the state of the Employee's permanent residence.
5. Employee understands that violation of this Agreement or any policy or provision or rule contained in the Motor Vehicle Use Policy or any other Policy of the Company will subject the Employee to discipline including the potential loss of driving privileges for the Company or suspension or termination.

I am a person who is able to read in English and I have read this document and agree to all of its terms and conditions. I understand that the privilege to be assigned a Company Vehicle to take home can be withdrawn by the Company at any time for any reason (and without cause) with notice to me. I agree to comply with return of the vehicle when requested by the Company.

Employee _____
 Date: _____
 Address: _____
 Phone: _____

COMPANY Supervisor / Manager:
 Name (Print & Sign): _____ Date: _____

FAX A COPY OF THIS FORM TO THE EQUIPMENT DIVISION IN FINDLAY, OHIO @ 419-425-6295. ALSO NOTE THAT THE AUTHORIZED EMPLOYEE AND THE AUTHORIZING MANAGER IS RESPONSIBLE FOR MAINTAINING COPIES OF THIS FORM FOR FUTURE REFERENCE AND AUDITING.

DO NOT FAX THIS FORM TO THE BATON ROUGE H & S RECORDS DEPARTMENT

APPENDIX C
ACTIVITY HAZARD ANALYSES

ACTIVITY HAZARD ANALYSIS FOR CLEARING AND GRUBBING

Task Breakdown	Potential Hazards	Critical Safety Practices	Personal Protective Clothing and Equipment	Monitoring Devices
Clearing and Grubbing	Struck By/Against Heavy Equipment	<ul style="list-style-type: none"> • Wear reflective warning vests when exposed to vehicular traffic • Isolate equipment swing areas • Make eye contact with operators before approaching equipment • Understand and review hand signals 	Warning vests, hard hat, safety glasses, steel-toed work boots	
	Slips, Trips, Falls	<ul style="list-style-type: none"> • Clear walkways, work areas of equipment, tools, vegetation, excavated material, and debris • Mark, identify, or barricade other obstructions • Maintain 3-point contact when ascending/descending ladders/ mounting/dismounting from heavy equipment • Halt exterior work in high winds, lightning, severe weather 		
	Handling Heavy Objects	<ul style="list-style-type: none"> • Observe proper lifting techniques • Obey sensible lifting limits (60 pound maximum per person manual lifting) • Use mechanical lifting equipment (hand carts, trucks) to move large, awkward loads 		
	Eye Injuries	<ul style="list-style-type: none"> • Wear face shield, goggles when operating powered clearing/ grubbing equipment 	Face shield, goggles	
	High Noise Levels	<ul style="list-style-type: none"> • Use hearing protection when exposed to excessive noise levels (greater than 85 dBA over an 8-hour work period) • Assess noise level with sound level meter if possibility exists that level may exceed 85 dBA TWA 	Ear plugs	
	Sharp Objects	<ul style="list-style-type: none"> • Wear cut resistant work gloves when the possibility of lacerations or other injury may be caused by sharp edges or objects • Maintain all hand and power tools in a safe condition • Keep guards in place during use • Close doors, windows on heavy equipment to prevent injuries from tree branches and other vegetation • Utilize cut resistant chain-saw chaps, hearing protection, and face shield when utilizing chainsaws. 	Leather gloves; hearing protection, Chainsaw chaps and face shield	

ACTIVITY HAZARD ANALYSIS FOR CLEARING AND GRUBBING				
Task Breakdown	Potential Hazards	Critical Safety Practices	Personal Protective Clothing and Equipment	Monitoring Devices
Clearing and Grubbing (continued)	Insect/Snake Bites	<ul style="list-style-type: none"> Review injury potential and types of snakes with workers Avoid insect nests areas, likely habitats of snakes outside work areas Emphasize The Buddy System where such injury potential exists Use insect repellent, wear PPE to protect against sting/bite injuries 	Tyvek coveralls, duct tape bottom of coveralls to boots or latex boot covers	
	Operations of Power Clearing Tools (brush saws, weed wackers)	<ul style="list-style-type: none"> Wear eye, face, hand, and hearing protection when operating power clearing equipment Shut-off/idle power tools walking between work areas Store flammable liquids in well ventilated areas, away from work areas Shut off equipment during refueling Allow equipment to cool before refueling Use funnels to avoid fuel spillage Prohibit smoking while operating clearing equipment Provide ABC (or equivalent) fire extinguishers for all work areas 	Face shield, goggles, cloth gloves, ear plugs, steel-toed work boots	
	Contact Dermatitis	<ul style="list-style-type: none"> Wear PPE to avoid skin contact with plants, or other skin irritants Identify and review poisonous plants with workers Apply protective cream/lotion to exposed skin to prevent poison ivy or similar reactions 	Tyvek coveralls, duct tape bottom of coveralls to boots or latex boot covers	
	High Ambient Temperature	<ul style="list-style-type: none"> Monitor for heat stress in accordance with Shaw Health and Safety Procedure HS400 Provide fluids to prevent worker dehydration 	Insulated clothing (subject to ambient temperature)	Meteorological Equipment
EQUIPMENT REQUIRED		INSPECTION REQUIREMENTS		TRAINING REQUIREMENTS
<ul style="list-style-type: none"> Chain Saws Weed Wackers, Mowers Heavy Equipment Miscellaneous tools 		<ul style="list-style-type: none"> Daily equipment inspections as per manufacturers requirements Inspection of all emergency equipment (i.e.: first aid kits, fire extinguishers) 		<ul style="list-style-type: none"> Review AHA with all task personnel Review operations/safety manuals for all equipment utilized

ACTIVITY HAZARD ANALYSIS FOR SOIL SCREENING OPERATIONS

Task Breakdown	Potential Hazards	Critical Safety Practices	Personal Protective Clothing and Equipment	Monitoring Devices
Inspection of Screening Equipment	Moving Machinery	<ul style="list-style-type: none"> Inspect fluid levels daily: use proper fuel for operating equipment. Check moving parts, belts etc., are free of debris before equipment startup Ensure proper guarding of moving parts and pinch points 		
	Fire/ Explosion	<ul style="list-style-type: none"> Eliminate sources of ignition from the work area Prohibit smoking Provide ABC (or equivalent) fire extinguishers in all work, flammable storage areas and with fuel powered generators and compressors Store flammable liquids in well ventilated areas Post "NO SMOKING" signs Store combustible materials away from flammables 	Portable fire extinguishers	
Operation of Machinery	Slips, Trips, Falls	<ul style="list-style-type: none"> Clear walkways work areas of equipment, tools, vegetation, excavated material and debris Mark, identify, or barricade other obstructions Evaluate fall hazards above 4 ft.; use fall protection equipment (harness/lanyard), standard guardrails or other fall protection systems when working on elevated platforms above 6 ft. Use heavy duty industrial (type IA) ladders Use 3 point contact when ascending/descending equipment ladders 	Body harnesses/ lanyard (elevated platforms above 6 ft.)	

ACTIVITY HAZARD ANALYSIS FOR SOIL SCREENING OPERATIONS

Task Breakdown	Potential Hazards	Critical Safety Practices	Personal Protective Clothing and Equipment	Monitoring Devices
	Struck By/ Against Heavy Equipment, Flying Debris, Moving Machinery	<ul style="list-style-type: none"> • Wear reflective warning vests when exposed to vehicular traffic • Isolate equipment swing areas • Make eye contact with operators before approaching equipment • Barricade or enclose the screen operation area • Restrict entry to the work area to heavy equipment operator(s) and screen operator(s) during screening • Halt screening work in high winds, severe weather • Understand and review hand signals • Stand clear of discharge/dump area and barricade area 	Warning vests, Hard hat, Safety glasses, Steel toe work boots	
Operation of Machinery	Inhalation of dusts	<ul style="list-style-type: none"> • Provide workers proper skin, eye and respiratory protection based on the exposure hazards present • Apply water spray to minimize/eliminate fugitive dusts 		
	Handling Heavy Objects	<ul style="list-style-type: none"> • Observe proper lifting techniques • Obey sensible lifting limits (60 lb. maximum per person manual lifting) • Use mechanical lifting equipment (hand carts, trucks) to move large, awkward loads 		
	Sharp Objects	<ul style="list-style-type: none"> • Wear cut resistant work gloves when the possibility of lacerations or other injury may be caused by sharp edges or objects • Maintain all tools in a safe condition/ clear of moving machinery • Keep guards in place during screen operations 	Leather gloves	

ACTIVITY HAZARD ANALYSIS FOR SOIL SCREENING OPERATIONS

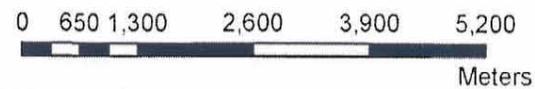
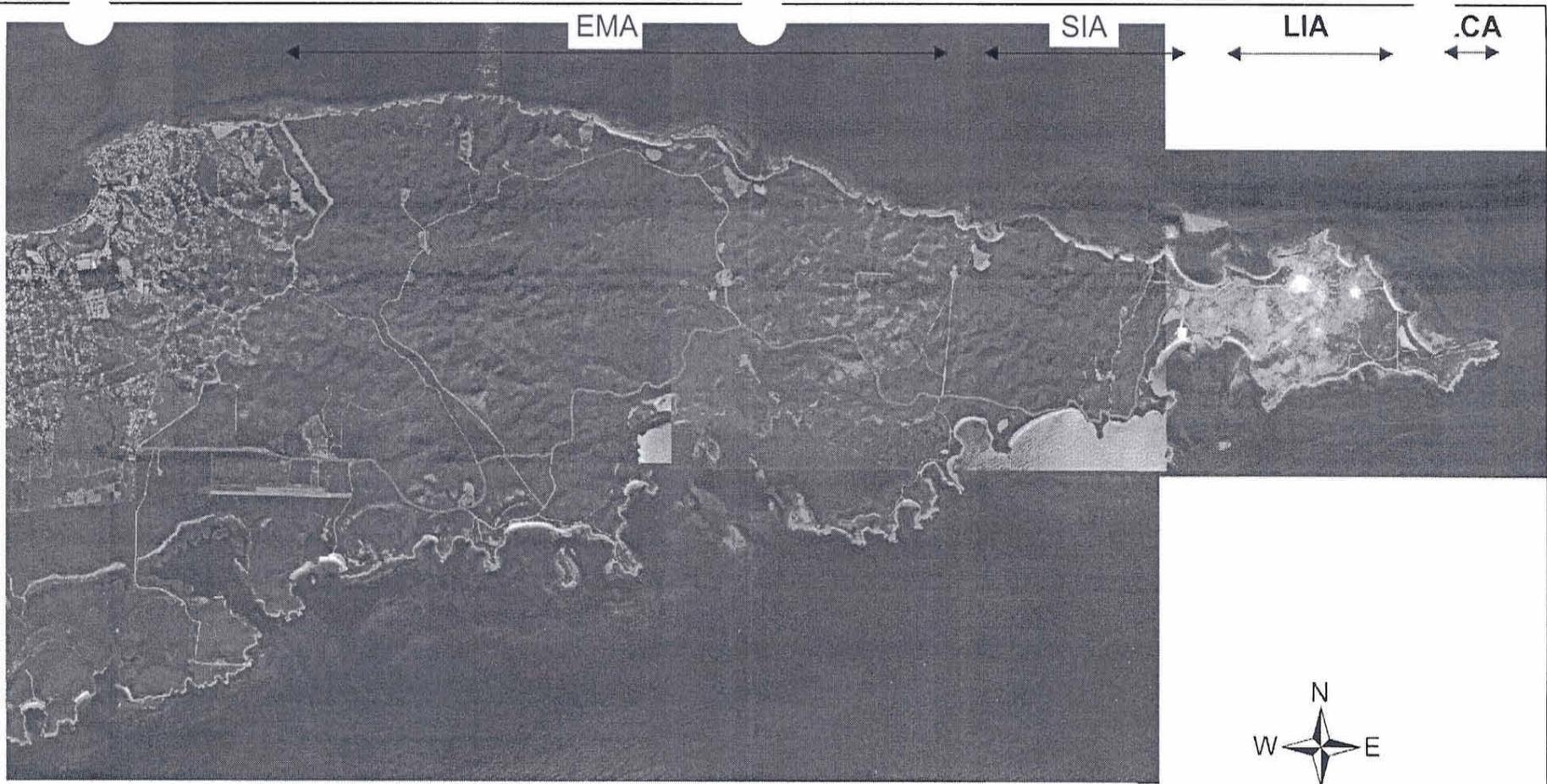
Task Breakdown	Potential Hazards	Critical Safety Practices	Personal Protective Clothing and Equipment	Monitoring Devices
	High Noise Levels	<ul style="list-style-type: none"> • Use hearing protection when exposed to excessive noise levels (greater than 85 dB A over an 8-hour work period) • Assess noise level with sound level meter if possibility exists to exceed 85 dB A TWA • 	Ear plugs	Sound Level Meter
	Caught In/ Between Moving Parts	<ul style="list-style-type: none"> • Identify and understand parts of equipment which may cause crushing, pinching, rotating or similar motions • Assure guards are in place to protect from these parts of equipment during operation • Maintain all equipment in a safe condition • De-energize and lock-out machinery before maintenance or service • 		
	High/Low Ambient Temperature	<ul style="list-style-type: none"> • Monitor for Heat/Cold stress in accordance with HS400 and HS401 • Provide fluids to prevent worker dehydration • Follow work/rest schedule in Section 3.3.1/3.3.2 of the HASP 	Insulated Clothing (subject to ambient temperature)	Meteorological Equipment
EQUIPMENT REQUIRED		INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS	
<ul style="list-style-type: none"> • Excavator • Trucks • Screening unit/conveyors 		<ul style="list-style-type: none"> • Daily equipment inspections as per manufacturers requirements • Inspection of all emergency equipment (i.e.: first aid kits, fire extinguishers) • Inspect all dump trucks in accordance with Section 18 of the USACE EM 385-1-1 Manual 	<ul style="list-style-type: none"> • Review AHA with all task personnel • Review Site Specific Health and Safety Plan. • Review operations/safety manuals for all equipment utilized • Review site specific chemical hazards 	

ACTIVITY HAZARD ANALYSIS FOR ROAD REPAIR

Task Breakdown	Potential Hazards	Critical Safety Practices	Personal Protective Clothing and Equipment	Monitoring Devices
Road Repair	Struck by/ Against Heavy Equipment, Protruding Objects	<ul style="list-style-type: none"> • Wear reflective warning vests when exposed to vehicular traffic • Avoid equipment swing areas • Make eye contact with operators before approaching equipment • Barricade or enclose the work area • Restrict entry to the work area to authorized personnel during paving activities • Understand and review hand signals 	Warning vests, hard hat, safety glasses and steel-toe work boots	
	Handling Heavy Objects	<ul style="list-style-type: none"> • Observe proper lifting techniques • Obey sensible lifting limits (60 lb. maximum per person manual lifting) • Use mechanical lifting equipment (hand carts, trucks) to move large, awkward loads 		
	Slips, Trips, Falls	<ul style="list-style-type: none"> • Clear walkways, work areas of equipment, tools, debris, & other materials • Mark, identify, or barricade other obstructions • Use 3-point contact when ascending/descending heavy equipment • Park heavy equipment on level ground to avoid potential sprains/strains when ascending/descending 		

ACTIVITY HAZARD ANALYSIS FOR ROAD REPAIR				
Task Breakdown	Potential Hazards	Critical Safety Practices	Personal Protective Clothing and Equipment	Monitoring Devices
Road Repair (continued)	Inhalation and Contact with Dusts and Particulates, Contact Dermatitis	<ul style="list-style-type: none"> • Provide workers proper skin, eye and respiratory protection based on the exposure hazards present • Apply water spray to road surfaces to minimize/eliminate fugitive dust • Wear PPE to avoid skin contact with contaminated soil, or other skin irritants • Monitor breathing zone air to determine levels of contaminants 	Hard hat, safety glasses, steel-toe boots, leather gloves and possible Tyvek suit based on dust levels	
	High/Low Ambient Temperature	<ul style="list-style-type: none"> • Monitor for Heat / Cold stress in accordance with Shaw Health and Safety Procedures HS400, HS401 • Provide fluids to prevent worker dehydration • Take adequate rest periods in a cool/warm shaded area • During rest breaks, replenish body fluids by drinking plenty of fluids (water and Gatorade type liquids). Do not drink caffinated beverages • Remove PPE if possible during rest periods • Include plenty of salt in your food intake. Do not take salt tablets 	Insulated Clothing (subject to ambient temperature)	Meteorological Equipment
EQUIPMENT REQUIRED		INSPECTION REQUIREMENTS		TRAINING REQUIREMENTS
<ul style="list-style-type: none"> • Dozer • Dump Trucks 		<ul style="list-style-type: none"> • Daily equipment inspections as per manufacturers requirements • Inspection of all emergency equipment (i.e.: first aid kits, fire extinguishers) 		<ul style="list-style-type: none"> • Review AHA with all task personnel • Review operations/safety manuals for all equipment utilized

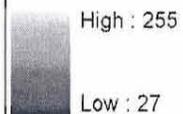
APPENDIX D
DIRECTIONS TO THE HOSPITAL



Legend

1994_doqq_mosaiccopysid

Value



- EMA - Eastern Maneuver Area
- LIA - Live Impact Area
- SIA - Surface Impact Area
- ECA - Eastern Conservation Area

— Hospital Route

PROJECT: NAVFAC ENGINEERING DIV 123113-A9 DWG	ETO NO: 0074	SCALE: NOT TO SCALE	DEPARTMENT OF THE NAVY NAVFAC ATLANTIC DIVISION NAVAL STATION Former Naval Ammunitions Support Detachment VIEQUES, PUERTO RICO	NAVAL FACILITIES ENGINEERING COMMAND NORFOLK, VIRGINIA		SOURCE:
	HOSPITAL ROUTE			DESIGNED BY: LM 10/04/06 CHECKED BY: WLH 10/04/06 DRAWN BY: TFR 10/04/06 APPROVED BY: WLH 10/04/06		

APPENDIX E
HEALTH AND SAFETY PLAN
AMENDMENT DOCUMENTATION FORM

**Site Specific Health & Safety Plan
Amendment Documentation**

Project Name:

Project No.

Amendment No.

Date:

The Amendment Addresses the Following Sections:

Task(s) Amendment Affects:.

Reason For Amendment:

Amendment:

Completed by:

Approved by:

APPENDIX F
HURRICANE PREPAREDNESS PLAN

HURRICANE PREPAREDNESS PLAN VIEQUES ISLAND, PUERTO RICO

Prepared for:

DEPARTMENT OF THE NAVY
Atlantic Division
Naval Facilities Engineering Command
6506 Hampton Boulevard
Building A (South East Wing) 3rd Floor
Norfolk, VA 23508

Contract No. N62470-02-D-3260

Prepared By:

Shaw Environmental, Inc.
5700 Thurston Avenue, Suite 116
Virginia Beach, Virginia 23455

Reviewed:

September 2006

ALL SHAW PROJECT NOS.

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- ATTACHMENT B EMERGENCY PHONE NUMBERS
- ATTACHMENT C HURRICANE TRACKING MAP

LIST OF ACRONYMS

COR	Condition of Readiness
FEMA	Federal Emergency Management Administration
HPP	Hurricane Preparedness Plan
mph	Miles per Hour
VIEQUES	Vieques Island
NOAA	National Oceanic and Atmospheric Administration
PPE	Personal Protective Equipment
UXOSO	Unexploded Ordnance Safety Officer

1.0 INTRODUCTION

PURPOSE

This Hurricane Preparedness Plan (HPP) outlines the general responsibilities and actions to be taken in preparation for and response to a hurricane or hurricane warnings at the Vieques Island Project. All personnel should understand that predicting the occurrence and path of a hurricane is difficult, however the risk can be minimized and controlled by following the procedures in this plan.

SCOPE

This procedure is applicable to all site personnel, including subcontractors; temporary construction facilities; and remediation equipment present at VIEQUES.

DISCUSSION

This procedure provides information on how to protect personnel and property in the event of a hurricane. In the VIEQUES area, attention must be paid to all hurricanes, since there is no way to determine with 100 percent accuracy whether a hurricane will actually hit the area until a few hours before landfall.

The following table demonstrates that the accuracy of forecasting where a hurricane landfall will occur is very low more than 24 hours in advance of a storm.

Ho Ma
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y
Val
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72 Hours	10 Percent
48 Hours	13-18 Percent
36 Hours	20-25 Percent
24 Hours	35-45 Percent
12 Hours	60-70 Percent

2.0 DEFINITIONS

The following definitions apply to various terms used in this document.

Conditions of Readiness (COR):

Condition V - Destructive winds are possible at the VIEQUES site within 96 hours. Normal daily job-site cleanup and good housekeeping practices.

Condition IV - Destructive winds are possible at the VIEQUES site within 72 hours. Normal daily job-site cleanup and good housekeeping practices. Collect and store in piles or containers, scrap lumber, waste material, and rubbish for removal and disposal at the end of each work day. Maintain the construction site, including storage areas, free of accumulation of debris. Stack form lumber in neat piles less than 4 feet high. Remove all trash debris and other objects which could become missile hazards. Contact Navy QA Representative for Condition requirements, updates, and completion of required actions.

Condition III - Destructive winds are possible at the VIEQUES site within 48 hours. Maintain Condition IV requirements. Begin securing the job-site for and taking those actions necessary for Condition I that cannot be completed within 18 hours. Cease all routine activities that might interfere with securing operations. Begin collecting and stowing all gear and portable equipment. Make preparations for securing buildings. Review requirements pertaining to Condition II and continue action as necessary to attain Condition III readiness.

Condition II - Destructive winds are possible at the VIEQUES site within 24 hours. Curtail or cease routine activities until securing operations are complete. Reinforce or remove form work and scaffolding. Secure machinery, tools, equipment and materials, or remove from job site. Expend every effort to clear all missile hazards and loose equipment from the job-site. Contact Navy QA Rep. for weather and COR updates and completion of required actions.

Condition I - Destructive winds are possible at the VIEQUES site within 12 hours. Perform and complete all remaining actions required for lower conditions of readiness. Secure the job-site and leave the government premises.

Destructive Winds - Generally winds reaching or exceeding the force of a tropical storm (≥ 39 miles per hour [mph] or 34 knots). Winds from any storm system (tropical or otherwise) that are determined to have the potential to cause property damage or personal injury that would warrant the a Condition IV alert.

Gale - Non-tropical windstorm with winds 38 to 63 mph (33 to 55 knots).

Hurricane Watch - An announcement for specific areas where a hurricane or an incipient hurricane poses a possible threat to a coastal area, generally within 36 hours.

Hurricane Warning - A warning that sustained winds of 74 mph (64 knots) or higher, associated with a hurricane are expected in a specified coastal area in 24 hours or less.

Hurricane - A tropical cyclone in which the maximum sustained surface wind is 74 mph (64 knots) or greater.

Missile Hazard - Any object that may become airborne during high winds.

Severe Weather - Any storm of tropical or non-tropical origin that has the capacity to produce destructive winds

Small Area Storms – Thunderstorms or tornadoes.

Small Area Storms Condition I - Destructive winds, heavy rain, lightening and hail are imminent within 1-hour.

Small Area Storms Condition II - Destructive winds, heavy rain, lightening and hail are expected within 6-hours.

Storm - Non-tropical windstorm with winds 38 to 63 mph (33 to 55 knots).

Storm Surge - An abnormal rise in sea level accompanying a hurricane or other intense storm, and whose height is the difference between the observed level of the sea surface and the level that would have occurred in the absence of the storm.

Storm Tide - The actual sea level resulting from the astronomical tide combined with the storm surge. This term is used interchangeably with "Hurricane Tide."

Tornado - Violent rotating columns of air with winds 115 to 288 mph (100 to 250 knots).

Tropical Depression - A tropical low pressure system in which the maximum sustained surface wind is 38 mph (33 knots) or less.

Tropical Storm - A tropical low pressure system in which the maximum surface wind ranges from 39 to 73 mph (34 to 63 knots) inclusive. This is the strength at which the National Hurricane Center applies a name to the storm.

Tropical Storm Watch - Tropical storm conditions pose a threat to a coastal area generally within 36 hours.

Tropical Storm Warning - A warning for tropical storm conditions with sustained winds within the range of 39 to 73 mph (34 to 63 knots) that are expected in a specified coastal area within 24 hours or less.

3.0 RESPONSIBILITIES

Project Manager – Bill Hughes

The Project Manager is responsible for ensuring that all adequate measures have been taken to prepare for hurricanes and to protect site personnel and property in the event of a hurricane. The Project Manager will ensure that ample resources are available to implement this plan and that all personnel are aware of this plan and their responsibilities.

Construction Site Superintendent – Mike Clemons

The Site Superintendent will communicate all hurricane information to site personnel and keep the site personnel continually informed of the measures to be taken. The Site Superintendent is responsible for the coordination and direction of site equipment shut-down and will oversee the preparation of site facilities for any imminent storm. The Site Superintendent will oversee the coordination of both pre- and post-storm operations and will ensure that the proper material, equipment, and supplies are utilized to implement this procedure.

Unexploded Ordnance Safety Officer – Mike Clemons

The Site Safety Officer (UXOSO) will monitor weather information, including the National Weather Service probability values for landfall. The UXOSO will maintain the necessary emergency supplies, and will periodically tour the site to ensure that proper steps are being taken to protect site personnel and property. The UXOSO will develop the emergency contact list will be maintained in a site dedicated vehicle.

Note: When personnel identified in Section 3.0 leave the site, they are responsible for notifying the Site Superintendent or a designated back-up person. The back-up person will be instructed in their responsibilities in the event of a hurricane.

4.0 EMERGENCY OPERATING PROCEDURES

Condition V - Early Preparedness

The Site Superintendent will notify the Project Manager when a tropical storm has been named and/or any severe weather has the potential to produce destructive winds at the NAS Patuxent River within 96 hours. This will initiate COR Condition V. This phase will continue until:

- The storm or condition is downgraded
- The storm track poses no threat to the site
- Condition IV begins.

During Condition V, the progress of the storm will be monitored and tracked. The Program Manager will be contacted at least twice daily for Condition Requirements updates and to inform him of completion of required actions for Condition V.

See Attachment A for the Hurricane Preparedness Responsibility Punch List - Condition V.

Condition IV - (Destructive winds are possible within 72 Hours)

This COR starts when severe weather is within 72 hours of posing a threat to the project location. The UXOSO will ensure that the following steps are taken:

- Monitor the storm and inform the Project Manager of its progress
- Check Personal Protective Equipment (PPE) supplies and equipment to determine if any shipments are required or if pending shipments should be advanced or postponed

During Condition IV, the progress of the storm will be continuously monitored and tracked. The Site Superintendent will instruct site personnel to begin general cleanup of all loose materials that may pose a hazard during high winds or rain. This will include removal of all debris, trash, and other items that may become missile hazards. All lumber will be stacked in neat piles less than 4 feet high. The Program Manager will be contacted at least twice daily for Condition Requirements updates and to inform him of completion of required actions for Condition IV.

The Site Superintendent will keep all site personnel advised of the status of the storm and site preparation activities. Due to the urgency and amount of work involved in preparing for a threatening storm, all construction operations that might interfere with securing operations, such as starting a major excavation, will cease.

The Site Superintendent will ensure that the following steps are taken:

- Fill fuel tanks in all equipment on-site
- Secure stockpiled material on-site
- Review requirements for Condition II with all site personnel
- Maintain condition IV requirements.

See Attachment A for the Hurricane Preparedness Responsibility Checklist - Condition IV.

Condition III - Tropical Storm Warning (Destructive winds are possible Within 48 Hours)

This COR starts when severe weather places the project site under a tropical storm warning. Condition III activities will also start if a threatening tropical storm is upgraded to a hurricane, or a severe storm approaching the VIEQUES site has generated destructive winds in other locations. The Project Manager, Site Superintendent and UXOSO will determine when to cease all operations based upon current weather conditions and/or as directed by the Navy QA Representative. If the storm or Condition is downgraded, the Project Manager and Site Superintendent will meet with the Program Manager and Navy QA Representative to decide if a downgrade of the COR is appropriate. Actions for Condition III will be maintained and the following shall also be completed:

- Machinery, tools, equipment, and materials will be secured or removed from the site
- Take actions to secure job-site necessary for Condition II that cannot be completed within 18 hours.

See Attachment A for the Hurricane Preparedness Responsibility Checklist - Condition III.

Condition II - Destructive Winds are anticipated within 24 hours or a Small Area Storm is anticipated within 6 hours.

Condition II begins when destructive winds are anticipated within 24 hours, a small area storm within 6 hours, and/or as directed by the Navy QA Representative. The Project Manager and Site Superintendent will determine when to demobilize from the site based upon weather conditions. During this phase the Site Superintendent will direct the following actions:

- Secure machinery, tools, equipment and materials or remove them from the job-site
- Conduct a roll call of personnel on-site and inform the UXOSO
- Notify personnel on leave of schedule changes
- Personnel needing to leave the project to attend to personal matters will notify their Site Superintendent immediately
- Heavy equipment will be secured according to the manufacturer's recommendations
- All small field equipment will be secured
- All visitors from the site are evacuated
- Make a final site walk-through to determine that the site is secure and clear all missile hazards from the job-site
- Inform the Project Manager that all personnel are being released from the site.

If the storm or Condition is downgraded, the Project Manager and Site Superintendent will meet to decide if a downgrade of the phase is necessary.

See Attachment A for the Hurricane Preparedness Responsibility Checklist - Condition II.

Condition I - Destructive winds are anticipated within 12 hours or a Small Area Storm is imminent within 1 hour.

- Complete all remaining actions required for lower conditions of readiness
- Secure job-site access and evacuate to safe refuge.

See Attachment A for the Hurricane Preparedness Responsibility Checklist - Condition I.

Resume Site Operations

The Project Manager will contact the Program Manager to determine when site operations will resume. Although the hurricane/severe weather has passed, hazards may still exist because of water damage, other hazardous conditions, dangers from electric shock, poisonous snakes, etc.

The Site Superintendent and UXOSO will conduct a damage survey with the Project Manager. Photographs of the storm damage at the site will be taken by the Site Superintendent or UXOSO. They will develop a prioritized recovery plan from the survey findings. Subsequently, all site personnel will be notified when it is safe to return to work. Required personnel and subcontractor expertise will be mobilized to the site to repair any damaged equipment.

See Attachment A for the Hurricane Preparedness Responsibility Checklist - Resume Site Operations.

5.0 DEBRIEFING

Following the return to work of site personnel, the Site Superintendent will conduct a debriefing with site personnel. The debriefing will accomplish the following objectives:

- Finalize a recovery plan
- Review the Hurricane Plan for effectiveness
- Suggest and agree on improvements to the plan
- Incorporate plan changes

When completed, the Project Manager and Site Superintendent will meet with site personnel to discuss any corrective actions or changes in this plan.

6.0 REFERENCES

The list of emergency telephone numbers is included as Attachment B. In addition, an example of a Hurricane Tracking Chart is presented in Attachment C.

The following references and sources of information may be consulted for additional guidance on hurricane preparedness and response.

- Disaster Planning Guide for Business and Industry, Federal Emergency Management Administration (FEMA).
- U.S. Department of Commerce; National Oceanic and Atmospheric Administration (NOAA)

ATTACHMENT A

***HURRICANE PREPAREDNESS RESPONSIBILITY
CHECKLISTS***

HURRICANE PREPAREDNESS CHECKLIST

Condition V

Date/Time Entered Condition V: _____

Severe Weather/Tropical Storm: _____

Action Items

- Project Manager Notified
- Track of Storm Poses No Threat
- Storm or Condition is Downgraded
- Upgrade to Condition IV _____

Storm Location

Date/Time: _____

Date/Time: _____

Location/Coordinates: _____

Location/Coordinates: _____

Date/Time: _____

Date/Time: _____

Location/Coordinates: _____

Location/Coordinates: _____

Condition V Action Items Complete: _____ **Date:** _____

HURRICANE PREPAREDNESS CHECKLIST

Condition IV (Landfall within 72 hours)

Date/Time Entered Condition IV: _____

Action Items:

- Notify Project Manager
- Notify Project Superintendent
- Notify Site Personnel
- Assemble shift personnel to begin preparation
- Track storm on hurricane tracking map (Attachment C) (if applicable)
- Secure all heavy equipment located at the site in accordance with manufacturer's specifications. All equipment will be moved to a secured site location.
- All equipment fuel tanks will be filled.
- All subcontractors with equipment or supplies on-site will be notified to begin removal procedures

Condition IV Action Items Complete: _____ Date: _____

HURRICANE PREPAREDNESS CHECKLIST

Condition III (Landfall within 48 hours)

Date/Time Entered Condition III: _____

Action Items:

- Provide the status of the storm to site personnel on an hourly basis
- Take actions to secure job-site necessary for Condition I that cannot be accomplished in 18 hours
- Recheck all items on checklist IV to ensure they are complete (i.e. gas tanks are still filled)

See itemized equipment checklist (itemized list of equipment to be secured/removed and COR for action)

Condition III Action Items Complete: _____ **Date:** _____

HURRICANE PREPAREDNESS CHECKLIST

Condition II

Date/Time Entered Condition II: _____

Action Items:

- Evacuate all visitors from the site
- Conduct a role call of site personnel and inform the Project Manager
- Check the status all incoming shipments of supplies and equipment
- Remove all unnecessary vehicles from the site
- Secure heavy equipment in accordance with manufacturer's specification
- Secure all valuable records and equipment
- Release personnel from the site
- Recheck all items on checklist IV and III to ensure they are complete (ie: gas tanks are still filled)

Condition II Action Items Complete: _____ **Date:** _____

HURRICANE PREPAREDNESS CHECKLIST

Condition I

Date/Time Entered Condition I: _____

Action Items:

- Complete all action items for lower conditions of readiness
- Secure job-site access and evacuate to safe refuge

Condition I Action Items Complete: _____ **Date:** _____

ATTACHMENT B

EMERGENCY PHONE NUMBERS

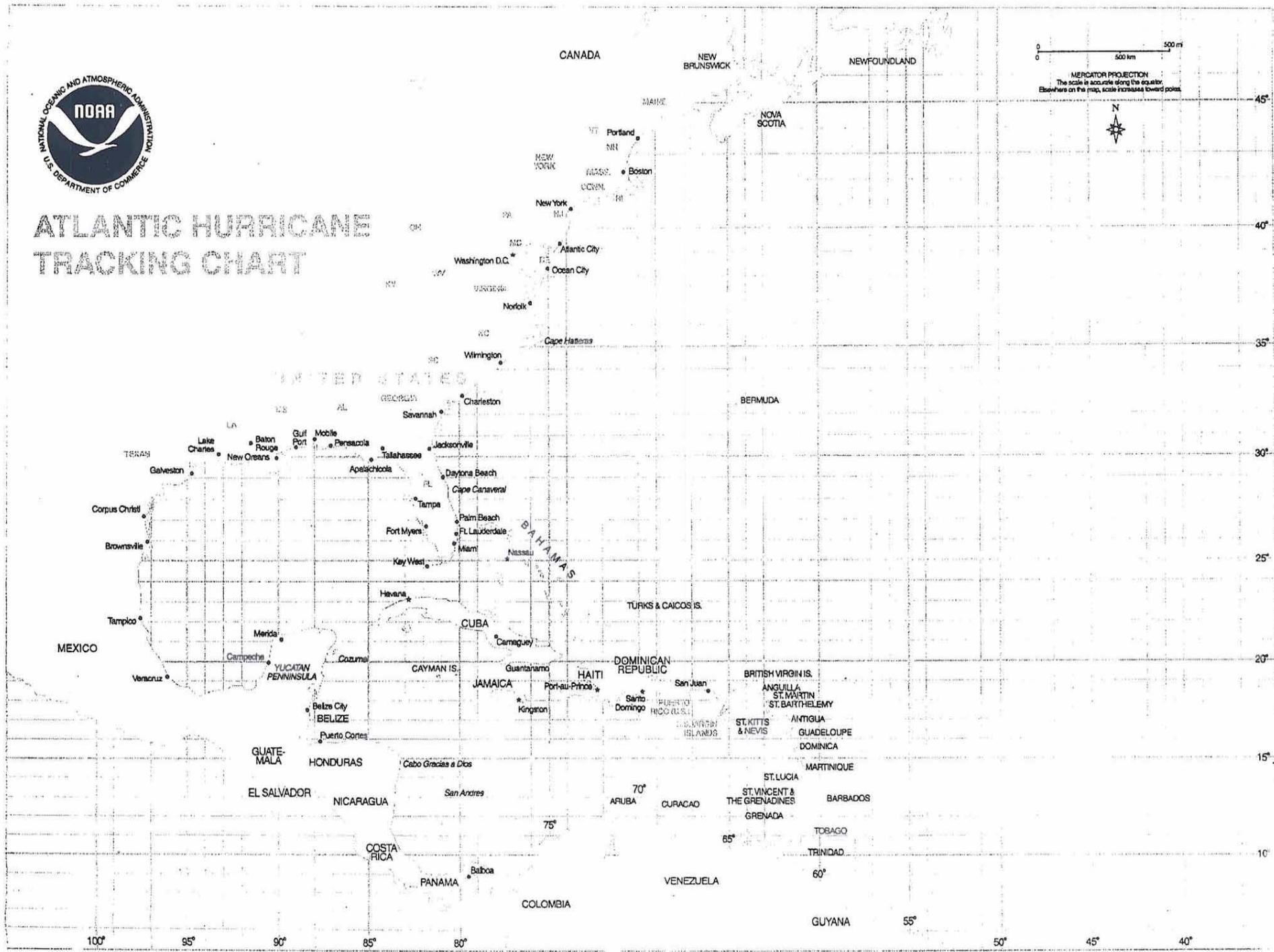
Emergency Telephone Numbers

<u>Local Agencies</u> – Ambulance Fire Police	911 911 911
<u>Hospital</u> Centro de Salud Familiar Susana Centeno Carr. 997 Kilometer 1 Ht.0 Bo. Destino Vieques, Puerto Rico	(787) 741-2151
<u>Regional Poison Control Center</u>	800-552-6337
<u>Federal Agencies</u> Agency for Toxic Substances and Disease Registry National Response Center	(404) 639-0615 (24 hr.) 800-424-8802
RPM– Christopher Penny Navy QA Representative – Carlton Findley	(757) 322-4815 (787) 509-3071
<u>Shaw Personnel</u> Project Manager – Bill Hughes Construction Site Supervisor – Mike Clemens Unexploded Ordnance Safety Officer – Mike Clemens Program CIH – David Mummert Program Health & Safety Manager – Kym Edelman	(757) 318-5140 (office) (509) 990-1149 (cellular) (419) 425-6129 (office) (419) 348-1544 (cellular) (757) 318-5132 (office) (757) 435-5384 (cellular)
<u>Shaw Corporation</u> (24 hour)	(866) 299-3445
Additional Phone #'s in Section 3 this SSHSP	

ATTACHMENT C
HURRICANE TRACKING MAP



ATLANTIC HURRICANE TRACKING CHART



HURRICANE PREPAREDNESS CHECKLIST

Resume Site Operations

Date/Time Resume Site Operations: _____

Action Items:

- Conduct a damage survey
- Notify all site personnel when to return to work
- Develop a prioritized recovery plan
- Inspect electrical equipment before re-energizing to detect and repair damage
- Provide bottled water for drinking until normal drinking water is deemed safe to drink
- Remove storm debris from site
- Notify Program Manager of the resumption of site activities

Resume Site Operations Action Items Complete: _____ **Date:** _____

HURRICANE PREPAREDNESS CHECKLIST

Resume Site Operations

Date/Time Resume Site Operations: _____

Action Items:

- Conduct a damage survey
- Notify all site personnel when to return to work
- Develop a prioritized recovery plan
- Inspect electrical equipment before re-energizing to detect and repair damage
- Provide bottled water for drinking until normal drinking water is deemed safe to drink
- Remove storm debris from site
- Notify Program Manager of the resumption of site activities

Resume Site Operations Action Items Complete: _____ **Date:** _____

APPENDIX G
ACCIDENT PREVENTION PLAN

**ACCIDENT PREVENTION PLAN
VIEQUES ISLAND, PUERTO RICO
Munitions Response
Vieques Island, Puerto Rico**

Prepared for:

DEPARTMENT OF THE NAVY
Atlantic Division
Naval Facilities Engineering Command
6506 Hampton Blvd.
Norfolk, Virginia 23508-1228

Contract No.: N62470-02-D-3260

Prepared by:

Shaw Environmental, Inc.
5700 Thurston Ave., Suite 116
Virginia Beach, VA 23455

September 2006
Shaw Project No. 123113

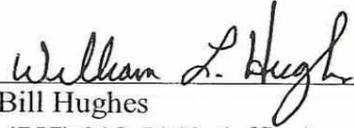
**ACCIDENT PREVENTION PLAN
SIGNATURE SHEET**

Approved by:
Program Certified Industrial Hygienist (CIH)



David Mummert, CIH
(419) 425-6129 (office)

Approved by:
Project Manager



Bill Hughes
(757) 318-5140 (office)

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LIST OF ACRONYMS

AHA	Activity Hazard Analysis
ANSI	American National Standards Institute
APP	Accident Prevention Plan
ASTM	American Society for Testing and Materials
CD	Compact Disc
CFR	Code of Federal Regulations
CIH	Certified Industrial Hygienist
DoD	Department of Defense
EH&S	Environmental Health and Safety
EMR	Experience Modification Rate
EMS	Emergency Medical Services
EZ	Exclusion Zone
HPP	Hurricane Preparedness Plan
HS	Health and Safety
HSM	Health and Safety Manager
HSC	Health and Safety Coordinator
MSDS	Material Safety Data Sheet
NIOSH	National Institute for Safety and Health
OSHA	Occupational Safety and Health Administration
PPE	Personal Protective Equipment
Shaw	Shaw Environmental, Inc.
SSHSP	Site Specific Health and Safety Plan
SS/UXOSO	Site Supervisor/Unexploded Ordnance Safety Officer
USACE	United States Army Corps of Engineers

1.0 BACKGROUND INFORMATION

The primary site tasks include the following:

- Clearing and Grubbing
- Soil Screening
- Road Repair
- MEC Surface Removal (covered in UXO Safety Plan)

Activity Hazard Analyses (AHA) have been prepared for the above activities and are included in Attachment C of the Site Specific Health and Safety Plan (SSHSP). AHAs for the MEC Surface removal task is covered in the UXO Safety Plan.

Shaw Environmental, Inc. (Shaw) Accident Experience

YEAR	Experience Modification Rate (EMR) (Interstate)	OSHA Recordable Incident Rate
2005	0.49	1.03
2004	0.50	1.07
2003	0.57	1.10

2.0 STATEMENT OF SAFETY AND HEALTH POLICY

CORPORATE POLICY

Subject:SAFETY

1.0 PURPOSE AND SUMMARY

It is the policy of Shaw to provide a safe and healthful workplace for all employees, subcontractors, and consultants in compliance with governmental requirements. Additionally, the requirements of our clients shall take precedence provided that their requirements exceed those of Shaw and governmental regulations.

We believe in two fundamental principles of safety: all accidents, injuries and occupational illnesses are preventable; and if an operation cannot be done safely, we will not do it. To put these principles into practice, every associate will receive the appropriate training, equipment, and other resources necessary to complete assigned tasks in a safe and efficient manner.

Safety, industrial hygiene and loss prevention are the direct responsibility of all members of management, who must create an environment in which everyone shares a concern for their own safety and the safety of their associates. Safety shall take precedence over expediency or short cuts. It is a condition of employment that all employees work safely and follow established safety rules and procedures. No individual(s) may pose a direct threat to the health and safety of other individuals in the workplace.

Managers must conduct their businesses in compliance with governmental safety regulations and company procedures. All Shaw health and safety procedures shall be implemented for all Shaw employees on all projects where Shaw is the subcontractor, or a joint venture partner. If Shaw is the prime contractor, Shaw procedures shall be applied to all Shaw and subcontractor personnel.

The implementation of effective safety and health practices is a key measure of managerial performance. Management, with the assistance of the internal health and safety professional staff, will conduct audits to assess the effectiveness of the safety program(s) in place, and to identify areas for improvement. All deficiencies shall be corrected promptly.

All injuries, occupational illnesses, vehicle accidents, and incidents with potential for injury or loss will be investigated. Appropriate corrective measures will be taken to prevent recurrence, and to continually improve the safety of our workplace.

3.0 RESPONSIBILITIES AND LINES OF AUTHORITY

Safety responsibilities, accountability and lines of authority are discussed in Section 2.0 of the SSHSP. The Project Manager (PM), Site Supervisor/Unexploded Ordnance Safety Officer (SS/UXOSO), Health and Safety Coordinator (HSC), Program Certified Industrial Hygienist (CIH) and Program Health and Safety Manager (HSM) are responsible for formulating and enforcing health and safety requirements, and implementing the SSHSP.

4.0 SUBCONTRACTORS AND SUPPLIERS

Each subcontractor working on the project site will be required to adhere to the SSHSP and the requirements presented below.

4.1 SUBCONTRACTOR/SUPPLIER COORDINATION AND CONTROL

All subcontractors will be screened for safety performance and compliance with Federal Alcohol and Drug testing requirements prior to being issued any contract for site work. Subcontractors will comply with the requirements for site safety as outlined in Shaw's Health and Safety (HS) Procedure HS011 (Attachment B of the SSHSP). The SS/UXOSO will be responsible for the conduct and control of Shaw subcontractors.

4.2 SUBCONTRACTOR/SUPPLIER SAFETY RESPONSIBILITIES

All subcontractor employees are subject to the same training and medical surveillance requirements as Shaw personnel depending on job activity. All subcontractor personnel will be required to sign in daily and be required to attend a daily meeting discussing operations and safety issues. All subcontractors involved in construction/remedial activities will complete a Subcontractor Pre-Job Safety Checklist prior to the start of work at the site. Subcontractors will submit AHAs for their work activities to the SS/UXOSO. The subcontractor reports directly to the Project Manager. All incidents involving subcontractor employees shall be reported to the SS/UXOSO and a copy of the subcontractor's injury/illness report shall be submitted to the SS/UXOSO within 24 hours.

Subcontractors are required to read and sign the SSHSP and comply with all requirements of this Accident Prevention Plan (APP). Contractors not in compliance will be immediately dismissed from the site.

Suppliers delivering various materials to the project site or providing equipment/ equipment maintenance will comply with all Naval Facility rules and regulations. Supplier personnel will not be permitted into work areas. Contractors will not ride on tractors, forklifts or similar vehicles unless specific seats are provided. They will follow facility hot work rules if hot work is required for vehicle or equipment maintenance. Trucks will be loaded and unloaded in a safe and effective manner and materials will be stored safely in designated locations only. Associated packaging will be properly disposed of and litter will not be permitted to be scattered or blown from truck beds. Operators of mobile equipment on site must observe all traffic rules such as speed limits and right-of-ways of pedestrians.

5.0 TRAINING

Outlines of the site safety orientation and training for site personnel, subcontractors and visitors are provided in Section 10.0 of the SSHSP.

5.1 MANDATORY TRAINING AND CERTIFICATIONS

Mandatory training and certifications are discussed in Section 10.0 of the SSHSP.

5.2 EMERGENCY RESPONSE TRAINING

All Shaw personnel who have completed the Shaw 40-hour HAZWOPER Training are qualified as emergency responders per 29 CFR 1910.120/1926.65 (e)(3)(iv). Site Specific Emergency Response Procedures will be reviewed with all site personnel as a part of site indoctrination.

5.3 SUPERVISORY AND EMPLOYEE SAFETY MEETINGS

The Shaw SS/UXOSO will conduct daily safety meetings at the start of each work shift for on-site personnel and will require subcontractors to follow similar meeting procedures or participate in the Shaw daily safety meetings. Daily safety meetings will comply with HS051 (Attachment B of the SSHSP).

6.0 HEALTH AND SAFETY INSPECTIONS

6.1 INSPECTIONS

The Shaw Project Manager and SS/UXOSO are required to conduct bi-monthly inspections of the sites using the Project Safety Inspection Report. The SS/UXOSO is responsible for conducting and preparing reports of daily safety inspections of work processes, site conditions, and equipment conditions and submitting them to HSM. The SS/UXOSO will discuss any necessary corrective actions with the SS/UXOSO and review new procedures. Copies of these reports are maintained on file at the project locations.

The Shaw HSM or HSC representative will periodically conduct site visits and perform Site Safety Assessments. These reports are kept on file at the Virginia Beach, Virginia, office and are tracked in a database for each Shaw Project Manager and SS/UXOSO, including the number of action items noted during the visit and written confirmation of the corrective actions for each item. These responses are compiled and provided to program management for review.

6.2 EXTERNAL INSPECTIONS/CERTIFICATIONS

Shaw does not anticipate, but may consider the use of outside sources, to provide safety inspections on an as necessary basis.

As required, safety equipment will comply with appropriate regulations of OSHA (Occupational Safety and Health Administration), NIOSH (National Institute for Occupational Safety and Health), ANSI (American National Standards Institute), ASTM (American Society for Testing and Materials), United States Coast Guard (USCG), or other recognized certification organizations.

7.0 SAFETY AND HEALTH EXPECTATIONS, INCENTIVE PROGRAMS, AND COMPLIANCE

Shaw considers safety the highest priority during work at a site containing potentially hazardous materials and has established a goal of **zero incidents** for all projects. All projects will be conducted in a manner that minimizes the probability of near misses, equipment/property damage or injury. Shaw will establish programs to recognize people and projects that demonstrate excellence in safety performance. Shaw will use safety observation programs to identify and correct unsafe acts and conditions. Safety awareness programs will be used to provide continuous training and development of good safety practices. Shaw site supervision will investigate all incidents to determine root causes and institute corrective actions to prevent recurrence. Shaw will provide and enforce safety rules to protect employees, subcontractors, clients and the public.

7.1 SHAW SAFETY INCENTIVE PROGRAMS:

A copy of the Shaw Safety Incentive Award Program will be available at each project. The Shaw Project Manager will develop a site-specific program for approval by the HSM and the LANTDIV program Manager within 10 days of project mobilization.

7.2 SHAW EMPLOYEE SAFETY RESPONSIBILITY REQUIREMENTS

Each employee is responsible for personal safety as well as the safety of others in the area and is expected to participate fully in the *Safety Improvement Process*, particularly the Safety Observation Program. The employee will use all equipment provided in a safe and responsible manner as directed by the SS/UXOSO. All Shaw personnel will follow the policies set forth in the Shaw Health and Safety Procedures HS001-999 (Available on site on compact disc [CD]). Site personnel concerned with any aspect of health and safety shall bring it to the attention of the SS/UXOSO. If not satisfied, they should contact the HSM. All project personnel have the authority to stop work if in their judgment serious injury could result from continued activity. The SS/UXOSO shall be notified immediately if this becomes necessary. To protect the health and safety of all personnel, employees that knowingly disregard safety policies/procedures may be subject to disciplinary actions up to and including termination. Shaw Employee Safety Responsibility is fully detailed in HS010 Employee Safety and Health Work Rules (Attachment B of the SSHSP).

7.3 MANAGERS AND SUPERVISORS SAFETY ACCOUNTABILITY

It is the duty of the first line supervisor to motivate employees to adhere to Shaw's safety policy in each work situation. A first line supervisor for these purposes is defined as that person designated to give immediate on-site supervision to personnel involved in a task.

All supervisors shall have complete knowledge of the safe procedure for all jobs and tasks under their supervision, or when in doubt, shall seek assistance prior to initiating a

task. This is the only acceptable manner in which to perform the task. If the task cannot be accomplished safely, it will not be attempted.

Supervisors will:

- Explain the safety procedure involved with a task to each employee and check frequently to see that the employee understands and works as instructed.
- Allocate sufficient time for the training and coaching of all employees to insure that everyone knows the correct procedure for safely accomplishing required tasks.
- Prevent new employees from performing any tasks until required training is completed.
- Immediately correct unsafe conditions that involved site employees or contractors.
- Ensure that the employees are outfitted with and wear personal protective equipment (PPE) as specified by this APP, SSHSP, other Shaw procedures or as directed by the HSC, CIH or HSM.
- Set a good safety example.
- Obtain the cooperation of employees and contractors.
- Provide a safe work environment for employees and contractors.
- Confirm contractor safety performance records have been verified prior to contract award and monitor contractor performance during operations.
- Report all accidents, near misses and property damage in accordance with the Incident Management and Reporting Procedure.
- Establish a safety culture, using the elements of the Shaw Safety Improvement process, which promotes awareness, encourages participation and recognizes excellence.

8.0 ACCIDENT REPORTING

8.1 EXPOSURE DATA (MAN-HOURS WORKED)

The Shaw's Environmental Health and Safety (EH&S) Manager tracks and maintains incident records as to Federal reporting requirement. Incident rates are reported monthly to the Shaw's EH&S Manager. Incident Rates and Workers Compensation losses are tracked for each business line. LANTDIV program incident rates are reported monthly by the Program HSM.

8.2 ACCIDENT INVESTIGATIONS, REPORTS AND LOGS

The SS/UXOSO conducts accident/incident investigations. A report is completed by the SS/UXOSO and it must be submitted to the Shaw Baton Rouge, Louisiana Safety Department within 24 hours. All incident reporting forms are provided in HS020.

8.3 IMMEDIATE NOTIFICATION OF MAJOR INCIDENTS

Shaw will immediately notify the client of any major incident, including injury, fire, equipment/ property damage, and environmental incident. A full report will be provided within 24 hours. The following procedure will be followed in response to any major personal injury.

8.4 ACCIDENT 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 SS/UXOSO to alert him of a medical emergency situation. The work crew supervisor will advise the following information:

- Location of the victim at the work site
- Nature of the emergency
- Whether the victim is conscious
- Specific conditions contributing to the injury, if known.

9.0 *MEDICAL SUPPORT*

On-site Medical Support/Off-site Medical Arrangements will be outlined in Section 9.0 of the SSHSP.

10.0 PERSONAL PROTECTIVE EQUIPMENT

Protection levels provided in the SSHSP will be established for the site work activities based on the levels of site contaminants and the scope of work. Once on-site, results of air monitoring and visual inspection of the work activities may indicate the need for changes in these PPE level(s). Any significant change in the PPE level will be approved by the SS/UXOSO in consultation with the CIH and/or HSM. PPE selection criteria are outlined in HS600 and HS601 (Attachment B of the SSHSP).

11.0 PLANS REQUIRED BY THE SAFETY MANUAL

11.1 HAZARD COMMUNICATION PROGRAM

The Site-Specific Hazard Communication Program is included Section 4.2 of the SSHSP. Shaw Hazard Communication Program complies with 29 CFR 1926.59/1910.1200 and is outlined in HS060 (Attachment B of the SSHSP).

11.2 EMERGENCY RESPONSE PLANS

The Emergency Response and Contingency Plan is included in Section 9.0 of the SSHSP.

11.3 LAYOUT PLANS

Work zones are defined in Section 5.0 of the SSHSP.

11.4 RESPIRATORY PROTECTION PLAN

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

Contamination on this site is not anticipated, therefore, respiratory protection will not be necessary.

11.5 CONTINGENCY PLAN FOR SEVERE WEATHER

Contingency plans for severe weather are included in Section 9.0 of SSHSP. A Hurricane Preparedness Plan (HPP) is located in Attachment G of the SSHSP.

11.6 ALCOHOL AND DRUG ABUSE PREVENTION PLAN

Shaw substance abuse procedures are outlined in Shaw HS101 - Drug, and Alcohol Testing.

***12.0 CONTRACTOR INFORMATION TO MEET THE
REQUIREMENTS OF THE MAJOR SECTIONS OF EM 385-1-1***

In addition to this APP, Shaw has prepared a SSHSP to meet the major requirements of United States Army Corps of Engineers (USACE) Manual 385-1-1. Additional procedures for major requirements are provided in the Shaw Health and Safety Procedures Manual HS001-999 (Available on site on CD).

APPENDIX H
Blood Borne Pathogens Exposure Control Plan

**BLOOD BORNE PATHOGENS
EXPOSURE CONTROL PLAN**

1.0 Blood-Borne Pathogen Exposure Control Plan

Blood-borne pathogens are microorganisms (i.e., bacteria, virus) sometimes present in blood and certain body fluids, which are capable of causing human disease or death. These pathogens can also be present on objects and surfaces that have had contact with infected blood or certain body fluids. Blood-borne pathogens are also capable of causing human disease or death to unprotected people who come into contact with infected blood or body fluids. Diseases caused by blood-borne pathogens include, but are not limited to, hepatitis A, hepatitis B, hepatitis C, malaria, acquired immunodeficiency syndrome (AIDS), and other sexually transmitted diseases. The most significant of these and of greatest concern are hepatitis B and AIDS.

Hepatitis B is a serious disease caused by hepatitis B virus (HBV), which attacks the liver. The virus can cause lifelong infection, cirrhosis (scarring) of the liver, liver cancer, liver failure, and death. Exposure symptoms include fever, fatigue, nausea, vomiting, muscle aches, loss of appetite, and jaundice (yellowing of the eyes or skin). Hepatitis diagnosis is difficult because some symptoms are similar to the flu and may remain mild for an extended period of time. The HBV can remain infectious for up to 10-days, even in dried blood. Hepatitis B vaccine is available for all age groups to prevent hepatitis B virus infection.

Human immunodeficiency virus (HIV) is the virus that causes AIDS. People with HIV have what is called HIV infection. Some of these people will develop AIDS as a result of their HIV infection. Humans may be infected with HIV for many years without experiencing any symptoms. Upon development of AIDS, symptoms may include weight loss, skin lesions, dry cough, fever, fatigue, diarrhea, swelling of the lymph glands, and death. Presently, no cure exists for HIV or AIDS, and no vaccination is currently available.

A hazard exists for blood and other bodily fluids to be infected with dangerous, infectious pathogens. Employees could become infected if they are exposed to these blood-borne pathogens.

The purpose of this Blood-borne Pathogen Exposure Control Plan is to provide the information, procedures, and requirements necessary to prevent employee exposure to blood-borne pathogens.

1.1 Regulatory, Requirement, and Policy Compliance

This Blood-borne Pathogen Exposure Control Plan has been prepared in compliance with:

- 29 CFR 1910.1030, Blood-borne Pathogens

- Safety and Health Requirements Manual, EM 385-1-1 (USACE, 2003), Section A.03.06
- Shaw HS 512, Handling of Blood or Other Potentially Infectious Material.

1.2 Exposure Determination

Occupational Safety and Health Administration (OSHA) requires employers to perform an exposure determination, identifying employees who may incur occupational exposure to blood or other potentially infectious materials. The exposure determination is made without regard to the use of personal protective equipment. For exposure determination purposes, employees are considered to be exposed, even if they wear PPE.

Activities at this project do not present a high risk of employee exposure to blood or other body fluids. An exception to this would be under circumstances when personnel administer first aid care or CPR to injured workers and when personnel clean-up areas and equipment that may have come in contact with blood as a result of the incident. In these cases, there is reasonable potential for employee skin, eye, mucous membrane, or potential contact with blood or other bodily fluids.

OSHA requires a listing of job classifications with identification of tasks performed in which some employees may have potential for occupational exposure. This requirement is for employees to clearly understand the tasks that they may perform have a potential for occupational exposure to infectious materials. The job classifications and associated tasks with an exposure potential are as follows:

- Field Superintendent—Administer first aid or CPR; decontaminate or disinfect surfaces and articles that have contacted infectious materials, and prepare biohazard waste for temporary storage and subsequent disposal.
- Site Safety Officer—Administer first aid or CPR; decontaminate or disinfect surfaces and articles that have contacted infectious materials, and prepare biohazard waste for temporary storage and subsequent disposal.
- Laborer—Administer first aid or CPR; decontaminate or disinfect surfaces and articles that have contacted infectious materials, and prepare biohazard waste for temporary storage and subsequent disposal.

These employees have potential for exposure to blood-borne pathogens when administering first aid or CPR and when performing post-accident clean-up operations due to:

- Contact or absorption of blood or blood-contaminated objects through open or broken skin (i.e., cuts, scratches, rashes)

- Blood splashes to their eyes, nose, or mouth, or other mucous membranes
- Punctures through the skin with a contaminated sharp object (i.e., scissors)

Workers can reduce their risk of contacting blood-borne pathogens by implementing the recommended work practices (outlined in this plan) before, during, and after responding to emergency medical incidents primarily involving personal injuries.

1.3 Schedule of Implementation

The procedures in this Blood-borne Pathogen Exposure Control Plan are to be implemented immediately.

Implementation includes:

- Verifying personnel, who are available to voluntarily provide first aid care and CPR hold a valid training completion certificate from a reputable training provider (American Red Cross or American Heart Association).
- The SSO is responsible for verifying that an appropriate number of personnel have been trained in and hold valid certification to perform first aid and CPR.
- Verifying that personnel voluntarily providing first aid care, CPR, post-accident clean-up operations, and biohazard waste handling have received the specialized training meeting the requirements of 29 CFR 1910.1030, Blood-borne Pathogens; Safety and Health Requirements Manual, EM 385-1-1 (USACE, 2003), Section A.03.06; and Shaw HS512, Handling of Blood or Other Potentially Infectious Material. This training is required for applicable personnel prior to the commencement of work and at least annually thereafter. This training shall cover the following elements:
 - A copy of 29 CFR 1910.1030 and this procedure including an explanation of the contents
 - A general explanation of the epidemiology and symptoms of blood-borne diseases
 - An explanation of the modes of transmission of blood-borne pathogens
 - An explanation of the appropriate methods for recognizing tasks and other activities that may involve exposure to blood and other potentially infectious materials
 - An explanation of the use and limitations of practices that will prevent or reduce exposure including appropriate engineering controls, work practices, and personal protective equipment
 - Information of the types, proper use, location, removal, handling, decontamination, and/or disposal of personal protective equipment
 - An explanation of the basis for selection of personal protective equipment

- Information on the hepatitis B vaccine, including information on its efficacy, safety, and the benefits of being vaccinated
- Information on the appropriate actions to take and persons to contact in an emergency
- An explanation of the procedure to follow if an exposure incident occurs including the method of reporting the incident and the medical follow-up that will be made available
- Also information on the medical counseling that is provided for exposed individuals
- An explanation of required signs and labels

The SSO is responsible for verifying that this blood-borne pathogen training has occurred.

- Verifying that engineering controls are readily available at the project for use in an emergency. Engineering controls for this project include:
 - (1) Fluid control solidifier pack
 - (1) 8" Biohazard scoop
 - (1) Disposable gown with full sleeves
 - (2) Disposable shoe covers
 - (1) Disposable bonnet
 - (1) Eye shield with ear loop
 - (2) 15"x24" Biohazard bags, 5 gallon capacity
 - (2) Clear bags with twist ties
 - (3) Disposable clean-up towels
 - (2) Exam gloves
 - (3) Anitseptic cleansing wipes
 - (2) Germicidal wipes

The SSO is responsible for verifying that this inventory of engineering controls is readily available at the project site for emergency use.

Verifying that the appropriate PPE for use in an emergency is readily available at the project site. Personal protective equipment is necessary to prevent employee exposures to infectious materials. The necessary PPE, which shall be maintained separately for use in an emergency include:

- (1) Disposable gown with full sleeves
- (2) Disposable shoe covers
- (1) Disposable bonnet
- (1) Eye shield with ear loop
- (2) Exam gloves

The SSO is responsible for verifying that the above inventory of PPE is readily available at the project site for emergency use.

1.4 Work Practice Controls

Work practice controls reduce the likelihood of exposure by altering the manner in which a task is performed. The work practice controls outlined in this section are applicable to the administration of first aid and the subsequent clean-up operations.

Work practice controls shall be instituted whenever there is potential for employee contact with blood and bodily fluid. Situational examples where these controls are to be implemented include, but are not limited to:

- The voluntary administration of first aid care, such as application of bandages to minor or major cuts and abrasions of another person. This care may allow for contact with sores, wounds, broken skin, blood, or other bodily fluids.
- The voluntary administration of first aid care, such as providing CPR.
- Clean-up activities involving handling soiled articles (e.g., gauze, bandages, compresses, etc.) and the decontamination or disinfecting of surfaces and articles that have contacted potentially infectious materials, such as blood or other bodily fluids.
- Prepare biohazard waste for temporary storage and subsequent disposal.

Based upon professional judgment, an employee may choose to temporarily forego the use of PPE if the employee determines that the use of the PPE will further jeopardize his well being or that of the injured worker. This limited application must be carefully evaluated and considered by the employee. If this situation does occur, Shaw will investigate and document the circumstances in an effort to provide alternative means to avoid further occurrence.

The following are specific work practice controls that shall be implemented in the above noted situations or whenever an employee determines that the implementation of these work practices is prudent or necessary:

- The appropriate PPE shall be donned prior to engaging in any activities that have the potential for employee contact with potentially infectious materials, such as blood or other bodily fluids.
- Hands and face will be washed as soon as possible after engaging in any activities that have the potential for employee contact with potentially infectious materials, such as blood or other bodily fluids. If wash facilities are not readily available, individually packaged disinfectant towelettes may be used in the interim.
- Eating, drinking, or smoking is not allowed in any work area where a potential exists for occupational exposure to blood borne pathogens.
- Open wounds or cuts shall be promptly bandaged.
- Work surfaces and areas shall be cleaned/disinfected immediately after being contacted by potentially infectious materials. A 10% bleach solution (one part bleach added to nine parts water) shall be applied and allowed to have a contact time of 15-minutes. Non-disposable articles, equipment, or materials contaminated with potentially infectious materials shall be similarly cleaned/disinfected prior to reuse.
- All bins, pails, cans, and similar receptacles intended for reuse, which have become contaminated with blood or other potentially infectious materials shall be cleaned/disinfected immediately after use.
- Broken glassware, which may be contaminated, shall not be picked up directly by hand. Broken glass shall be picked-up using mechanical means, such as by using a whiskbroom and dustpan.
- All personal protective equipment shall be immediately removed upon leaving the potentially contaminated work area, or as soon as possible if visibly contaminated. The contaminated PPE shall be placed in a labeled "red-bag" and then placed in the 30-gallon container for temporary storage and subsequent disposal.
- Any clothing that has contacted blood or other potentially infectious fluids shall be removed as soon as possible.
- Any clothing that has contacted blood or infectious fluids shall be placed in a labeled "red-bag" and then placed in the 30-gallon container for temporary storage and subsequent disposal.

1.4.1 Universal Precautions

Universal precautions is a method of infection control, which operates on the assumption that all human blood and bodily fluids are to be treated as if they are known to be infectious for HIV, HBV, or other blood-borne pathogens. Universal precautions shall be observed to prevent

contact with blood or other potentially infectious materials. Universal precautions consist of the following practices:

- All workers shall routinely use appropriate barrier precautions to prevent skin and mucous-membrane exposure when contact with blood or other body fluids is anticipated. Gloves should be worn for touching blood and body fluids, mucous membranes, or non-intact skin and for handling items or surfaces contaminated with blood or body fluids. Masks and protective eye wear or face shields shall be worn during procedures that are likely to generate droplets of blood or other body fluids to prevent exposure of mucous membranes of the mouth, nose, and eyes. Protective suits shall be worn during procedures that are likely to generate splashes of blood or other body fluids.
- Hands and other skin surfaces shall be washed immediately and thoroughly if contaminated with blood or other body fluids. Hands shall be washed immediately after gloves are removed, using a disinfectant soap.
- CPR barriers or other ventilation devices should be available for use in areas in which the need for resuscitation is foreseeable.
- Workers who have exudative lesions or weeping dermatitis shall be excluded from handling potentially infectious materials until the condition resolves.
- Pregnant workers should be especially familiar with and strictly adhere to precautions to minimize the risk of transmission.

1.4.2 Personal Protective Equipment

The proper use of PPE is an effective work practice control. The following requirements for PPE are mandatory whenever there is potential for employee contact with blood and bodily fluid:

- Inspect PPE prior to use to verify it is in good working order and without defects.
- Blood or other potentially infectious materials.
- Disposable (single use) gloves, such as surgical or examination gloves, shall be replaced when visibly soiled, torn, punctured, or when their ability to function as a barrier is compromised. Gloves should be changed as soon as possible after contact with blood or body fluids. After use, remove gloves from top to bottom inside out, not allowing unprotected skin to contact the exterior of the gloves. Hands and other skin surfaces shall be washed with disinfectant soap immediately after care has been rendered or clean up has been completed. Gloves reduce the incidence of blood contamination of hands, but they cannot prevent penetrating injuries caused by sharp objects. Do not reuse gloves once removed. A CPR barrier shall be used when administering CPR.
- Protection for the eyes, face, hands, body, feet, and against inhalation hazards shall be provided as appropriate for each job.

- Gloves shall be worn when employee has the potential for the hands to have direct skin contact with blood, other potentially infectious materials, mucous membranes, non-intact skin, and when handling items or surfaces soiled with
- Masks and eye protection or chin-length face shields shall be worn whenever splashes, spray, splatter, droplets, or aerosols of blood or other potentially infectious materials may be generated and there is a potential for eye, nose, or mouth contamination.
- Fluid-resistant clothing (e.g. coated Tyvek suits) shall be worn if there is a potential for splashing or spraying of blood or potentially infectious materials. Coated Tyvek coveralls shall also be worn during clean-up activities involving decontamination or disinfecting of surfaces and articles that have contacted potentially infectious materials, and when preparing biohazard waste for temporary storage and subsequent disposal.
- Fluid-resistant clothing (e.g. coated Tyvek suits) shall be worn if there is a potential for clothing becoming soaked with blood or other potentially infectious materials.
- Fluid-proof coverings shall be worn if there is a potential for shoes or boots to contact blood or other potentially infectious materials.
- Disposable nitrile or vinyl gloves shall be worn for touching blood and body fluids requiring universal precautions, mucous membranes, or non-intact skin and for handling items or surfaces soiled with blood or body fluids to which universal precautions apply.

1.4.3 Waste Handling

All wastes generated as a result of administering emergency first aid care and the subsequent clean-up activities shall be placed in red-bags, labeled as a biohazard, and kept separately from other trash. Wastes used in medical emergency treatment (i.e., gloves, towels, gauze) shall also be bagged and stored in an identical manner. Red-bagged, biohazard waste shall be placed in the 30-gallon collection container, labeled, and secured for temporary storage and disposal. Additional containers shall be obtained as needed and containers shall not be overfilled.

1.5 Biohazard Waste Disposal

A Shaw Transportation and Disposal Coordinator shall be contacted to arrange for proper disposal of biohazard wastes. The waste shall remain secured on-site in labeled container(s) until disposal arrangements have been made at an approved disposal facility. Disposal of the infectious waste container(s) shall be in accordance with applicable local, state, and federal regulations.

1.6 Medical Requirements

Employees receive medical evaluations in accordance with Shaw Procedure HS100 *Medical Policies and Procedures*. The medical requirements of this exposure control plan include

provisions for vaccinations to all exposed employees as well as for post-exposure procedures and evaluation. All employees with potential for occupational exposure to blood-borne pathogens shall receive the hepatitis B vaccination and tetanus vaccination prior to workplace exposure, unless they read and sign the Hepatitis B and Tetanus Vaccination Declination Form (see attached).

1.6.1 Hepatitis B Vaccination

All potentially exposed employees will have made available to them at no cost a hepatitis B vaccination. Recombivax or Accelerated Recombivax vaccines shall be utilized. If the employee has previously received the hepatitis B vaccination and/or antibody testing reveals that the employee is immune, a new vaccination is not required. Employees may be subjected to occupational exposure immediately after receiving the first shot in the hepatitis B vaccination series. Antibody testing shall be performed 30-days after completing the hepatitis B vaccination series. Employees unable to develop immunity shall be precluded from further occupational exposure. If a physician recommends a booster dose(s), the doses shall be provided according to standard recommendations for medical practice. The employee will also receive training as to the vaccine's efficacy, safety, benefits, and consequences prior to administration. The vaccination series may also be initiated within 24-hours of an incident with exposure potential.

1.6.2 Tetanus Vaccination

All employees subject to this policy shall maintain current status documentation of tetanus vaccination (current status for tetanus vaccination is within 5 years.) All potentially exposed employees shall be offered a tetanus vaccination at no cost.

1.6.3 Post-Exposure Procedures and Evaluation

All exposure incidents shall be reported as required by Shaw HS020, Accident Prevention Program: Reporting, Investigation, and Review. The Corporate Medical Director shall be advised in addition to standard notification procedures.

Following a report of an exposure incident, each involved employee shall be offered a confidential medical evaluation and follow-up, which includes at least the following elements:

- Documentation of the route(s) of exposure
- HBV and HIV antibody status of the source patient(s) (if known), and how the exposure occurred.
- The medical confidentiality rights of the source patient shall be preserved at all times.
- If the source patient can be determined and permission is obtained, collection of and testing of the source patient's blood to determine the presence of HIV or HBV infection shall be conducted under the direction of the attending physician.

- Collection of blood from the exposed employee as soon as possible after the exposure incident for the determination of HIV and/or HBV status. Actual core antibody and surface antigen testing of the blood or serum sample may be done at that time or at a later date if the employee so requests. If the test is deferred, arrangements shall be made through the attending physician to properly archive the specimen.
- Follow-up of the exposed employee including antibody and antigen testing, counseling, illness reporting, and safe and effective post-exposure prophylaxis, according to standard recommendations for medical practice as defined by the Corporate Medical Director.

Where applicable laws require employee consent, documented consent shall be obtained prior to testing. If an employee refuses the blood test, documentation of the refusal will be made. Documentation of the test results shall be made available to the exposed employee(s). All test results shall be kept confidential.

1.6.4 Physician Information

The following information shall be provided to the evaluating physician:

- A copy of 29 CFR 1910.1030 and its appendices
- A description of the affected employee's duties as they relate to the employee's occupational exposure.

1.6.5 Physician Opinion

For each potentially exposed employee evaluation, the employee shall receive a copy of the evaluating physician's written opinion within 15 working days of the completion of the evaluation. The written opinion shall be limited to the following information:

- The physician's recommended limitations upon the employee's ability to receive hepatitis B vaccination.
- A statement that the employee has been informed of the results of the medical evaluation and that the employee has been told about any medical conditions resulting from exposure to blood or other potentially infectious materials, which require further evaluation or treatment.
- Specific findings or diagnoses, which are related to the employee's ability to receive HBV vaccination. Any other findings and diagnoses shall remain confidential.

1.7 Hazard Communication

There are regulatory requirements for labels, signs, and training. The provisions and exceptions for these are contained in the subsections below.

1.7.1 Warning Labels

Containers used for disposal of blood-contaminated supplies and waste will be labeled in accordance with the word "biohazard." The following symbol shall be an integral part of the label:



1.7.2 Warning Signs

There are no designated areas for medical treatment on-site, because first aid is provided on an emergency basis only; therefore, warning signs are not applicable. In cases of potential exposure, observers and nonessential personnel should be verbally warned to keep a safe distance from injured personnel.

1.7.3 Employee Training Program

All employees who are first aid/CPR trained and may provide assistance shall be trained in the requirements for voluntary providers as described in HS512, *Handling Blood and Other Potentially Infectious Materials* this SHERP and its addenda, and the general provisions of this procedure.

1.8 Recordkeeping

There are federal record-keeping requirements for training, medical, and incident reporting documentation. The provisions for keeping these records are contained in the subsections below.

1.8.1 Training Records

All employees covered under this exposure plan shall be trained as required. A record of the training shall be appropriately generated. The training record will contain the date of the training session(s), the contents or a summary of the training session(s), the names of persons conducting the training, and the names of all persons attending the training sessions.

The training records will be maintained by the Shaw Training Department for at least five (5) years from the training date.

1.8.2 Medical Records

Medical records necessary for Shaw employees will include documentation of HBV vaccination status, medical follow-up, post-exposure testing, and a medical professional's written evaluation.

The employee medical records will be forwarded to and maintained by Health Resources, 600 West Cumming Park, Suite 3400, Woburn, Massachusetts 01801-6350 for inclusion in the employee's medical file. Confidentiality of all medical records shall be maintained.

Shaw maintains employee medical records for the duration of the employee's employment plus 30 years thereafter. If, for whatever reason, Shaw no longer does business and no successor exists, Shaw will notify the director of NIOSH in writing three months prior to the disposal of records. If so directed, the records shall be transferred to the director of NIOSH.

1.8.3 Incident Recording

An incident that occurs as a result of rendering emergency medical care will be recorded on the OSHA 300 log as OSHA defines work-related injuries and illnesses. All injuries involving the release of blood or bodily fluids must be immediately reported to the Project CIH for proper reporting and follow-up.

1.9 Plan Review and Update

This Blood-borne Pathogen Exposure Control Plan shall be reviewed and updated on an annual basis.

2.0 Hepatitis B and Tetanus Vaccination Declination

Due to the potential for you to have occupational exposure to potentially infectious materials in your work, the company will provide and encourages you to accept, vaccination for Hepatitis B and Tetanus. Information to assist you in this decision is provided below.

2.1.1 Tetanus

- A bacterial disease causing muscle spasms, seizures, and "lockjaw".
- This single injection vaccination has few side effects.
- There is minimal loss in protection if the vaccination is given at the time of an exposure/injury rather than in advance.

2.1.2 Hepatitis B

- A viral infection of the liver.
- About 9,500 occupational cases occur annually, mostly in health care workers, with about 200 deaths.
- This three injection vaccination has few side effects.
- Vaccination is 90% effective for at least seven years when given prior to exposure.
- Vaccination is 70-88% effective when given within one week of exposure.
- Hepatitis B can survive in the environment for 24-48 hours after drying.
- Risk of infection from one cut or puncture wound from a contaminated object:
 - Hepatitis B Virus 6-30%
 - Human Immunodeficiency Virus (AIDS) 0.5%.

If you wish to talk to a company doctor before making your decision, please ask the Health and Safety Manager to make arrangements for you. *If you choose to decline vaccination at this time, you must print and sign your name, and date the bottom of this form.*

I understand that due to my occupational exposure to blood or other potentially infectious materials I may be at risk of acquiring Hepatitis B Virus (HBV) infection.

I have been given the opportunity to be vaccinated by hepatitis B vaccine, at no charge to myself. However, I decline Hepatitis B vaccination at this time. I understand that by declining this vaccine, I continue to be at risk of acquiring Hepatitis B, a serious disease.

If in the future I continue to have occupational exposure to blood or other potentially infectious materials and I want to be vaccinated with Hepatitis B vaccine, I can receive this vaccination series at no charge to me.

Name (print) _____

Signature _____

Date _____

APPENDIX I
SAFETY PLAN ACKNOWLEDGEMENT

APPENDIX J
OSHA 300 LOG

OSHA's Form 300A (Rev. 01/2004)

Summary of Work-Related Injuries and Illnesses

Year 2006



U.S. Department of Labor
Occupational Safety and Health Administration

Form approved OMB no. 1218-0176

All establishments covered by Part 1904 must complete this Summary page, even if no injuries or illnesses occurred during the year. Remember to review the Log to verify that the entries are complete.

Using the Log, count the individual entries you made for each category. Then write the totals below, making sure you've added the entries from every page of the log. If you had no cases write "0."

Employees, former employees, and their representatives have the right to review the OSHA Form 300 in its entirety. They also have limited access to the OSHA Form 301 or its equivalent. See 29 CFR 1904.35, in OSHA's Recordkeeping rule, for further details on the access provisions for these forms.

Number of Cases

Total number of deaths	Total number of cases with days away from work	Total number of cases with job transfer or restriction	Total number of other recordable cases
<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
(G)	(H)	(I)	(J)

Number of Days

Total number of days away from work	Total number of days of job transfer or restriction
<u>0</u>	<u>0</u>
(K)	(L)

Injury and Illness Types

Total number of... (M)			
(1) Injury	<u>0</u>	(4) Poisoning	<u>0</u>
(2) Skin Disorder	<u>0</u>	(5) Hearing Loss	<u>0</u>
(3) Respiratory Condition	<u>0</u>	(6) All Other Illnesses	<u>0</u>

Post this Summary page from February 1 to April 30 of the year following the year covered by the form

Public reporting burden for this collection of information is estimated to average 50 minutes per response, including time to review the instruction, search and gather the data needed, and complete and review the collection of information. Persons are not required to respond to the collection of information unless it displays a currently valid OMB control number. If you have any comments about these estimates or any aspects of this data collection, contact: US Department of Labor, OSHA Office of Statistics, Room N-3644, 200 Constitution Ave, NW, Washington, DC 20210. Do not send the completed forms to this office.

Establishment information

Your establishment name _____

Street _____

City _____ State _____ Zip _____

Industry description (e.g., Manufacture of motor truck trailers)

Standard Industrial Classification (SIC), if known (e.g., SIC 3715)

OR North American Industrial Classification (NAICS), if known (e.g., 336212)

Employment information

Annual average number of employees _____

Total hours worked by all employees last year _____

Sign here

Knowingly falsifying this document may result in a fine.

I certify that I have examined this document and that to the best of my knowledge the entries are true, accurate, and complete.

Company executive

Title

Phone

Date

OSHA's Form 301

Injuries and Illnesses Incident Report

Attention: This form contains information relating to employee health and must be used in a manner that protects the confidentiality of employees to the extent possible while the information is being used for occupational safety and health purposes.



U.S. Department of Labor
Occupational Safety and Health Administration
Form approved OMB no. 1218-0176

This *Injury and Illness Incident Report* is one of the first forms you must fill out when a recordable work-related injury or illness has occurred. Together with the *Log of Work-Related Injuries and Illnesses* and the accompanying *Summary*, these forms help the employer and OSHA develop a picture of the extent and severity of work-related incidents.

Within 7 calendar days after you receive information that a recordable work-related injury or illness has occurred, you must fill out this form or an equivalent. Some state workers' compensation, insurance, or other reports may be acceptable substitutes. To be considered an equivalent form, any substitute must contain all the information asked for on this form.

According to Public Law 91-596 and 29 CFR 1904, OSHA's recordkeeping rule, you must keep this form on file for 5 years following the year to which it pertains.

If you need additional copies of this form, you may photocopy and use as many as you need.

Information about the employee

- 1) Full Name _____
- 2) Street _____
City _____ State _____ Zip _____
- 3) Date of birth _____
- 4) Date hired _____
- 5) Male
 Female

Information about the physician or other health care professional

- 6) Name of physician or other health care professional _____
- 7) If treatment was given away from the worksite, where was it given?
Facility _____
Street _____
City _____ State _____ Zip _____

- 8) Was employee treated in an emergency room?
 Yes
 No
- 9) Was employee hospitalized overnight as an in-patient?
 Yes
 No

Information about the case

- 10) Case number from the Log _____ (Transfer the case number from the Log after you record the case.)
- 11) Date of injury or illness _____
- 12) Time employee began work _____ AM/PM
- 13) Time of event _____ AM/PM Check if time cannot be determined
- 14) What was the employee doing just before the incident occurred? Describe the activity, as well as the tools, equipment or material the employee was using. Be specific. Examples: "climbing a ladder while carrying roofing materials"; "spraying chlorine from hand sprayer"; "daily computer key-entry."
- 15) What happened? Tell us how the injury occurred. Examples: "When ladder slipped on wet floor, worker fell 20 feet"; "Worker was sprayed with chlorine when gasket broke during replacement"; "Worker developed soreness in wrist over time."
- 16) What was the injury or illness? Tell us the part of the body that was affected and how it was affected; be more specific than "hurt", "pain", or "sore." Examples: "strained back"; "chemical burn, hand"; "carpal tunnel syndrome."
- 17) What object or substance directly harmed the employee? Examples: "concrete floor"; "chlorine"; "radial arm saw." If this question does not apply to the incident, leave it blank.
- 18) If the employee died, when did death occur? Date of death _____

Completed by _____
Title _____
Phone _____ Date _____

Public reporting burden for this collection of information is estimated to average 22 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Persons are not required to respond to the collection of information unless it displays a current valid OMB control number. If you have any comments about this estimate or any other aspects of this data collection, including suggestions for reducing this burden, contact: US Department of Labor, OSHA Office of Statistics, Room N-3644, 200 Constitution Ave, NW, Washington, DC 20210. Do not send the completed forms to this office.

APPENDIX K
UXO Safety Plan

Activity Hazard Analysis for Unexploded Ordnance Operations		
Principal Steps	Potential Hazards	Recommended Controls
Transportation of explosive materials	Accidental detonation of explosives	<p>Explosives will be transported in accordance with the 49, CFR, Parts 100-199.</p> <p>Explosives will be transported in closed vehicles whenever possible.</p> <p>When using an open vehicle, explosives will be covered with a flame resistant tarpaulin.</p>
Transportation of explosive materials	Unqualified Drivers	<p>Motor vehicles will be shut off when loading/unloading explosives.</p> <p>Beds of vehicles will have either a nonconductive bed liner, dunnage, or sand bags to protect the explosives from contact with the metal bed and fittings.</p> <p>Initiating explosives, such as blasting caps, will remain separated at all times from bulk explosives.</p> <p>Each vehicle used for the transport of MEC will be outfitted with a fire extinguisher and first aid kit.</p> <p>Do not fuel trucks when loaded with MEC.</p> <p>Drivers operating outside the boundaries of any federal installation will be licensed in accordance with federal, state, and local regulations.</p> <p>Drivers will observe all posted speed limits while operating a motor vehicle on a public roadway.</p> <p>Vehicles transporting explosives off-road will not exceed 15 miles per hour (mph).</p> <p>Chock wheels when loading or unloading</p>

Activity Hazard Analysis for Unexploded Ordnance Operations		
Principal Steps	Potential Hazards	Recommended Controls
Transportation of explosive materials	Vehicle Operations	MEC-related material.
Storage of explosive materials	Accidental detonation of explosives	Materials will be stored in accordance with federal, state, and local regulations. Refer to the SOP for the Storage of Explosive Materials.
Surveying and establishing boundaries and grids	Accidental detonation of explosives Wildlife, slips, trips, falls, insects, poisonous plants, use of hand tools	Personnel involved will attend a site-specific MEC recognition class prior to the commencement of any site activities. UXO personnel will escort non-UXO-qualified personnel at all times. Mark and avoid MEC. Only UXO personnel will handle MEC waste. Check location with magnetometer prior to driving stakes. Refer to the Activity Hazard Analysis for section of this SSHP.

Activity Hazard Analysis for Unexploded Ordnance Operations		
Principal Steps	Potential Hazards	Recommended Controls
Clearing and grubbing	Accidental detonation of explosives	<p>Personnel involved will attend a site-specific MEC recognition class prior to</p> <p>The commencement of any site activities.</p> <p>Be alert and mark all MEC located.</p> <p>Only clear and grub to within 4 inches of the ground surface.</p> <p>UXO trained personnel will escort non-UXO-qualified personnel at all times.</p> <p>Surface sweeps will be conducted with magnetometers or other suitable geophysical instrumentation to identify potential MEC.</p>
Transportation of MEC waste	<p>Accidental detonation of explosives</p> <p>Vehicle Operations</p>	<p>No personnel allowed in cargo compartment of vehicle transporting MEC.</p> <p>No MEC allowed in passenger compartment of vehicle.</p> <p>Block, brace, secure MEC.</p> <p>No smoking in vehicles used for transport of MEC waste.</p> <p>Placard vehicle in accordance with U.S. Department of Transportation (DOT) regulations.</p> <p>Vehicles transporting explosives off-road will not exceed 15 mph.</p>

Activity Hazard Analysis for Unexploded Ordnance Operations		
Principal Steps	Potential Hazards	Recommended Controls
		Drivers will observe all posted speed limits while operating a motor vehicle on a public roadway.
MEC disposal operations	Accidental detonation of explosives Exposure to Depleted Uranium (DU)	Observe procedures outlined in EODB 60A-1-1-31. Training to recognize the visual characteristics of weathered DU. Suspected DU will be screened using a Radiac.
MPPEH demilitarization	Accidental detonation of explosives Shredder Operations	Only UXO technicians will perform explosive demilitarization of MPPEH. Stay clear of moving mechanical parts. Ensure that only inspected scrap is fed into shredder.
Inspection/certification of ORS	Accidental detonation of explosives	Only UXO technicians will inspect MPPEH. Personnel in the immediate vicinity of MPPEH inspections will be kept to the minimum necessary for safe operations but no less than two UXO technicians. Observe requirements of DoD 4160.21-M-1.
Anomaly reacquisition	Accidental detonation	Only UXO technicians will excavate or handle MEC. Personnel in the immediate vicinity of MEC operations will be kept to the minimum necessary for safe operations, but no less than two UXO technicians. Do not subject MEC to heat, shock, or friction. Only hand excavation permitted when within 1 ft of MEC. Magnetometers will be used

Activity Hazard Analysis for Unexploded Ordnance Operations		
Principal Steps	Potential Hazards	Recommended Controls
	Non-UXO personnel	Frequently to pinpoint the location of MEC. Establish exclusion zone (EZ); post warning signs, maintain site control. Stop all MEC operations when non-UXO-qualified personnel are within the EZ.
Clearing and grubbing of vegetation	Cutting tools, chain saws, weed cutters	Eye, hand, foot, and hearing protection (Level D). Face shield and chaps will be worn by chain saw operations. Personnel using chain saws, cutting tools, and weed cutters must provide safe distance between workers and be cautious of tools.
Only the UXO subcontractor will transport MEC material and explosives		

Equipment to be used	Inspection Requirements	Training Requirements
Vehicles Fire extinguishers First aid kits Demolition materials Explosives Blocking, bracing, and cushioning tools Manual hand tools Mechanized equipment EMM Geophysical instrumentation Global Positioning System instrumentation PPE Communication equipment	Daily preventive maintenance and operational checks First aid kits Calibration of geophysical instrumentation	40-hour qualification per 29CFR 1910.120 8-hour refresher UXO personnel EOD trained Tailgate safety meetings Site-specific orientation Lead awareness training Poison oak awareness training

APPENDIX L
Accident Reporting Forms



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 necessary to prevent incident re-occurrence. 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 Corporate Safety Department, for safe keeping, 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; the business line President and the Legal Department.
- All OSHA recordable injuries/illnesses, chargeable vehicle accidents, fatalities, major injury/illness, or incidents resulting in significant property damage are subject to being classified as A Confidential Attorney-Client / Attorney Work Product investigation status.
- All business line Health & Safety Managers are required to submit a Monthly Loss Report, by the 10th of the following month, summarizing all chargeable vehicle accidents and all injury/illness cases requiring outside medical care that took place during the previous reporting month to the Baton Rouge Corporate Safety Office.

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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 \$1,000.00.
- When an employee is driving a personal vehicle while on company business and damage exceeds \$1,000.00.

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.

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

Note: Employers may stop counting days away from work and days of restricted work activity once the total of either or the combination of both reaches 180 days.

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

OSHA Recordable Case – See Attachment 7

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.

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 Safety Officers / Managers or any supervisor (but preferably the supervisor directly responsible for the involved employees) with first-hand knowledge of an incident is required to:

- Immediately arrange for appropriate medical attention and notify the responsible health and safety representative.
- As soon as practical but not longer than one hour after occurrence, notify the Shaw Notification Hotline/Helpdesk by calling 1-866-299-3445 of any injury requiring off-site medical treatment, any chargeable vehicle accident or equipment incident involving property damage exceeding \$1,000 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 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 Officer / Manager 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 accident.

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 Site Safety Officer and Supervisor shall initiate/complete the appropriate company documentation in accordance with the following incident classifications:
 - 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)
 - 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)



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

- Near Miss
 - a. Incident Investigation Report (Attachment 5)

- Property Damage/General Liability
 - a. Equipment, General Liability, Property Damage, and Loss Report (Attachment 4).
 - b. Witness Statement (Attachment 6)

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 comments. Upon completion of review and comments the report should be forwarded to the Shaw Corporate Claims department in Baton Rouge.

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 comments. Upon completion of review and comments the report should be forwarded to the Shaw Corporate Claims department in Baton Rouge.

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 \$1,000.00. 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, then forward it to the project/location manager. The Corporate Claims Department 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;
- List witnesses and collect written statements;
- If applicable, contact the employee's Functional Manager in an effort to gain relative information
- Identify the causative factors;
- Identify potentially unsafe acts or unsafe conditions that may have contributed to the incident;
- Identify potential systematic deficiencies; and
- List the corrective actions which are to be taken to prevent re-occurrence of the incident, the person responsible for the corrective action, and the date by which action is to be completed.

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

5.6 Witness Statement Form (Attachment 6)

The witness statement form was created to allow for consistency in the development of the investigation process. If there are witnesses to the accident/incident, this form should be completed and signed by the subject witness and attached to the incident investigation report. It is essential that the witness statement be executed immediately following the incident to ensure an accurate account of the events.

5.7 Accident Review Board (ARB) (Attachment 7)

As a directive of the Corporate Legal Department, each of the respective Business Line Health and Safety Managers whose project/location experiences an OSHA recordable or a chargeable vehicle accident is required to convene an ARB within **10 days** of the accident. The purpose of the Accident Review Board is to review the information, gathered for each incident, and take appropriate action to prevent its recurrence. The Accident Review Board shall be composed of the project/location manager, the employee's direct supervisor, a health and safety representative, and the employee(s) involved in the incident.

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 OSHA recordable injuries/illnesses, chargeable vehicle accidents, fatalities, major injury/illness, or incidents resulting in significant property damage are subject to being classified under a Confidential Attorney-Client / Attorney Work Product investigation status. The determination as to whether the ARB is classified as a Confidential Attorney-Client / Attorney Work Product investigation status must be executed as soon as possible and always prior to initiation of the ARB process. If the determination is made to initiate the ARB under a Confidential Attorney-Client / Attorney Work Product status, all documents concerning the investigation process, including the ARB, will be submitted to the Corporate Safety Department, for purposes of confidentiality and safe keeping, on behalf of the Legal Department, in anticipation of litigation.

Unless the investigation is considered as a Confidential Attorney-Client / Attorney Work Product investigation, the ARB report shall be completed as soon as practicable and forwarded to the Corporate Safety Department, via the Corporate Claims fax number. Upon completing review of the draft ARB, the Business Line Safety Manager will be notified and the ARB shall be completed by the Business Line Safety Manager and signed by all members of the ARB.

It is generally not acceptable to discipline an employee for having an accident. However, if the Accident Review Board determines that the accident resulted from an intentional unsafe act or 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).

5.7 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



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2. Supervisor's Employee Injury/Illness Report
3. Vehicle Accident Report
4. Equipment, General Liability, Property Damage, and Loss Report
5. Incident Investigation Report
6. 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.



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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	Female	Date of Birth:	Hire Date:
Dependents:		Dependents Under 18:	Marital Status:
Occupation:		Department Name:	
State 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
Salary 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:		



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?

Lost 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

Where 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

REPORT PREPARED BY

Name:

Title:

Address:

Phone:



**ATTACHMENT 3
 VEHICLE ACCIDENT REPORT
 Page 1 of 2**

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 _____

COMP 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

IF 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 _____

OTHER VEHICLE

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

- WEATHER: Clear Cloudy Fog Rain Sleet Snow Other _____
- PAVEMENT: 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
- Yield
- 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 VEHICLE ACCIDENTS TO SHAW NOTIFICATION HOTLINE/HELPDESK
 (PHONE: 1-866-299-3445)



ATTACHMENT 4

EQUIPMENT, GENERAL LIABILITY, PROPERTY DAMAGE, AND LOSS REPORT

This report is to be completed for all losses or damage to company property in excess of \$1,000.00 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 _____

JURED 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 ***

Investigation Date _____ Date of Incident _____

Employee Name _____

Supervisor Name _____

Project Number/Name _____ / _____

Location of Incident _____

Incident Classification

<u>Injury</u>	<input type="checkbox"/> First Aid	<u>Vehicle</u>	<input type="checkbox"/> Chargeable	<u>DOT</u>	<input type="checkbox"/> DOT Vehicle
	<input type="checkbox"/> OSHA Recordable		<input type="checkbox"/> Non-chargeable		<input type="checkbox"/> DOT Reportable
	<input type="checkbox"/> Lost Workday				
	<input type="checkbox"/> Restricted Workday	<u>Near Miss</u>	<input type="checkbox"/>	<u>General Liability</u>	<input type="checkbox"/>

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

(Attach Additional Pages if Needed)



ATTACHMENT 6
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:	
THE FOLLOWING INFORMATION <u>MUST</u> BE PROVIDED BY THE REVIEW BOARD FOR THIS INCIDENT (PRINT):			
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)			

The determination as to whether the ARB is classified as being considered as a Confidential Attorney-Client / Attorney Work Product investigation must be executed as soon as possible and always prior to initiation of the ARB process.



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)

Loss of Consciousness - If an employee loses consciousness as the result of a work-related injury/illness, the case must be recorded no matter what type of treatment was provided. The rationale behind this recording requirement is that loss of consciousness is generally associated with more serious injuries.

Restriction of Work or Motion - Restricted work activity occurs when the employee, when as the result of a job-related injury or illness, an employer or LHCP keeps, or recommends keeping, an employee from doing the routine functions of his or her job or from working the full workday that the employee would have been scheduled to work before the injury or illness occurred.



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Transfer to Another Job - Injuries requiring transfer of the employee to another job are also considered serious enough to be recordable regardless of the type of treatment provided. Transfers are seldom the sole criterion for recordability because injury cases are almost always recordable on other grounds, primarily medical treatment or restriction of work or motion.



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**ATTACHMENT 9
 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.**



**ATTACHMENT 9B
 MEDICAL FORMS**

AUTHORIZATION FOR RELEASE OF PROTECTED MEDICAL INFORMATION

Patient Identification

Printed Name: _____ Date of Birth: _____
 Address: _____
 Social Security #: _____ Home Telephone: _____

Authority to Release Protected Health Information

I hereby authorize the release of information, identified in this authorization form, from the medical records associated with my occupational injury / illness 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	

Other, (specify) _____

Purpose of the Requested Disclosure of Protected Health Information

I am authorizing the release of my Protected Health Information as a result of an occupational injury or illness.

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 previous drug and/or alcohol abuse, psychiatric care, sexually transmitted disease, hepatitis B or C testing, 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.



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Signature of Patient or Personal Representative Who May Request Disclosure

I understand that I do not have to sign this authorization, and my treatment or payment for services will not be denied if I do not sign this form. 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:



**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) 855-2841. 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



Shaw Environmental, Inc.
500 East Main Street, Suite 1630
Norfolk, VA 23510
757-640-6937
FAX: 757-640-6201

November 20, 2006

Commander Atlantic Division
NAVFAC ATLANTIC
6506 Hampton Blvd
Norfolk, VA 23508-1278
Attn: Code EV23 Mr. Chris Penny

**RE: WORK PLAN, ADDITIONS AND CORRECTIONS, CONTRACT N62470-02-D-32600,
TASK ORDER NO. 74, MUNITIONS REMOVAL ACTIONS AND MEC SUPPORT
ACTIVITIES, MUNITIONS RESPONSE SITES LOCATED WITHIN THE MUNITIONS
REMOVAL AREA, FORMER VIEQUES NAVAL TRAINING RANGE, PUERTO RICO**

Dear Mr. Penny:

Enclosed please find the following corrections and additions to the Work Plan for the Munitions Removal Actions and MEC Support Activities Project:

- Site Specific Health and Safety Plan (Please insert into the front of Appendix A.)
- Appendix A, Appendix A cover sheet (International Safety Cards and Material Safety Data Sheets (MSDS's)). (Please insert behind page 11-1).

Copies of these corrections and additions have been distributed to the Vieques Munitions Response members for their reference.

Thank you for providing Shaw E&I with this opportunity. Should you have questions or comments please do not hesitate to call me at (757) 640-6937.

Sincerely,

William L. Hughes, R.G.
Project Manager.

Enclosures
cc.

Mike Clemens	Shaw E&I (2 copies)
Kevin Cloe	NAVFAC Atlantic (1 copy)
William Davis	(1 copy)
Kevin Donnelly	Shaw E&I (w/o attachment)
Carlton Finley	NAVFAC Atlantic (1 copy)
Tim Garretson	CH2M Hill (1 copy)
Tom Hall	Tech Law, Inc. (1 copy)

Stacin Martin	CH2M Hill (1 copy)
Yarissa Martinez	Puerto Rico Environmental (1 copy)
Phil McGinnis	NAVFAC Atlantic (1 copy)
George Overby	Shaw E&I (w/o attachment)
Jim Pastorick	GeoPhex UXO, Ltd (1 copy)
Joe Riner	Advent (1 copy)
Madeline Rivera	NAVFAC Atlantic (1 copy)
Daniel Rodriguez	US Environmental Protection Agency (1 copy)
Noah Sarvis	Advent (w/o attachment)
Jeff Smoak	Advent (w/o attachment)
John Tomik	CH2M Hill (1 copy)
Rick Urbanski	NOSSA (1 copy)

APPENDIX A

SITE SPECIFIC HEALTH AND SAFETY PLAN