APPENDIX D

HEALTH AND SAFETY PLAN FOR THE INLAND PARCELS, FORMER PRATT OIL WORKS SITE

Long Island City, New York

AUGUST 2008

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SITE EMERGENCY RESPONSE PLAN

FORMER PRATT OIL WORKS SITE, LONG ISLAND CITY, NY

I. PURPOSE & SCOPE OF PLAN

The Site Emergency Response Plan (SERP) provides the on-site user performing work under Parsons' direction and supervision with critical information to be used in the event of an emergency. A copy of the SERP should be posted in the support zone at the work site and a copy should be with on-site personnel during field activities. This plan describes emergency notification guidelines and contact information and provides information on emergency and non-emergency medical facilities.

II. EMERGENCY NOTIFICATION GUIDELINES

- In an emergency, the incident witness will **CALL 911 FIRST.**
- After calling 911, the incident witness will notify the SHSO who will act as the Emergency Coordinator (EC). Inform the EC of the location and nature of the incident and have the SHSO direct emergency personnel to the incident.
- If the first call to 911 was made using a cellular telephone, the EC will immediately **re-call 911** to back up the first call with a land line call (if available).
- The incident witness or EC will directly contact Parsons Project Manager (PM), Ms. Megan Miller.
- The PM will call the emergency contacts included in the attached Emergency Contacts List in the order they are listed until they obtain direct voice contact (See Table I).
- The incident witness or SHSO can then contact the emergency room ahead of time so hospital personnel can prepare for the situation if injured personnel are chemically contaminated. The incident witness or SHSO must also contact the police department to make sure they are aware of the chemical contamination.
- As part of the safety and health enforcement on-site, tasks should be classified as high risk or low risk. Before high risk work commences that would require specialized teams of emergency personnel (e.g., confined space entry, working at heights, working near water, excavation, etc.), the SHSO should contact the police department and notify them of the intended duration of work.
- The Emergency Contact List, included at the end of this plan (Table I), must be in an easily accessible and visible location at the Site and must be with the field team at all times to provide users with critical information in the event of an emergency.
- Posters/signs with emergency telephone numbers and locations of facilities should be displayed at selected phone locations throughout the project area (including subcontractor facilities).
- Post this SERP in the support zone of the work site.

III. EMERGENCY AND NON-EMERGENCY ROUTES AND MAPS

Emergency Medical Services

Location: NYU Medical Center and is located at 560 1st Avenue, New York, NY, 10016.

Phone: (212) 263-7300

Hours of Operation: 24 hours

Travel Distance: 3.85 miles

Travel Time: 9 minutes

Directions:

1. Start out going northwest on Review Avenue towards 37th Street (0.2 miles).
2. Turn slight RIGHT onto Van Dam Street (0.3 miles).
3. Merge onto I-495 WEST toward Midtown Tunnel/Manhattan (Portions Toll, 2.5 miles).
4. Keep LEFT at the fork in the ramp (<0.1 miles).
5. Turn LEFT onto East 35th Street (<0.1 miles).
6. Turn RIGHT onto 2nd Avenue (0.2 miles).
7. Turn LEFT onto East 30th Street (0.1 miles).
8. Turn LEFT onto 1st Avenue (0.1 miles).
9. End at 560 1st Avenue.

Non-Emergency Medical Services

In the event of a "work related injury" that is not a medical emergency it is preferable to send the injured worker to an industrial clinic rather than to the hospital/emergency room. However, since Parsons is not part of a Managed Care Organization, the injured worker has the right to be treated by whomever they want. It is the injured worker's right to choose their medical provider. If the injured worker has no preference for a medical provider, they will be directed to the following industrial clinic: **Emergimed**.

Location: 663 Palisade Avenue, Cliffside Park, NJ 07010.

Phone: (201) 945-6500

Hours of Operation: Monday through Friday between 8:00 AM and 8:00 PM and Saturday and Sunday between 8:00 AM and 4:00 PM

Travel Distance: 12.11 miles

Travel Time: 28 minutes

Directions:

1. Start out going northwest on Review Avenue towards 37th Street (0.2 miles).
2. Turn slight RIGHT onto Van Dam Street (0.3 miles).
3. Merge onto I-495 WEST toward Midtown Tunnel/Manhattan (Portions Toll, 2.5 miles).
4. Keep LEFT at the fork in the ramp (<0.1 miles).
5. Stay straight to go onto Queens Midtown Tunnel Exit/Tunnel Exit Street (<0.1 miles).
6. Turn RIGHT onto East 34th Street (1.2 miles).
7. Turn RIGHT onto Deyer Avenue (0.1 miles).
8. Take the Lincoln Tunnel Ramp (<0.1 miles).
9. Merge onto I-495 West crossing into New Jersey (0.9 miles).
10. I-495 West becomes NJ 495 West (1.4 miles).
11. Take the Boulevard East Exit towards Weekawken (0.1 miles).
12. Turn slight RIGHT onto JF Kennedy Boulevard East (1.4 miles).
13. Turn slight RIGHT onto Hillside Road/CR-505 (0.5 miles).
14. Turn LEFT onto CR-505 N/River Road (1.2 miles).
15. Turn slight LEFT (<0.1 miles).
16. Turn LEFT onto Gorge Road/CR-25 (1.0 miles).
17. Turn slight RIGHT onto Palisade Avenue/CR-27 (0.3 miles).
18. End at 663 Palisade Avenue.

IV. EXTERNAL CONTACT/EMERGENCY INFORMATION

The area code for local emergency telephone numbers is (718). The 911 call service can be used at the Project Site.

Other phone numbers:

Facility	Phone Number
Fire Department	911 (Emergency) or (718) 847-6600 (Non-Emergency)
Police Department	911 (Emergency) or (718) 784-5411 (Non-Emergency)
NYU Medical Center	(212) 263-7300 (General Number)
NYU Medical Center	(212) 263-5550 (Emergency Room)
Non-Emergency Facility (Emergimed)	(201) 945-6500
Poison Control Center	1 (800) 222-1222
National Response Center (Reporting Oil and Chemical Spills)	1 (800) 424-8802
Parsons Contract Physician (Qualysis)	1 (800) 874-4676
OSHA (Nationwide)	1 (800) 321-6742
Dig Safely New York (NYS One call system)	1 (800) 962-7962

V. EMERGENCY EVACUATION PROCEDURES AND DIAGRAMS

In the event of an emergency requiring evacuation of a Site specific work area, affected on-site personnel will meet at the field trailer. Personnel working in the field should know the locations of locked gates and other physical obstructions (e.g., fencing, buildings) that would hinder evacuation prior to commencing work and verify their path is clear and unobstructed. All personnel are required to keep nearest gate(s) unlocked and open while working in a closed-off section of the Site to keep evacuation routes clear and unobstructed. If evacuation of the site is necessary, all on-site personnel will meet at a predetermined off-site location.

Evacuation Wardens will be designated amongst each work crew and will sweep the work area for potentially missing persons, and ensure that all personnel are accounted for by doing a headcount. The EC or their designee will do a final check with the Evacuation Wardens using the site sign-in sheet.

VI. EMERGENCY OPERATIONS CENTER (COMMAND POST)

In the event of an emergency, the field trailer or SHSO work vehicle will act as the command post.

VII. EMERGENCY RESPONSE ACTIONS

It is the responsibility of the SHSO or PHSO to help decide and coordinate what type of response is needed. This means that the SHSO or PHSO must decide whether emergency medical or fire responders need to be called, personnel need to evacuate the site, spill control measures need to be implemented, etc., and then act on those decisions in an organized manner. The EC will coordinate calls to emergency responders and help direct traffic.

Before work begins, the entire project team must be aware of the hazards and response needed to handle emergency situations related to that type of work. The project team should review how the team will respond when an alarm sounds, how much time it would take to shutdown work and mobilize to a safe location, and how to immediately evacuate the Site or work area if the situation becomes life threatening. It should be understood that any person who witnesses a situation that appears to be unsafe has the authority to stop work.

The following table shows a decision matrix for response actions, which should be reviewed before work begins. Personnel can use this table to identify particular hazards on-site, assess whether time is required to shut down a specific task in the event of a hazard, if shelter or evacuation is necessary for dealing with that hazard, and if evacuation is needed immediately.

EMERGENCY RESPONSE DECISION MATRIX

Emergency	Site Issue	Time for Shutdown	Shelter/ Evacuate	Evacuate Immediately
Medical	Y	-	-	-
Fire	Y	N	N	Y
Hazardous Materials	Y	Y	Y	N
High Winds	Y	Y	Y	N
Flood	Y	Y	Y	N
Lightening	Y	Y	Y	N
Boating Accident	Y	Y	Y	N
Explosives	N	NA	NA	NA
High Hazardous Chemical	N	NA	NA	NA

Medical

The emergency and non-emergency medical information and driving directions are included in Section III. If the incident is minor and only requires first aid attention the injured worker or the SHSO may apply first aid treatment using a vehicle first aid kit. CPR and fist aid trained personnel should be identified to the project team before work begins.

Fire

If the fire is localized and fire extinguishers can be easily reached, the fire may be handled by on-site personnel who are trained to identify types of fires and use fire extinguishers. All other personnel who are not trained should evacuate the area and/or seek help. When fires are beyond the control of trained personnel, more experienced fire fighters are required and should be called to the Site.

Besides applying water or eliminating oxygen to the fire hazard, the only fire control on-site is the use of fire extinguishers. The following describes types of fires personnel may encounter and the type of extinguisher needed:

- **Class A** (involving ordinary combustible materials such as paper, wood, cloth, and some rubber and plastic materials): Extinguishers with water, foam, loaded steam, or multipurpose dry chemical.
- **Class B** (involving flammable or combustible liquids, flammable gases, greases and similar materials, and some rubber and plastic materials): Extinguishers with Halon 1301, Halon 1211, carbon dioxide, dry chemicals, foam, or loaded stream.
- **Class C** (involving energized electrical equipment where safety to the employee requires the use of electrically nonconductive extinguishing media): Halon 1301, Halon 1211, carbon dioxide, or dry chemical.
- **Class D** (involving combustible metals such as magnesium, titanium, zirconium, sodium, lithium and potassium): Extinguishers using water, or certain dry chemicals cannot extinguish or control Class D. Certain metals have specific dry powder extinguishing agents that can extinguish or control this type of fire. Some universal agents can also be effective.

Weather Related – High Winds/Flood/Lightening

Weather should be monitored consistently throughout the day. If for some reason, site personnel are caught in a weather related hazard, personnel should keep constant communication with each other and evacuate the work area as soon as possible to find shelter. Use the buddy system to ensure that everyone makes it to a designated shelter location. Evacuation wardens should follow-up with personnel and make sure each person is accounted for.

Hazardous Materials

The most common type of hazardous material routinely generated at the Site is associated with investigation derived waste (IDW) produced from within or immediately adjacent to Site Investigation areas. The IDW typically includes PPE, soil, drill cuttings, groundwater, and decontamination water. In addition to hazardous waste, chemicals used to decontaminate sampling equipment will be used. All petroleum spills (e.g., oil, gasoline, kerosene, etc.) that occur within New York State (NYS) must be reported to the **NYSDEC Spill Response (518.457.7362)** or the **National Response Center (800.424.8802)** within 2 hours of discovery, **except spills** which **meet all** of the following criteria:

- The quantity is known to be less than 5 gallons;

- The spill is contained and under the control of the spiller;
- The spill has not and will not reach the State's water or any land; and
- The spill is cleaned up within 2 hours of discovery.

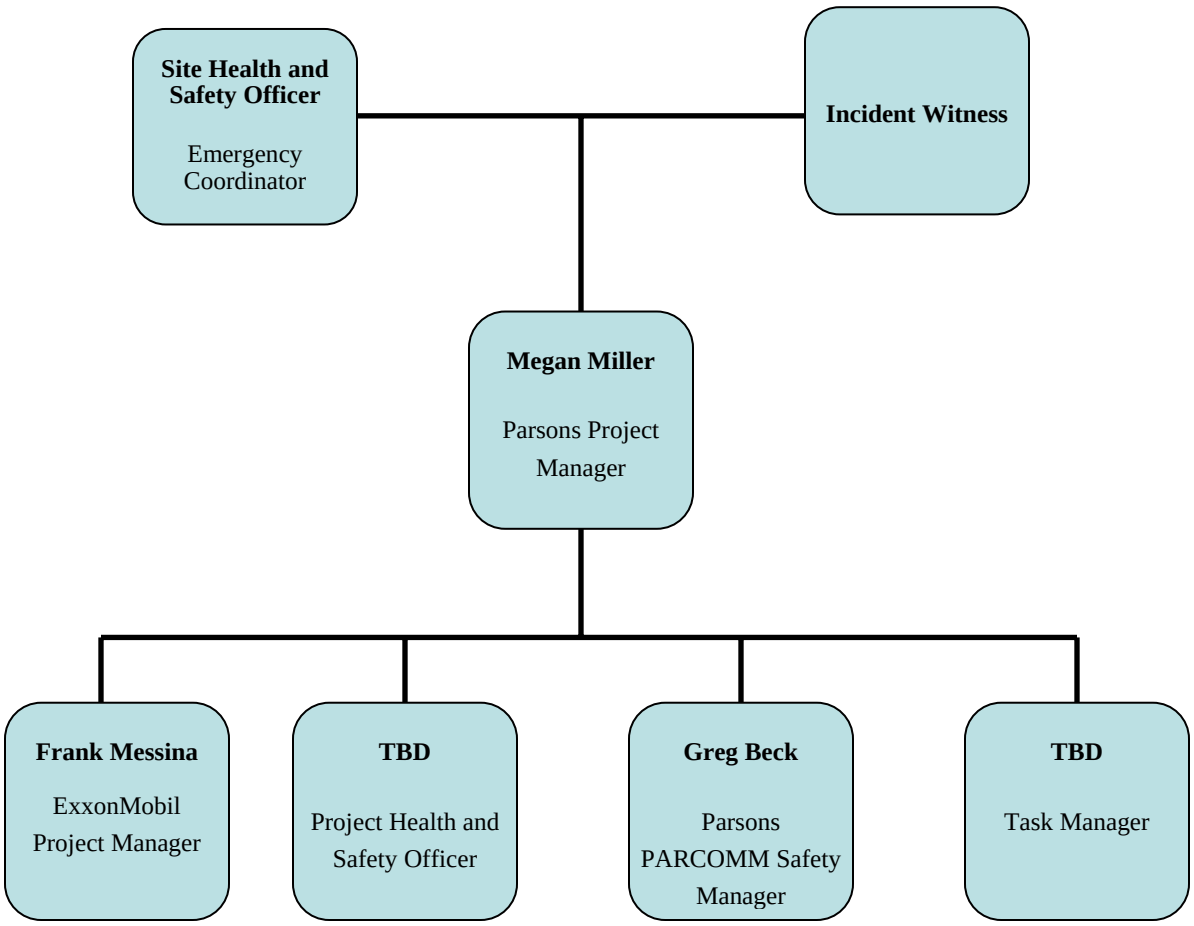
A spill is considered to have not impacted land if it occurs on a paved surface such as asphalt or concrete. A spill in a dirt or gravel parking lot is considered to have impacted land and is reportable. RCRA regulations require reporting to an outside agency if there is a release, fire, or explosion that could threaten human health or the environment outside the facility.

For spills associated with hazardous substances (i.e., the chemicals used to decontaminate sampling equipment, investigation derived waste), personnel will be required to notify the **National Response Center (800.424.8802)** only if the reportable quantity for that hazardous substance has been exceeded. The reportable quantities for the decontamination chemicals, investigation derived waste, and the approximate volume each equates to are listed below.

DECONTAMINATION CHEMICALS		
Hazardous Substance	**Reportable Quantity (Pounds)**	**Reportable Quantity (Gallons)**
Isopropyl alcohol	5,000	760
Methanol	5,000	760
Mineral Spirits	None	None
Nitric Acid	1,000	100
Hexane	5,000	910

VIII. INCIDENT MANAGEMENT TEAM ORGANIZATION CHART

If an incident occurs, follow the Emergency Notification Guidelines included in Section II. The incident management team will be responsible for taking the actions necessary to handle the situation. The diagram below shows the route of communication during an emergency.



IX. INCIDENT MANAGEMENT TEAM DESCRIPTIONS

Incident Witness: May also act as the First Responder to the emergency. Take actions to prevent further risks to personnel and the environment if possible. Control measures are described according to specific hazards identified in this plan. The Incident Witness will also communicate with the EC and other site personnel, and will work to relay the correct information to authorities. Whoever witnesses the incident should record important information such as whom and what the incident involved, and when and where the incident occurred. The Incident Witness is also responsible for immediately contacting Parsons Project Manager, Megan Miller, if the EC is unable to do so.

Emergency Coordinator (Site Managers): Will coordinate all outgoing calls to emergency responders and will assist with directing traffic. The EC will help the SHSO as necessary.

Site Health and Safety Officer: Responsible for overall coordination of the site emergency response and evacuation program with other programs such as Hazardous Waste Operations and Emergency Response (HAZWOPER), water safety programs, and external emergency responder programs. This person is responsible for executing the project Emergency Response Plan. In an emergency, the SHSO performs the following tasks:

- Evaluate the situation based on initial reports and determine whether operations must be shut down.
- Determine whether evacuation is necessary, and order the evacuation alarm (e.g., car horn blasts, air horn, etc.).
- Identify wardens to assist in the evacuation.
- Contact any operations personnel who can act defensively to reduce an emergency event.
- Ensure that appropriate external assistance is contacted
- Confirm personnel are accounted for based on personnel headcounts.
- Monitor progress of the response in controlling the emergency.
- Know when to authorize re-entry of personnel.

Parsons Project Manager (Megan Miller): Will assess the information and make the appropriate decisions for implementing emergency response. If necessary, he will initiate contact with members on the Contact List. Mr. Miller will at a minimum inform Frank Messina and Megan Miller of the situation.

ExxonMobil Project Manager (Frank Messina): When notified, Mr. Messina will make appropriate decisions on behalf of ExxonMobil and will make any necessary phone calls. Mr. Messina will also oversee proper ExxonMobil incident reporting.

Task Manager (TBD): The task manager will be responsible for following up with emergency agencies to ensure they are prepared to handle a person who is injured or possibly

chemically contaminated. The task manager will help oversee emergency response activities and make certain that proper emergency response procedures are being followed.

X. EMERGENCY DRILLS AND TRAINING

All on-site personnel should be familiar with this plan prior to arrival on-site. Once on-site, personnel will be required to go through a site safety orientation and will be briefed on the potential hazards relevant to the scope of work and how to handle emergency situations. Daily tool box meetings will take place before the day's work begins. To improve awareness and emergency preparedness, routine drills will be performed by personnel to simulate safe task executions or emergency responses.

At least one CPR and First Aid trained person will be on-site at all times. The following Parsons personnel are currently trained:

CPR and First Aid Certified Personnel

Name	Trained By	Training Certification Date	Training Expiration Date
TBD			

XI. LOCAL RESOURCES

Weather Information

For the most up to date and accurate weather conditions, go to the following websites:

U.S. Coastal Waters Forecast By Zone:
http://www.nws.noaa.gov/om/marine/zone/east/okxmz.htm

NOAA Storm Prediction Center:
http://www.spc.noaa.gov/

Hotels

If during an emergency personnel need to stay overnight, the following hotels are recommended:

- Quality Inn
  - Address: 30-03 40th Avenue, Long Island City, NY 11101

- Phone: (718) 391-0202

- Holiday Inn Express
  - Address: 3805 Hunters Point Avenue, Long Island City, NY 11101
  - Phone: (718) 706-6700

Grocery/Pharmacy Suppliers

If food supplies, extra medical supplies, or medications are needed, the following retailers are available:

Grocery

- Fresh Direct
  - Address: 28-30 Borden Avenue, Long Island City, NY 11101
  - Phone: (718) 928-1000

Pharmacy

- Vernon Blvd Pharmacy Inc.
  - Address: 4815 Vernon Blvd, Long Island City, NY 11101
  - Phone: (718) 361-7390

XII. PLAN MAINTENANCE

This plan will be updated on an annual basis or more frequently as information changes. Parsons Project Manager, Megan Miller, will be responsible for updating this plan. On-site personnel will be responsible for communicating recommended modifications to the Parsons Task Manager as they arise in the field. Portions of this plan are dynamic and updated as needed on a daily basis by on-site personnel (e.g., JSAs). Below is a summary of changes to previous versions of this SERP.

- **Revision 0**, September 2007: This was the original version of the SERP.

SECTION 1

INTRODUCTION

Parsons, in their subcontracted role with ExxonMobil Refining and Supply Company (ExxonMobil), is performing Site Characterization services for the activities listed in Section 2.0 on a portion of the Former Pratt Oil Works (FPOW) Site. This Health and Safety Plan (HASP) was developed to identify the risks and hazards associated with site investigation activities and to identify control measures to mitigate those risks. This HASP was developed using Parsons Model project Safety Plan, Version 1.9 (May 2006). Below is a summary of changes to previous versions of this HASP.

- Revision 0, January 2008: This is the original version of the HASP.

1.1 PARSONS WORKPLACE HEALTH & SAFETY POLICY

Parsons workplace health and safety policy is described in Exhibit 1.1.

1.2 THE HEALTH AND SAFETY PLAN/PROGRAM

Parsons' goal is zero accidents and zero injuries with work tasks designed to minimize or eliminate hazards to personnel, process, equipment, and the general public. No employees should ever perform tasks that may endanger their own safety and health or that of others.

This HASP outlines safety and health requirements and guidelines developed by Parsons for project work. When implemented, these requirements will help protect site personnel, visitors, and the public from exposure to potential safety and health hazards.

This plan will be updated annually or as conditions or situations change. Parsons employees shall sign an acknowledgement form stating that they understand the plan and its requirements (see **Exhibit 4.2**).

1.3 SUBCONTRACTOR SAFETY PLANS

Subcontractors must establish a safety program for their work and employees. Contract specifications require all subcontractors to prepare their own HASP for presentation to Parsons Project Manager at least 10 days before site mobilization. At a minimum, subcontractor safety and health plans must meet the requirements of this HASP and provide safety equipment and safeguards suitable for the hazards involved.

All HASP requirements for Parsons' personnel (e.g., training substance abuse screening, and incident reporting) also apply to subcontractor personnel and should be identified in the Subcontractor Safety Plan (SSP).

If a subcontractor is performing activities that require specialized training (i.e. confined space entry, excavation/trenching, scaffold use, HAZWOPER, etc.), then copies of training certifications must be provided for applicable employees AND the supervisor.

Subcontractor supervisors must possess the following certifications for applicable operations:

- HAZWOPER 8- hour Supervisor (29 CFR 1910.120(e)(4); and
- Excavation Competent Person (29 CFR 1926.651(k).

For this project there will be subcontractors directly hired by Parsons. Below are the names of potential subcontractors and the work activities they will perform at the former ExxonMobil Site. Safety evaluation grades will be determined for all subcontractors prior to the start of field work.

SUBCONTRACTOR	WORK ACTIVITIES	EVALUATION GRADE
Laboratory - To Be Determined (TBD)	Conduct laboratory analysis of soil, water, and free product samples	**TBD**
Driller/General Contractor - TBD	Drilling, well installation and excavations	**TBD**
Surveyor – To Be Determined	Survey borings, test pits, and monitoring well locations	**TBD**

EXHIBIT 1.1 – PARSONS WORKPLACE HEALTH AND SAFETY POLICY

CORPORATE POLICY
Workplace Health & Safety

POLICY: WORKPLACE HEALTH AND SAFETY

STATEMENT OF POLICY:

As an industry-leading engineering, construction and technical services firm, Parsons is firmly committed to maintaining a safe and healthy working environment at all its offices and project facilities. We share the National Safety Council's Safety and Health Code of Ethics as the principles guiding our commitment to safety.

- We will hold safety and health as our highest core value.
- Executive management will lead the safety improvement process.
- Safety will be a responsibility shared by everyone in our organization.
- Safety performance will be a key indicator of our organizational excellence and will be incorporated into our business processes.
- We will communicate safety performance openly with employees.
- All employees will be given the knowledge and skills necessary to safely perform their jobs.
- We will extend our safety efforts beyond the workplace to include transportation, homes and communities.
- We will continually strive to improve our safety and health processes.

To meet its health and safety objectives, all Parsons employees are expected to act proactively with regard to health and safety issues. This requires the combined efforts of a concerned management, responsible and knowledgeable supervision, and conscientious, well-trained employees.

Parsons will take all reasonable action to meet or exceed the applicable occupational health and safety requirements, domestically and internationally, and will continuously monitor and improve operations, procedures, technologies and programs that are conducive to maintaining a safe and healthy working environment.

RESPONSIBILITIES:

Parsons GBU management and supervisory personnel are responsible to:

- Comply with this policy and ensure that the applicable health and safety requirements at each domestic and international office and project facility are effectively implemented and monitored at all times.

EXHIBIT 1-1 – PARSONS WORKPLACE HEALTH AND SAFETY POLICY (CONT'D)

RESPONSIBILITIES: (cont'd.)

- Ensure that the applicable health and safety requirements at each domestic and international project facility are effectively integrated with the preparation of proposals, project planning, and project execution.
- Monitor subcontractor safety performance in accordance with contract specifications as required by the contract with client.
- Ensure that safety information and statistics are reported to Parsons Corporate Safety Manager on a consistent and regular basis, as shown in Appendix.1, *Safety Monthly Report*.

Parsons Corporate Safety personnel are responsible to:

- Develop, communicate, and oversee Parsons health and safety programs at all Parsons business units.
- Provide assistance to Parsons business unit managers regarding health and safety regulations, reporting requirements, safety training, and other related issues.
- Monitor the effectiveness of Parsons health and safety programs, conduct investigations, develop OSHA reporting and worker's compensation claim procedures.
- Collect and maintain safety information and statistics for all Parsons business units and operations, as shown in corporate policy Workplace Health and Safety, Appendix.2, *OSHA Safety and Health Statistics*.
- Keep senior management informed of significant internal and external developments regarding health and safety.

Parsons employees are responsible to:

- Exercise maximum appropriate care and good judgment at all times regarding health and safety, and adhere to safety procedures to prevent accidents and injuries.
- Promptly report all accidents and injuries to supervisory personnel.
- Promptly report any near misses, unsafe conditions, equipment, or practices to supervisory personnel.

EXHIBIT 1-1 – PARSONS WORKPLACE HEALTH AND SAFETY POLICY (CONT'D)

CORPORATE POLICY
Workplace Health & Safety

REFERENCES:

National Safety Council Safety and Health Code of Ethics
Parsons Construction Health and Safety Manual
Parsons Injury and Illness Prevention Program (Cal-OSHA IIPP)
Parsons Safety Monthly Reports, Workplace Health and Safety - Appendix.1
Parsons Health and Safety Statistics, Workplace Health and Safety – Appendix 2

DATE: 7/23/04

SECTION 2

SCOPE OF WORK

2.1 SCOPE OF WORK

Parsons, in their contracted role with ExxonMobil Global Remediation, is providing site investigation services. Task orders are issued for this work pursuant to Standard Procurement Agreement (SPA) #A2090813 (Client number PETT2007-06). The site investigation will be conducted to assess the presence of impacts in or adjacent to former structures related to former oil works operations, if possible; identify the extent of the potential impacts; and characterize site-specific geology and hydrogeology.

2.1.1 Site Description

The properties that are the subject of this work plan are located at 38-50, 38-42, and 39-14 Review Avenue in Long Island City, Queens, New York (Figure 1). These properties (referred to hereafter collectively as the "Waterfront Parcels"), are individually referred to as Parcel A, B and C, respectively. Currently Parcel A is owned by Waste Management Corporation (WMC), Parcel B by Steel Equities (SE), and Parcel C by the Maspeth Concrete Loading Corp (MCLC). The Waterfront Parcels have been determined to have been owned by a predecessor of ExxonMobil, and part of the FPOW, which once operated between Review Avenue and Newtown Creek. Figure 2 in the Work Plan provides an aerial view of current properties comprising the Waterfront Parcels.

2.1.2 Planned Field Activities

The following SI activities are planned at the former ExxonMobil Site:

- Soil boring and monitoring well drilling;
- Ground water and soil sampling; and
- Site surveys.

2.2 HEALTH AND SAFETY PLAN APPLICATION

The purpose of this HASP is to establish personnel protection standards and mandatory safety practices and procedures for field investigation efforts conducted at the ExxonMobil Site. This plan assigns responsibilities, establishes standard operating procedures and provides for contingencies that may arise during site investigation activities. The standard operating procedures and safety practices presented in this plan shall be followed by all personnel conducting work at the Site.

The provisions of this plan are mandatory for all Parsons personnel engaged in on-site hazardous waste operations. Subcontractors working for Parsons must prepare and administer a plan with equivalent requirements unless otherwise specified (Section 5.7). All Parsons and Parsons contract personnel who engage in project activities must be familiar with this plan and comply with its requirements.

SECTION 3

PROJECT SAFETY MANAGEMENT RESPONSIBILITIES AND AUTHORITY

3.1 SAFETY RESPONSIBILITY MATRIX

Responsibilities of project personnel as they pertain to health and safety are described below. Key personnel and contact information are identified in Section 4.10 of this HASP.

Project Manager

The Project Manager reports to upper-level management, has authority to direct response operation, and control site activities. Responsibilities of the project manager (or designee) include the following:

- Conducting a background review of the sites;
- Coordinating the preparation and execution of the HASP (including Job Safety Analyses [JSA]);
- Preparing and organizing the field team; and
- Coordinating with the Site Health and Safety Officer (SHSO) and Field Team Leaders (FTL) in determining protection levels, enforcing site control, investigating accidents, and ensuring that personnel are briefed on health and safety uses.

Project Health and Safety Officer

The Project Health and Safety Officer (PHSO) advise the Project Manager on all aspects of health and safety. Responsibilities of the PHSO include the following:

- Coordinating with the Project Manager to organize and prepare the background review for the sites;
- Coordinating the preparation and execution of the HASP (including JSA);
- Identifying and selecting health and safety procedures to protect personnel;
- Reviewing and approving the HASP (including JSA);
- Identifying personnel to serve as on-site health and safety officers;
- Conducting periodic audits to determine if the HASP is being followed; and
- Ensuring that personnel monitoring records are maintained.

Site Health and Safety Officer

The SHSO informs the PHSO of site health and safety issues. He/she also stops work if any operation threatens workers or the public. Responsibilities of the SHSO include the following:

- Periodically inspecting protective clothing and equipment;
- Ensuring that protective clothing and equipment are properly stored and maintained;
- Confirming each team member's suitability for work based on a physician's recommendation;
- Conducting daily health and safety briefings;
- Reporting accidents;
- Ensuring that the work parties are monitored for signs of stress, such as heat stress or fatigue;
- Implementing the HASP;
- Conducting periodic inspections to determine if the HASP is being followed;
- Ensuring that the "buddy" system is being used;
- Knowing and posting emergency procedures, evacuation routes, and the telephone numbers of the ambulance, local hospital, poison control center, fire department, and police department;
- Posting all necessary OSHA signs and placards;
- Notifying local public emergency officials, when necessary;
- Coordinating emergency medical care;
- Selecting decontamination solutions appropriate for the type of chemical contamination on site;
- Controlling the decontamination of all equipment, personnel, and samples from contaminated areas;
- Assuring proper disposal of contaminated clothing and materials;
- Assuring that all required health and safety equipment is available;
- Advising medical personnel of potential exposures and consequences; and
- Notifying emergency response personnel by telephone or radio in the event of an emergency.

Field Personnel

Field personnel involved in field activities are responsible for:

- Taking all responsible precautions to prevent injury to themselves and other employees;
- Reading the HASP prior to beginning work;
- Implementing the HASP and reporting to the PHSO any deviations from anticipated conditions described in this plan;
- Maintaining visual contact between partners (buddy); and

- Performing only those tasks they believe they can do safely, and immediately reporting any accidents and/or unsafe conditions to the SHSO.

- Exhibit 3.1 – Roles and Responsibilities

PARSONS

	Work Elements	Project Manager	Project Safety Manager	Project Controls Manager	Project HR Manager	Sector Manager	Division Manager	GBU Safety Manager	GBU QC Manager	GBU Risk Manager	GBU President	Corporate Workers Compensation Analyst	Corporate Safety	Resident Engineer/ Superintendent	GBU BD Manager	Parsons CEO/President
	1. Zero Incident Techniques and SHARP Management	X	D	P	P	R	R	R	E	S	E		E	S	S	E
	2. Business Development Phase	X	P	P	P	R	E	S		S	E		E	P	D	E
Startup Phase	3. Initial Hazards Analysis and Planning	X	P	P	P	R	E	R	E	P	E	P		P		
Startup Phase	4. Project Safety Plan (PSP)	X	D		P	R	E	R		R	E		C			E
Startup Phase	5. Stakeholder PSP Alignment Meeting	X	D			E	E	P					C	P		
Administration/ Design Phase	6. Awareness Campaign	X	D	P	P	E	A	R					C	P		
Administration/ Design Phase	7. Employee Orientation	P	P	P	D	R	A	E					C	P		
Administration/ Design Phase	8. Training	X	D	P	P	R	A	E					C			E
Administration/ Design Phase	9. Health and Safety Committee	X	D	P	P	R	A	R					C			
Administration/ Design Phase	10. Incident Investigations	X	P	P	P	R	R	A				P	E			E
Administration/ Design Phase	11. Measurement and Reporting	X	D	P	P	R	R	S				P	E			E
Administration/ Design Phase	12. Audits, Inspections and Record Keeping	X	X	P	P	R	R	S	R	R			E			E
Construction or Field Phase	13. Preconstruction Safety Activities	X	X			E	E	R					C			
Construction or Field Phase	14. Project Site Orientation	X	D	P	P	E	E	S					C			
Construction or Field Phase	15. Meet Local OSHA, Building Trades, and Other Agencies	X	D			E	E	S					C			
Construction or Field Phase	16. Review Contractor/Subcontractor Safety Programs	E	X			E	E	S					C	P		
Construction or Field Phase	17. Subcontractor Premobilization Meeting	X	P	P		E	E	S					C	P		
Construction or Field Phase	18. Risk Mitigation Planning (Two-week Look-ahead)	P	P			E	E	S					E	X		
Construction or Field Phase	19. Activity Hazard Analysis	E	P			E	E	S					E	X		
Construction or Field Phase	20. Recurring Field Safety Meetings/Training	X	D	P	P			S					E	P		
Construction or Field Phase	21. Project Management Site Safety Inspections	X	D					S					E	P		
	Testing, Commissioning, Operations, and Decommissioning Phases	(to be developed)														
Closeout Phase	22. Lessons Learned and Final Safety Report	E	X		X	E	E	S	R				E	P		
Closeout Phase	23. Records Retention	E	X		P	A	A	R					E			

Legend:

A – Approves tools, plans, etc. established by the project.

C – Consultant providing expert advice to the development leader.

D – Development leader tasked to establish the tools, plans, etc. needed for the work element.

E – Sponsor responsible to reinforce the need to comply with the established requirements.

P – Participants in team or group implementation efforts, supporting the implementation leader.

R – Reviews and comments on tools, plans, etc. established by the project to achieve the goal of the work element.

S – Establishes requirements applicable to the project.

X – Accountable and responsible to ensure that the project develops and implements the work element in accordance with established requirements.

SECTION 4

ADMINISTRATIVE PHASE

4.1 PROJECT SAFETY COMMITTEE

The project must have a safety committee that includes representation from all project stakeholders. The Safety Committee meets at times and locations to be determined and posted by the chairperson on the safety billboard at least one week in advance. The safety committee members will be determined for each project, prior to the start of field activities.

Charter of the Safety Committee: The safety committee represents the mutual interests of all project participants in completing the work with zero injuries. The committee meets monthly to consider incentive programs, recent near misses or injuries, potential unsafe conditions, training programs, safety awareness, audit results, and related issues. The committee advises the Project Manager, who retains sole decision-making authority.

The committee consists of equal numbers of professional and craft/trade personnel. The Project Manager appoints the professional members (including subcontractor personnel) while the Subcontractor Foreman, Shop Steward or Lead Craft/Trade person appoints the other members. Committee members serve for the duration of the project, not to exceed six months. Members may serve two consecutive terms.

The chairperson schedules monthly meetings, develops the agenda, and displays meeting minutes on the safety bulletin board. Workers may submit suggestions and topics for discussion to the chairperson at any time.

4.2 PROJECT ORIENTATION

The PHSO helps to develop the orientation and meets with new workers to review site procedures and requirements. Topics covered in the HASP overview include:

- Names of personnel responsible for site safety and health;
- Reporting emergencies, incidents and unsafe conditions;
- Emergency/evacuation plans;
- Safety, health and other hazards at the site;
- Review of all activities on-site and related JSAs;
- Proper use of personal protective equipment;
- Work practices by which a worker can minimize risk from hazards;
- Safe use of engineering controls and equipment on-site;
- Acute effects of compounds at the site; and

- Decontamination procedures.

All personnel, including subcontractors and visitors, on a project must attend the orientation program on their first day (**Exhibit 4.1**-orientation outline) and sign an acknowledgment form indicating they attended and understood the orientation (**Exhibit 4.2**). Any individual who is unsure of any information presented in the orientation must request clarification. Individuals who do not participate in the orientation or refuse to sign the acknowledgment cannot work on-site.

4.3 AWARENESS CAMPAIGN

The project has established an awareness program consistent with the Parsons Safety Awareness Campaign and its various elements (e.g., signs, posters, banners, and focus briefings). This program promotes worker awareness of safety goals and daily risks, hazards, and exposures in the field. In addition to topics selected by corporate safety each month, the project will supplement the awareness program with information specifically applicable to the scope of work.

Safety bulletin boards maintained by the PHSO are primary information points for the project awareness campaign. Bulletin boards are located at the project field offices (trailer).

The PHSO may also provide training, presentations, or informational materials as part of the awareness campaign.

4.4 STAKEHOLDER HASP ALIGNMENT MEETING

A stakeholder HASP alignment meeting must be held. A list of the attendees will be recorded and appended to this HASP. Parsons will present the HASP and all stakeholders shall concur with the approach outlined in the plan. The meeting will also include a review of stakeholder roles and responsibilities and elements of control appropriate to project risks.

4.5 TRAINING

The project has a comprehensive health and safety-training program tailored to the scope of work. All employees receive a general safety orientation as outlined in Section 4.2 upon assignment to the project. All Parsons new hires shall receive a facility Employee Orientation within the first 7 days of employment, provided by Human Resources, the Safety Representative and the Staff Coordinator. Training topics may also include:

- 40-hour HAZWOPER and 8-hour annual HAZWOPER refresher
- HAZWOPER 8-hour Supervisor Training (as necessary)
- CPR/First Aid/AED and blood borne pathogens (as necessary)
- ExxonMobil OIMS and Loss Prevention System (LPS) training
- ExxonMobil Company USA Drug and Alcohol Policy
- Controlled Substance and Alcohol Abuse Awareness
- Hazard Communication (HazCom) Training

- Trenching & Shoring - Excavation Competent Person
- Department of Transportation (DOT) - HM126F
- Respiratory Protection Plan – Training and Fit Testing
- Hearing Conservation Plan Training
- Excavation Plan Training
- Back Safety – lifting and carrying
- Defensive Driving

4.5.1 Loss Prevention System (LPS)

ExxonMobil Global Remediation's Loss Prevention System Handbook (January 2005) states that LPS is a system to prevent or reduce incidents using behavior-based tools and proven management techniques. The goal of LPS is to prevent by identifying the factors that cause or contribute to the following incidents:

- Personal injuries (occupational injuries and illness).
- Equipment or property damage.
- Environmental releases.
- Regulatory violations.
- Operational or system inefficiencies.
- Motor vehicle accidents.
- Near Losses

All personnel working onsite will be trained in accordance with ExxonMobil's Guidance Document as described in Section 7.8. Key tools of LPS are presented in The LPS Handbook (**Attachment A**).

4.5.2 Hazard Communication Training

All Parsons employees working at the site are required to complete annual HazCom training. This training can be completed via the ParsonsU internet based training program.

4.6 AUDITS AND INSPECTIONS

The PHSO has implemented an audit and inspection program in conjunction with the PARCOMM and corporate safety and quality assurance departments. The Project Manager, together with the PHSO or their designee, conducts a safety inspection each month. Office work areas (including trailers) are audited according to the corporate office audit standard attached as **Exhibit 4.3**.

Additional information on audits and inspections during construction is detailed in Section 6.5 of this HASP.

4.7 MEETINGS

All project meetings of three or more people must begin with a safety topic. The meeting chairperson may present the safety topic or ask for a volunteer to open the discussion. In general, the "safety moment" is only one or two minutes long and is directly relevant to the work at hand or applicable to most individuals outside the workplace.

Daily toolbox safety meetings are held with all personnel at the beginning of each shift and are described in Section 7.3.

4.8 REPORTING AND MEASUREMENTS

4.8.1 Reporting

To accurately measure performance and comply with corporate and regulatory requirements, Parsons utilizes an online safety reporting system to report monthly work hours, near-miss incidents, first aid cases, property damage and personal injuries for its employees and subcontractors (see sample browser screenshot, **Exhibit 4.4**). To successfully document this information a PARCOMM Field/Project Monthly Report is prepared and used to record monthly field and office hours, incidents and near miss incidents, air monitoring, and the type of personal protective equipment (PPE) worn by on-site personnel (including Parsons' personnel and subcontractor personnel). A copy of this form is included as **Exhibit 4.5**.

Subcontractors must submit a monthly report of exposure hours (hours worked on the project) to the Parsons Project Manager within 3 days after the end of each month. The Project Safety Manager compiles the figures and submits them to the Program Manager (or via the Online Safety Reporting System if instructed by the Program Manager) by the first Friday of each month. Where necessary, estimated figures are acceptable.

4.8.2 Measurement

The PHSO and Project Manager establish and post a measurement system to provide indicators of safety performance, including the following metrics for the project:

- Project start date
- Days without a recordable injury – updated every Monday
- Date of last OSHA recordable injury (if applicable)
- Percent of safe observations from each monthly audit
- LPS data

4.8.3 Incident Reporting

Employees involved in or witnessing an incident or near-miss incident must immediately report it to the responsible supervisor or foreman, who in turn immediately relays the report to Parsons Project Manager, see Section 4.10. Near-miss incidents that could cause significant injury or loss of life must also be immediately reported in the same manner. No supervisor may decline to accept or relay a report of injury or significant near-miss incident from a subordinate.

Parsons Reporting Requirements

The Project Manager must ensure that all incidents are reported within **4 hours** to the PARCOMM Safety Manager (Anthony Miller [704.558.4079 (o); 704.264.6159 (c)]) by the Parsons Project Manager (Megan Miller [315.451.9560 (o); 315.569.1020 (c)]) and/or the SHSO (**TBD**). The Project Manager (who has been trained on Parsons' reporting requirements and Online Safety Reporting System) then prepares and submits the incident information and notifies the Corporate Workers Compensation Analyst (Donna Miller [626.440.2950 (o); 661.904.0978 (c)]).

Parsons also requires the Project Manager and/or the Program Manager (Paul Boyajian [617.449.1402 (o); 781.929.8162 (c)]) to report an incident that results in a lost workday case or worse to the PARCOMM president (John Small [704.558.4124 (o); 704.517.7034 (c)]) within **4 hours**. Any fatality, injury of a private citizen, property loss or damage in excess of $50,000, or catastrophes requires **immediate** notification to the PARCOMM Safety Manager (Anthony Miller [704.558.4079 (o); 704.264.6159 (c)]) or Corporate Safety Manager (Andy Peters [626.440.4440 (o); 626.755.1656 (c)]). The PARCOMM or Corporate Safety Manager must notify the local OSHA office [Queens District Office in Little Neck, NY (718.279.9060)] immediately if an accident involves the death of an employee or hospitalization of three or more workers.

Additional PARCOMM staff who should be contacted if a PARCOMM reporting incident occurs include: Greg Beck (Division Safety Manager [732.537.3502 (o); 908.887.1973 (c)]) who is available for assistance in addressing documentation and notification issues; and Peter (Michael) Brady, Industrial Division Manager [626.440.2293 (o); 626.622.0664 (c)]).

4.9 INCIDENT INVESTIGATIONS

An individual or team investigates all accidents and significant near-miss incidents with training in accident investigation and root cause analysis. Personal injuries involving medical treatment and incidents resulting in more than $1,000 damage will be verbally reported and submitted on the PWeb using the On-Line Safety Reporting System at https://pwebtools.parsons.com/safety/incidentselect.aspx within **4 hours.** Additionally, an incident investigation report will be completed to identify root causes and corrective actions to prevent recurrence.

Subcontractors must investigate incidents involving their employees or activities and submit an investigation report to the Parsons Project Manager within **48 hours** of an incident. In addition, all incidents will be investigated per the ExxonMobil LPS program.

The Parsons PARCOMM Safety Manager investigates or assigns an investigator to each significant incident. The investigator submits a final investigation report using the online safety reporting system within **72 hours** of the incident. The Project Safety Manager maintains the investigation file.

4.10 RESPONSIBILITY/IDENTIFICATION OF KEY LINE PERSONNEL

These personnel have the authority and responsibility for implementing the provisions of this program.

Project/Office:	ExxonMobil Long Island City, New York / Liverpool, New York
Address:	38-50 Review Avenue, Long Island City, New York 11101

Telephone	**Fax**	**Email**
TBD	TBD	TBD

Company Executive responsible for project	**Contact No.**
Paul Boyajian	(617) 449 - 1402

Project Manager	**Contact No.**
Chris Del Monico	(732) 537-3533 (o) (908) 380-1570 (c)

PARCOMM Safety Manager	**Contact No.**
Gregory Beck, CSP	(908) 887-1973 (o) (732) 537-3502 (c)

Field Supervisor	**Contact No.**
To Be Determined	

Site Health and Safety Officer
TBD

ExxonMobil - Project Management (Client)	**Contact No.**
Frank Messina	(732) 850-4009

4.11 MEDICAL REQUIREMENTS AND WORKERS COMPENSATION

In accordance with corporate requirements the Project Safety Manager has established and implemented the following medical requirements for the project:

4.11.1 Functional Capacities Exams (FCEs)

FCEs are only required if personnel are required to wear Level A, B, or C personal protective equipment (Section 6.2.4). FCEs should be considered for the following positions:

- Crane operator
- Drill rig operator
- Heavy equipment operator
- Laborers

If it becomes necessary, FCEs will be conducted by:

Industrial Medical Associates (IMA)
961 Canal Street
Syracuse, NY 13210
Phone: (315) 478-1977

Results of the FCEs will be reported to the PHSO.

4.11.2 Substance Abuse and Alcohol Testing

Parsons employees will enforce a drug and alcohol policy consistent with the requirements of the Continuing Services Agreement.

As part of the scope of the project, Parsons has adopted a clear written policy on drug and alcohol testing. The Alcohol, Drug and Contraband Policy (Parsons, 2004) will be available on site or through the Project Manager. All employees must adhere to the policy, and must sign an acknowledgement of the policy.

4.11.3 Medical Services and Panel of Physicians

The Project Manager in conjunction with the Parsons Workers Compensation Analyst establishes a panel of medical providers for the project and selects medical facilities to treat work-related injuries and illnesses, as follows:

Medical Facility (Non-Emergency Treatment)

In the event of an injury that is not a medical emergency, it is preferable for workers to visit the following industrial clinic (or one of their choosing): Emergimed, located at 663 Palisade Avenue, Cliffside Park, New Jersey 07010. The phone number is (201) 945-6500. The facility is open Monday through Friday between 8:00 AM and 8:00 PM and Saturday and Sunday between 8:00 AM and 4:00 PM. The facility is equipped to deal with most medical problems that are not life threatening including lacerations, burns, and sprains and fractures. Directions to Emergimed are included in the Site Emergency Response Plan (SERP) included at the beginning of this HASP.

Transportation to a medical facility for non-emergencies must be done by at least two (2) individuals (i.e. driver and observer). It is recommended field team members travel the route to both the emergency and non-emergency facility prior to the start of field work so they are familiar with traffic patterns and facility locations and entrances.

If the injured worker visits Parsons provider, Emergimed, the injured worker must complete the *Notice of Right to Select a Worker's Compensation Board Authorized Health Care Provider* Form included as **Exhibit 4.6**. Once the form is completed, the injured worker shall forward the form to Corporate Workers Compensation Analyst, Donna Miller. This form indicates that the injured worker understands he/she has the right to see a physician of his/her own choosing but has opted to seek medical care with Parsons provider.

It is recommended that the PHSO or the SHSO establish a relationship with the industrial clinic at the start of the investigation to ensure that in the event of a work related injury, the provider has Parsons' information on record and there is no delay in providing the employee with medical care. This can be accomplished with a verbal introduction and a potential visit to the actual clinic and/or by inviting the clinic to visit the job site. Information that should be shared with the clinic ahead of time is included in **Attachment B**. These forms should also be sent with every injured worker to the medical provider when referring an employee for medical care pertaining to a work related injury.

Nearest Hospital (Emergency Treatment)

The nearest hospital for injuries that are life threatening or injuries that occur after hours is the NYU Medical Center and is located at 560 1st Avenue, New York, 10016. The Phone Number is (212) 263-7300. NYU Medical Center's Emergency Room is open 24-hours a day. Personnel are equipped to handle patients that may be chemically contaminated. The SHSO should notify the emergency room ahead of time to alert them if a patient may be wearing chemically contaminated clothes or PPE. Directions to the NYU Medical Center are included in the SERP included at the beginning of this HASP.

4.11.4 Emergency Medical Response

The project shall display posters/signs with emergency telephone numbers and locations of facilities in visible locations and at selected phone locations throughout the project area (including subcontractor facilities).

The Queens Public Safety Department operates a 911 emergency response center. In the case of an emergency, dial 911. The business (Non-emergency) phone numbers are listed below and are included in the SERP.

- NYU Medical Center (212) 263-7300 (General Number)
- NYU Medical Center (212) 263-5550 (Emergency Room)
- Emergimed (201) 945-6500
- Long Island City Police Department (718) 784-5411
- Long Island City Fire Department (718) 847-6600

4.11.5 Workers Compensation Program

The Corporate Risk Management department establishes the appropriate workers compensation carrier. If a workers compensation loss occurs, the Corporate Workers Compensation Analyst (Donna Miller [626.440.2950 (o); 661.904.0978 (c)]) handles all communication with the carrier.

This project does participate in an OCIP or project-specific insurance program. The workers compensation policy covering Parsons' employees on this project is as follows:

WC Carrier: AIG
Address: PO Box 2310
New York, NY 10272
(212) 770-0100

Policy Number: 7180725 – Valid 01/01/07 – 01/01/08

The PHSO or the SHSO will post the appropriate New York State worker compensation notifications in the field office trailer (**Attachment B**).

4.11.6 Medical Monitoring

All personnel engaged in activities that results in the exposure to chemicals at or above the OSHA Permissible Exposure Limit (PEL) or wear a respirator for more than 30 days in a year, must comply with 29 CFR 1910.120(f) – Medical Surveillance. All personnel who wear a respirator must be medically qualified by a physician, trained and fit-tested on an annual basis, even if they are not required to participate in a medical surveillance program.

Based on the activities listed in Section 2.0, potential health hazards associated with this project require implementation of the following medical monitoring if hazard thresholds are reached:

Labor Classification	Monitor For	Comments
Field team (i.e. Those working around excavators, drill rigs, including drillers and operators, field team leader, SHSO and other personnel located within near vicinity of noise source.)	Noise – (Drilling, operating heavy machinery)	Activities with the potential for noise hazards will be initially mitigated with hearing protection. Noise level monitoring may be conducted to determine if an employee must participate in a Hearing Conservation Program. If noise exposures exceed 85 decibels over an 8-hour time weighted average, an employee must participate in a Hearing Conservation Program.
Field Team (e.g. Those who handle and process samples, including drillers and operators, field team leader, SHSO, and other personnel located within the exclusion zone.)	Chemical exposures – (Drilling, soil and groundwater sampling, test pit excavation, see Table 6.3 for list of chemical to be monitored)	If an employee is exposed at or above the Permissible Exposure Limit (PEL) of a chemical for more than 30 days in a year, they must participate in a Medical Surveillance Program.
Field Team (e.g. Those who handle and process samples, including drillers and operators, field team leader, SHSO, and other personnel located within the exclusion zone)	Respirator use – (If conditions dictate PPE upgrade, see Table 6.3 for action levels)	Medical qualification, training and fit-testing must be received on an annual basis. If an employee wears a respirator more than 30 days per year, they must participate in a Medical Surveillance Program.

Gregory Beck, Division Safety Manager, administers the medical monitoring program.

EXHIBIT 4.1 PROJECT SAFETY ORIENTATION OUTLINE

I. Names of personnel responsible for site safety and health

A. Division Safety Manager-Greg Beck, Program Manager-Paul Boyajian, Project Manager-Megan Miller, Site Health and Safety Officer/Field Team Leader-**TBD**

B. Contact Information

- Greg Beck 732-537-3502 (office) 908-887-1973 (cell)
- Megan Miller 315-451-9560 (office) 315-569-1020 (cell)

II. Emergency Preparedness

A. Site Emergency Response Plan

B. Medical Treatment Facilities

III. Incident Reporting

A. It is the responsibility of all staff to document and notify project management of any health and safety related incidents, near miss incidents or observations of unsafe acts/conditions. It is only through documentation, analysis and dissemination of these that future incidents may be prevented.

B. Both ExxonMobil and Parsons have procedures and forms in place which must be completed.

C. Definitions. An "event" is either an "incident" or a "near miss." An incident means one or more of the following occurred: personal injury, property damage, and/or a release to the environment. A near miss means an incident could have occurred under different circumstances, but did not. Safety observation also available.

D. Incidents are categorized based upon type, injury extent, release amount, damage loss, security issues, 3rd party/agency involvement.

E. Field staff must report any type of incident to the PM immediately.

F. Incident reporting contacts are within the Site HASP.

IV. Safety, health, and other hazards at the site

A. Physical activity, working around heavy equipment, and working near water pose the greatest risk for hazards. Review specific JSAs as appropriate to the worker's activities.

B. Chemicals of concern and associated hazards

C. Other hazards

a. Slip, Trips and Falls
   i. Take the time to observe your surroundings and make note of uneven surfaces and/or obstructions.

b. Traffic

c. Heavy Equipment
   i. Establish non-verbal communication methods prior to starting work.
   ii. Always establish eye contact prior to entering the reach or swing radius for a piece of equipment.
   iii. Be aware of overhead obstructions (e.g. electrical lines, etc.)

V. Proper use of personal protective equipment

A. Minimum Personal Protective Equipment – Level D
   a. Level D PPE shall include steel-toe boots, safety glasses with side shields, and a hard hat.
   b. Level C PPE shall include the minimum requirements for Level D plus Tyvek coveralls, nitrile inner gloves, PVC outer gloves and a respirator (if necessary).

B. Additional Personal Protective Equipment
   a. Hearing protection must be worn when working within 15 feet of heavy equipment
   b. Appropriate hand protection must be donned during work activities (e.g. nitrile gloves when handling samples, abrasion resistance gloves when operating drilling equipment, etc.)
   c. Metatarsal foot protectors must be donned when sawing or jack hammering.
   d. A personal flotation device must be worn when walking within 10 feet of the shoreline or when performing high risk activities (e.g., drilling, excavation) within 25 feet of shoreline.

VI. Work practices by which the employee can minimize risk from hazards

A. Training - all personnel must receive site-specific training (e.g. site orientation) and attend/review daily toolbox safety meetings.
B. Contamination - no eating, drinking or smoking in the work zone.
C. Proper hygiene – wash hands and face before eating, drinking and smoking and only in designated areas.
D. "Buddy System" – use two-way radio/ cell phone for communicating and reporting emergencies.

VII. Site Access

A. Restrict access around and near work site, including areas surrounding excavated areas and decontamination zones, to site employees. Barriers and tape may be used to demarcate the work areas.

VIII. Safe use of engineering controls and equipment on the site

A. Mobile equipment – use horns to alert others, mirrors and back-up/travel alarm must be functional.

IX. Decontamination procedures

A. Personnel Decontamination Procedures – Review **Table 6.5.**
   a. For work zones, equipment, PPE (e.g., coveralls, gloves, footwear) must be decontaminated or disposed before leaving the exclusion zone. Use boot wash stations when appropriate.

B. Equipment Decontamination Procedures
   a. Prior to starting work, all non-dedicated equipment will be either steam cleaned for washed with potable water and phosphate-free detergent (Simple Green).
   b. Sampling equipment will be rinsed with potable water followed by a deionized water rinse.

EXHIBIT 4.2
PROJECT SAFETY ORIENTATION ATTENDANCE SHEET

(For All Parsons and subcontract employees on site)

I hereby confirm that site-specific health and safety training has been conducted by the site health and safety officer, which included:

- Names of personnel responsible for site safety and health
- Safety, health, and other hazards at the site
- Proper use of personal protective equipment
- Work practices by which the employee can minimize risk from hazards
- Safe use of engineering controls and equipment on the site
- Acute effects of compounds at the site
- Decontamination procedures

For the following project:

(Project Title)	(Project Number)	(City, State)

Name (print)	Signature	Company	Date

Maintain in Health & Safety Plan file.

EXHIBIT 4.3 OFFICE AUDIT PROTOCOL

Office Location: _____

Audit Conducted By: _____

Audit Date: _____

Question	Satisfactory	Unsatisfactory	N/A	Comments
General Work Environment				
Are all workstations, cubicles, and offices clean and orderly?				
Are work surfaces kept dry or appropriate means taken to ensure that the surfaces are slip-resistant?				
Are all spilled materials or liquids cleaned up immediately?				
Are warning signs available when items are spilled?				
Is combustible scrap, debris and waste stored safely and removed from the office?				
Are coffee pots turned off at night?				
Is accumulated combustible dust routinely removed from elevated surfaces, including the overhead structure of buildings?				
Walkways				
Are aisles and passageways kept clear?				
Are aisles and walkways marked as appropriate?				
Is there safe clearance for walking in aisles where motorized or mechanical equipment is operating.				
Are spilled materials cleaned up immediately?				
Are materials or equipment stored in such a way they will not interfere with the walkway?				
Are changes of direction or elevations readily identifiable?				
Stairs and Stairways				
Where stairs or stairways exit directly into any area where vehicles may be operated, are adequate barriers and warnings provided to prevent employees stepping into the path of traffic?				
Exiting or Egress				
Are all exits marked with an exit sign and illuminated by a reliable light source?				
Are the directions to exits, when not immediately apparent, marked with visible signs?				
Are doors, passageways or stairways, that are neither exits nor access to exits and which could be mistaken for exits, appropriately marked NOT AN EXIT, TO BASEMENT, STOREROOM, etc.?				
Are exit signs provided with the word EXIT in lettering at least 5 inches high and the stroke of the				

Question	Satisfactory	Unsatisfactory	N/A	Comments
lettering at least 1/2 inch wide?				
Are exit doors side-hinged?				
Are all exits kept free of obstructions?				
Are there sufficient exits to permit prompt escape in case of emergency?				
Are special precautions taken to protect employees during building maintenance, construction, and repair operations?				
Is the number of exits from each floor of a building, and the number of exits from the building itself, appropriate for the building occupancy load?				
Where exiting will be through frameless glass doors, glass exit doors, storm doors, and are such doors fully tempered and meet the safety requirements for human impact?				
Exit Doors				
Are doors that are required to serve as exits designed and constructed so that the way of exit travel is obvious and direct?				
Are windows that could be mistaken for exit doors, made inaccessible by means of barriers or railings?				
Can exit doors be opened from the direction of exit travel without the use of a key or any special knowledge or effort, when the building is occupied?				
Is a revolving, sliding, or overhead door prohibited from serving as a required exit door?				
Where panic hardware is installed on a required exit door, will it allow the door to open by applying a force of 15 pounds or less in the direction of the exit traffic?				
Where exit doors open directly onto any street, alley or other area where vehicles may be operated, are adequate barriers and warnings provided to prevent employees stepping into the path of traffic?				
Are doors that swing in both directions and are located between rooms where there is frequent traffic provided with viewing panels in each door?				
Portable Ladders				
Are all ladders maintained in good condition, joints between steps and side rails tight, all hardware and fittings securely attached, and moveable parts operating freely without binding or undue play?				
Are non-slip safety feet provided on each ladder?				
Are non-slip safety feet provided on each metal or rung ladder?				
Are ladder rungs and steps free of grease and oil?				
It is prohibited to place a ladder in front of doors opening toward the ladder except when the door is blocked open, locked or guarded.				
It is prohibited to place ladders on boxes, barrels, or other unstable bases to obtain additional				

Question	Satisfactory	Unsatisfactory	N/A	Comments
height.				
Are employees instructed to face the ladder when ascending or descending?				
Are employees prohibited from using ladders that are broken, missing steps, rungs, or cleats, broken side rails or other faulty equipment?				
Are employees instructed not to use the top 2 steps of ordinary stepladders as a step?				
When a portable rung ladder are used to gain access to elevated platforms and roofs, does the ladder always extend at least 3 feet above the elevated surface?				
Is it required that when portable rung or cleat type ladders are used the base is so placed that slipping will not occur, or it is lashed or otherwise held in place?				
Are portable metal ladders legibly marked with signs reading CAUTION, Do Not Use Around Electrical Equipment, or equivalent wording?				
Environmental Controls				
Are all work areas properly illuminated?				
Is employee exposure to chemicals in the workplace kept within acceptable levels?				
Can a less harmful method or product be used?				
Is the work area's ventilation system appropriate for the work being performed?				
Are restrooms and washrooms kept clean and sanitary?				
Are employees instructed in the proper manner of lifting heavy objects?				
Is equipment producing ultra-violet radiation properly shielded?				
Fire Protection				
Do you have a fire prevention plan?				
Does your plan describe the type of fire protection equipment and/or systems?				
Have you established practices and procedures to control potential fire hazards and ignition sources?				
Are employees aware of the fire hazards of the material and processes to which they are exposed?				
Is your local fire department well acquainted with your facilities, location, and specific hazards?				
If you have a fire alarm system, is it tested at least annually?				
If you have a fire alarm system, is it certified as required?				
If you have interior standpipes and valves, are they inspected regularly?				
If you have outside private fire hydrants, are they flushed at least once a year and on a routine preventive maintenance schedule?				

Question	Satisfactory	Unsatisfactory	N/A	Comments
Are fire doors and shutters in good operating condition?				
Are fire doors and shutters unobstructed and protected against obstructions, including their counterweights?				
Are fire door and shutter fusible links in place?				
Are automatic sprinkler system water control valves, air and water pressures checked weekly/periodically as required?				
Is maintenance of automatic sprinkler system assigned to responsible persons or to a sprinkler contractor?				
Are sprinkler heads protected by metal guards, when exposed to physical damage?				
Is proper clearance maintained below sprinkler heads?				
Are portable fire extinguishers provided in adequate number and type?				
Are fire extinguishers mounted in readily accessible locations?				
Are fire extinguishers recharged regularly and noted on the inspection tag?				
Are employees periodically instructed in the use of extinguishers and fire protection procedures?				
Electrical				
Are all employees required to report as soon as practicable any obvious hazard to life or property observed in connection with electrical equipment or lines?				
Are employees instructed to make preliminary inspections and/or appropriate tests to determine what conditions exist before starting work on electrical equipment or lines?				
Are electrical appliances such as vacuum cleaners, polishers, and vending machines grounded?				
Do extension cords being used have a grounding conductor?				
Are multiple plug adapters prohibited?				
Are all energized parts of electrical circuits and equipment guarded against accidental contact by approved cabinets or enclosures?				
Is sufficient access and working space provided and maintained about all electrical equipment to permit ready and safe operations and maintenance?				
Are electrical enclosures such as switches, receptacles, junction boxes, etc., provided with tight-fitting covers or plates?				
Transporting Employees				
Do employees who operate vehicles on public thoroughfares have valid operator's licenses?				
When seven or more employees are regularly transported in a van, bus or truck, is the operator's license appropriate for the class of vehicle being driven?				

Question	Satisfactory	Unsatisfactory	N/A	Comments
Is each van, bus, or truck used regularly to transport employees, equipped with an adequate number of seats?				
Are seat belt requirements enforced by the driver?				
Emergency Action Plan				
Are you required to have an emergency action plan?				
Does the emergency action plan comply with OSHA, requirements?				
Have emergency escape procedures and routes been developed and communicated to all employers?				
Do employees, who remain to operate critical operations before they evacuate, know the proper procedures?				
Is the employee alarm system that provides a warning for emergency action recognizable and perceptible?				
Are alarm systems properly maintained and tested regularly?				
Is the emergency action plan reviewed and revised periodically?				
Do employees know their responsibilities: For reporting emergencies? During an emergency?				
Ergonomics				
Can the work be performed without eyestrain or glare to the employees?				
Does the task require prolonged raising of the arms?				
Do the neck and shoulders have to be stooped to view the task?				
Are there pressure points on any parts of the body (wrists, forearms, back of thighs)?				
Can the work be done using the larger muscles of the body?				
Can the work be done without twisting or overly bending the lower back?				
Are computers positioned so that tasks can be performed comfortably?				
Are all pieces of furniture adjusted, positioned, and arranged to minimize strain on all parts of the body?				

EXHIBIT 4.4 PARSONS ONLINE SAFETY REPORTING SYSTEM

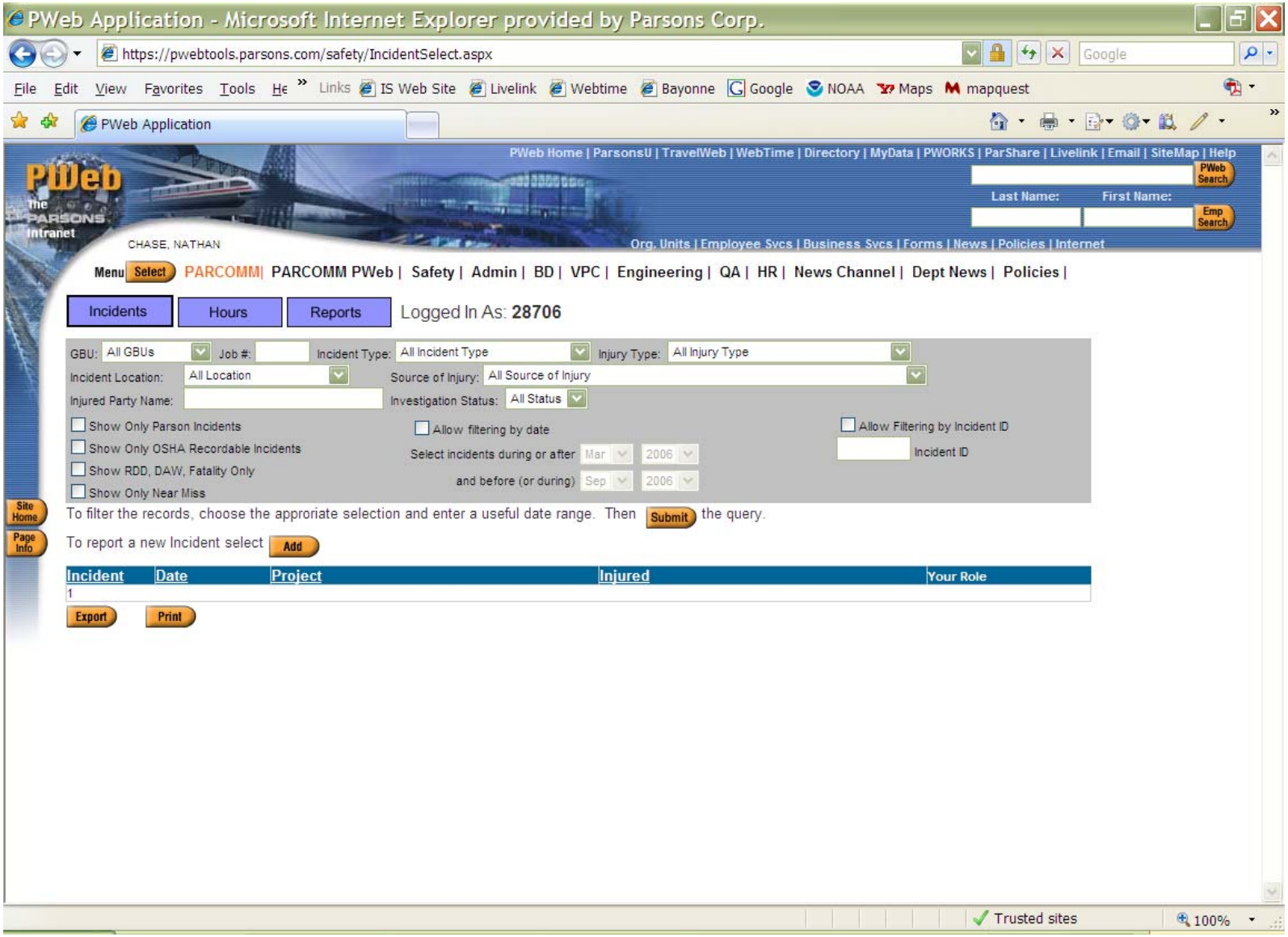


EXHIBIT 4.5 FIELD/PROJECT MONTHLY REPORT FORM

Instructions: Enter the total number of labor hours spent in the field by all Parsons employees and subcontractors during the reporting period. Cost Type (CT) "04" used for WebTime labor entries should represent these hours for Parsons employees. Labor hours spent in the office are classified as CT "01" in WebTime. Incidents/near-miss incidents, air monitoring completed and the type of PPE worn by personnel (i.e. Parsons employees and contractors) must also be reported. Submit by the 3rd working day of the following month (an estimation of the monthly field hours based on number of people working on the project each day is acceptable).

Definitions and Reporting Criteria

Field Hours - time spent by the employee outside his/her home office working at a job site or traveling to/returning from either the job site or a client's office. Working in another Parsons office or at a client's office is not considered field hours for the purposes of this reporting.

Incident - any unplanned or unexpected event. This includes near-misses, first aid cases, personal injuries requiring medical treatment, property damage or environmental release.

Near-miss Incident (NI) - an unplanned or unexpected event that has the potential for personal injury, property damage or environmental release— but it does not occur or almost happened.

PPE - Personal Protective Equipment above Level D (work clothes) or Modified Level D (coveralls, e.g. Tyvek). This includes Level C (chemical resistant suit and/or air-purifying respirator), Level B (chemical resistant suit and/or supplied air) or Level A (full encapsulation suit with SCBA).

Subcontractor - contractors hired by Parsons or their subcontractor, to perform activities in the field. Contractor company names should be listed and tracked separately in the Table below, followed by the hiring company in parentheses (i.e. Parsons or subcontractor).

Project Name:	***ExxonMobil Queens***	Client:	***ExxonMobil***		
Project Location:	***Long Island City, NY***	Client Contact:	***Frank Messina***		
Parsons Contact:	***Megan Miller***	Project #:	***443982.02002***	Month:	_____

Parsons and/or Contractor	Hours	Type of Activities	Incident or NI
PARSONS			
Subcontractors			

Air Monitoring

Was there any air monitoring that took place during the month? No Yes

- If "Yes", indicate below the potential hazards/chemicals monitored (i.e. O2, LEL, dust, VOCs), the monitoring equipment used (i.e. PID, FID, Draeger tubes, 4-gas, DataRAM, cassettes), whether the air monitoring results exceeded an Action Level (AL) or Permissible Exposure Limit (PEL), the level of PPE worn above Level D (C, B or A) and the number of days working in the specific PPE.

Chemical Monitored	Equipment Used	Exceed AL– Exceed PEL	PPE	Days in PPE

NOTE: If an AL/PEL is exceeded or PPE above Level D is worn, a Supplemental Information Form (available in the Industrial Division Safety Folder on LiveLink) must be completed. All incidents must be reported on the PWeb (PARCOMM Online Safety Reporting System).

EXHIBIT 4.6

State of New York
WORKERS' COMPENSATION BOARD

Notice of Right to Select a Workers' Compensation Board Authorized Health Care Provider

Injured Employee's Name	Injured Employee's Social Security No.	Date of Accident
Employer's Name and Address		

To the Injured Employee:
For the treatment of your work-related injury or illness, you may choose any physician, podiatrist, chiropractor, or psychologist (upon referral from an authorized physician) who is Workers' Compensation Board authorized and who is accepting workers' compensation patients.

While you may choose to utilize a network or provider which is recommended by your employer or its workers' compensation insurance carrier or to permit your employer to select a provider on your behalf, you may, at any time, change your health care provider without jeopardizing your workers' compensation claim for benefits.

Signature of Injured Employee	Date	Signature of Witness	Date

Please note: It is not necessary for you to sign this consent form if your employer is (i) participating in a certified preferred provider organization (PPO) under Article 10-A of the Workers' Compensation Law, or (ii) participating in the alternative dispute resolution (ADR) pilot program under section 25(2-c) of the Workers' Compensation Law. In accordance with these statutory programs, except in emergency situations, you must obtain at least initial treatment for any workers' compensation injury or illness from the certified network(s) or providers designated by your employer.

To the Employer:
The employer shall provide the above-named injured employee with a copy of this signed form and shall maintain the original form in the employer's records where it may be inspected by the Workers' Compensation Board at any time. This form shall not be submitted to the Workers' Compensation Board nor shall it be executed prior to the occurrence of this employee's work-related injury or illness.

The Workers' Compensation Board employs and serves people with disabilities without discrimination.

C-3.1 (3-04) ESTE RESUMEN ESTÁ ESCRITO EN ESPAÑOL AL DORSO *www.wcb.state.ny.us*

SECTION 5

PRE-INVESTIGATION AND REMEDIATION PHASE

5.1 RISK ANALYSIS AND SAFETY SPECIFICATION DEVELOPMENT

Procurement procedures require that a site-specific risk analysis be conducted before issuance of investigation and remediation RFPs. Using the Site Specific Risk Analysis Checklist (**Exhibit 5.1**), the Project Manager leads this analysis, which documents existing exposures that may impact the work, surrounding facilities, equipment, workers, or the public at large. The analysis includes locating, documenting, and photographing items such as:

- Overhead and underground power lines
- Sewer and water utilities
- Existing building interferences
- Crane access ways
- Traffic
- Security
- Fences
- Water hazards
- Existing geographical and environmental conditions
- Investigation of Derived Waste (IDW) Disposal
- Confined spaces

Upon completion of the site risk analysis, high-risk activities are listed in the RFPs (as applicable), and bidders must describe controls and mitigation strategies in their proposals. The RFP notes that the list is representative and that the selected contractor must identify and control all work-related hazards.

Preconstruction safety activities include a detailed analysis of the scope of work and safety specifications in the prime contract, Parsons' project schedule, HASP, draft RFPs, and proposed subcontractor agreements. The Project's standard safety specifications are given below.

- Site Specific Risk Review Checklist – **Exhibit 5.1**
- Pre-Bid Safety Meeting – **Exhibit 5.2**
- Project Technical and General Conditions Specification Review – **Exhibit 5.3**
- ExxonMobil LPS program – **Attachment A**
- ExxonMobil OIMS Pre-Drilling Protocol and Checklist – **Attachment C**

5.2 DESIGN AND REMEDIAL ACTION REVIEW

- *NOT APPLICABLE FOR CURRENT PHASE OF WORK*

5.3 PRE-BID MEETING

Pre-bid meetings are required to ensure that bidders understand the RFP, including expectations for safety and health performance. During the pre-bid meeting, the Project Manager uses the Pre-Bid Safety Meeting Checklist (**Exhibit 5.2**) to review project safety philosophy, principles, and Parsons' requirements with all prospective bidders. At this time, Subcontractor Safety Plans can also be reviewed with the aid of **Exhibit 5.4**. Although this information is included in the RFP, the meeting reinforces the message.

5.4 SUBCONTRACTOR PREQUALIFICATION REVIEW

Project procurement procedures require that all subcontractors submit prequalification documentation for evaluation. The Procurement Manager or Division Safety Manager conducts the subcontractor prequalification in accordance with Parsons Contractor Safety Evaluation Package (**Exhibit 5.5**).

5.5 PRE-FIELD WORK MEETING

The Project Manager holds a pre-field work meeting before the subcontractor begins work. The meeting includes subcontractor representatives, contracts manager, and representatives from all disciplines, including safety. During the safety review, the meeting participants review specific safety site/area, pre-bid risk analysis, and competent person and site-specific safety plan requirements. In addition, the Project Manager obtains a safety point of contact and emergency management information. Completion of **Exhibit 4.2** will serve as documentation for this meeting.

5.6 COMPETENT PERSON SUBMISSION REVIEW

Parsons and its subcontractors must identify OSHA-regulated and certified competent persons for work or tasks requiring that level of supervision. The Parsons personnel listed below will be assigned to the project and have the designated certifications.

Name	Job Title	40-hr HAZWOPER	8-hr HAZWOPER Supervisor	8-hr HAZWOPER refresher expires	Other training (i.e. excavation, confined space)

The supervisor and competent person sign and submit the attached Parsons competent person document to the Parsons Project Manager (**Exhibit 5.6**). The supervisor of the competent person must certify in writing the specific competencies of the named competent person.

5.7 SUBCONTRACTOR SAFETY PLAN SUBMISSION REVIEW

All subcontractors must submit safety programs to the Parsons Project Manager for review before they begin work on site. The Project Manager reviews the program for adequacy in accordance with the HASP.

5.7.1 Contractor Site-Specific Safety Plans

At least 10 days before work begins, each subcontractor must submit two copies of its SSP to the Parsons Project Manager for review. The Project Manager and Project Safety Manager shall review the SSP to ensure that it meets Parsons' requirements.

If a contractor needs assistance developing an SSP, the Project Safety Manger will provide an electronic copy of Parsons' sample SSP from Appendix A2 of the SHARP Management manual.

The SSP must address the following elements:

- Responsibility
- Compliance
- Communication
- Hazard assessment
- Accident exposure and investigation
- Hazard correction
- Training and instruction
- Record keeping

The SSP must include applicable requirements of Parsons HASP and OSHA CFR 1910/1926:

- Scope of work evaluation that describes the sequence of work and associated hazardous activities.
- Specific JSA.
- A project site employee orientation program that addresses location specific issues relative to safety and health.
- A site-specific emergency action plan that includes a list of key management contacts with home office, project site, home, and cellular telephone numbers.
- A site-specific medical emergency plan that lists qualified first aid personnel by name and includes copies of their current certificates.
- Key line management personnel, by name and position, who will enforce the SSP.

- Key competent or qualified personnel by name and copy of current documentation identifying specific certified competency (e.g., scaffolding, excavations, and fall protection).
- Written progressive disciplinary program for violations of safety procedures.
- Trenching and shoring plan (if applicable).
- HAZWOPER training documentation (if applicable).
- Contractor task hazard planning.
- Subcontractor weekly safety planning submission.
- Contractor workers daily task safety planning.

5.8 MOBILIZATION/KICKOFF SAFETY MEETING

Project Managers conduct the Mobilization/Kickoff Safety Meeting on the first day of subcontractor mobilization in the field and at the work site. The meeting includes reviewing the Site Specific Risk Review Checklist **Exhibit 5.1,** the Safety Orientation Outline (**Exhibit 4.1**) and a walk through of the work area to locate potential work hazards**. Exhibit 4.2** will be used to document this meeting.

It is encouraged, but not required, for field team personnel to share personal health and safety issues (e.g., diabetes, allergies, etc.) with the Site safety officer prior to the start of field work so field personnel are prepared to handle emergency situations related to those health and safety issues.

EXHIBIT 5.1 SITE SPECIFIC RISK REVIEW CHECKLIST

EXHIBIT 5.1
SITE SPECIFIC RISK REVIEW CHECKLIST

Date: Project or Location:_____

Risk/Hazard	Detail	Present
Employee Exposure	Hazardous chemicals	_____
	Lead	_____
	Asbestos	_____
	UXO	_____
	PCB	_____
	Airborne contaminants (dust, mists, fumes)	_____
	Other (specify)	_____
	_____	_____
Hazardous Waste	Handling, removal or storage of hazardous is required	_____
	_____	_____
Crane Work	Mobile cranes	_____
	Tandem lifts	_____
	Bridge cranes	_____
	Derricks	_____
	_____	_____
Powered Industrial Trucks	Forklift training is required	_____
Aerial Lifts	Hydraulic booms	_____
	Scissor lifts	_____
	Mobile scaffolding	_____
	_____	_____
Drilling		
Soil Sampling	Geoprobe	_____
	Split Spoon Sampling	_____
Electrical	Staging area	_____

Risk/Hazard	Detail	Present
Personal Protective Equipment	Work activities or work site requires hearing protection	_____
	Work activities or location requires using respirators	_____
	Work activities or location requires special protective clothing	_____
	_____	_____
Public Exposure	Work activities or location requires special precautions to protect the public	
	_____	_____
Permits	required	_____
	Hot permit	_____
Other Exposures	Other exposure or high-risk activities (list)	
	_____	_____
	_____	_____
	_____	_____
	_____	_____
	_____	_____

Notes: _____

_____

Reviewed by: _____ Title: _____ Date: _____

EXHIBIT 5.2 STANDARD PRE-BID SAFETY MEETING CHECKLIST

EXHIBIT 5.2
STANDARD PRE-BID SAFETY MEETING CHECKLIST

Date:		Project/Location:	
Subcontractor Representative:		Parsons Project Manager:	
Phone:		Phone:	
Subcontractor Safety Rep:		Parsons Safety Manager:	
Phone:		Phone:	

The following items were identified and reviewed with the subcontractor.

Health & Safety		Medical	
Site-Specific Safety Plans/Model Program		Substance Abuse Screening	
Competent/Qualified Person Documentation		Emergency Procedures	
Safety Audits/Inspections		Site Security	
Subcontractor Responsibilities		Smoking Policy	
Site Orientation Requirements		Medical Services Requirements	
Mobilization/Kickoff Safety Meeting/Date		Treatment Locations/Addresses/Phone List	
Crane Inspection Certification		Other	
Personal Protective Equipment (PPE)			
Environmental Hazards			
Other			

Additional Notes/Comments:

EXHIBIT 5.3 PROJECT TECHNICAL AND GENERAL CONDITIONS SPECIFICATION REVIEW

EXHIBIT 5.3
PROJECT TECHNICAL AND GENERAL CONDITIONS SPECIFICATION REVIEW

Date: Project/Location:
Project Manager: Safety Manager:

The project specification review has revealed the following high-risk activities. Activities checked must be followed up during intrusive work with training, written plans and/or a specific Activity Hazard Analysis. This list should be reviewed with prospective bidders during the pre-bid meeting.

Excavations/Trenching		Demolition	
Powered Industrial Trucks, Fork Lifts		Heavy Hauling	
Work Involving Hazardous Materials		Concrete	
Electrical Tie-ins/Lockout–Tagout		Work Adjacent to Production Areas	
Drilling		Site Security/Visitor Control/Public Exposure	
Underground, Caissons, Cofferdams		Process Safety Management (PSM)	

High Risk Activities and Other Project Concerns:

EXHIBIT 5.4 SUBCONTRACTOR SAFETY PLAN REVIEW

EXHIBIT 5.4

SUBCONTRACTOR SAFETY PLAN REVIEW

Date: _____ Project/Location: _____

Subcontractor: _____ Parsons Safety Manager: _____

The information provided here is based on a review of a subcontractor's safety plan. Areas identified as incomplete are reevaluated and modified based on the standards in the contract specifications and the Project Safety Program manual. Subcontractors resubmit corrected sections of the SSP to the Parsons Construction Manager within one week of receiving review documentation.

Section	Complete	Incomplete	Section	Complete	Incomplete
Site Specific Safety Plan			Specific JSAs		
Responsibilities assigned			Project Site Employees Orientation Program		
Compliance			Emergency Action Plan		
Hazard Communication			Site Specific Medical Emergency Plan		
Hazard Assessment			Identification of Key Line Personnel		
Accident Investigation			Identification of Competent & Qualified Personnel		
Hazard Correction			Written Progressive Disciplinary Program		
Training and Instruction			Written Trenching and Shoring Plan (if applicable)		
Recordkeeping			Written 100% Fall Protection Plan (if applicable)		
Scope of Work Evaluation			Other		

Additional Comments:

_____

_____

_____

_____

Reviewed by:

Name	Title	
_____	_____	_____

EXHIBIT 5.5 CONTRACTOR SAFETY EVALUATION PACKAGE

CONTRACTOR SAFETY EVALUATION PACKAGE Last Revised March 7, 2007			
	CONTRACTOR HOME OFFICE INFORMATION		**Parent Company Info. (if applicable)**
NAME			
ADDRESS 1			
ADDRESS 2			
CITY, STATE ZIP			
WEB ADDRESS			
H&S CONTACT NAME			
H&S CONTACT TITLE			
TELEPHONE			
FAX			
H&S CONTACT EMAIL ADDRESS			

1. Contractor Activity

Select the type of activity that best describes the services that your company performs.					
Asbestos Abatement	Carpentry	Concrete	Consulting	Demolition	Drilling
Earthwork	Electrical	Engineering	General Contractor	Heavy Construction	Maintenance
Masonry	Plumbing/ HVAC	Roofing/ Sheet Metal	Surveying	Trucking/Transportation	
Other (describe)					

2. Substance Abuse Policy

To the best of your knowledge, are employees and other individuals (subcontracted labor, temps, leased, union, etc.) hired by your company to work in the field (not D.O.T. drivers) on a Parsons project site, drug and alcohol free?	No	Yes
Do BOTH your employees and other individuals as stated above participate in pre-employment drug testing?	No	Yes
Do BOTH your employees and other individuals as stated above participate in post-accident drug and alcohol testing?	No	Yes
Do BOTH your employees and other individuals as stated above participate in reasonable suspicion drug and alcohol testing?	No	Yes

Do BOTH your employees and other individuals as stated above participate in random drug and alcohol testing? (Note: This does not apply to individuals with a CDL).	No	Yes
If you answered "Yes" to the question above, insert the percentage of employees that are randomly drug and alcohol tested on an annual basis?		
Are BOTH your employees and other individuals as stated above willing to participate in any of the drug and alcohol testing above while working in the field on a Parsons project?	No	Yes

3. Competent Personnel

For the purposes of this section, the definition of a full time safety person is an individual that has worker safety as their only job or responsibility. The definition of a competent person is an individual that is certified by a state or has received formal training provided by a qualified person, company or agency and has a certificate that is not expired.

Number of Board Certified employees in your company that are a full time safety person?	CIH	CSP	OHST	CHST
Indicate the type and number of safety personnel in your company?	Other	Safety Consultant	Part-Time Person	Full Time Person
If not a full time safety person, how many hours per month or as needed?	Other	Safety Consultant	Part-Time Person	As needed
Years of safety experience for the highest level full time safety person?	<5 years	5-9 years	10-14 years	>15 years
Who does the highest level full time safety person report to (job title)?				

Indicate the number of competent persons in your company for the type of work below.

Excavation / Trenching	Scaffold User	Forklift Operation	Confined Space Entry	Asbestos Abatement	DOT Hazardous Materials General Awareness

Underground Storage Tank (UST) removal	10-hr OSHA Construction	10-hr OSHA General Industry	40-hr HAZWOPER certification	HAZWOPER Supervisor	CPR/ First Aid

4. Work Activities

Are your employees involved with any of the activities described below? If yes, check all that apply below.	Yes	No

Confined Space Entry	Excavation/ Trenching	Zero Energy – Lockout/Tagout	Forklift Operations	Aerial Lifts/ Scissor Lifts	Wearing a respirator
Cranes	Hot Work	Scaffolds	Asbestos Abatement	Emergency Response	Loading/Shipping Hazardous Materials

Clean-Up Operations with hazardous substances	Underground Storage Tank (UST) removal	Geoprobe DPT, drilling or well installations	Heavy Equipment Operation

Do field employees engage in activities that expose or potentially expose them to hazardous substances and health hazards (i.e. contaminated soil or water)?	No	Yes
Do any employees wear a respirator for more than 30 days a year?	No	Yes
Is air monitoring conducted to determine if employees are exposed to hazardous substances or health hazards at or above the established permissible exposure limit, without regard to the use of respirators?	No	Yes

5. Safety Maturity

Does your company have a written Safety Manual?				No	Yes
Does your company conduct safety audits after a project begins? If "Yes", indicate the frequency and type of audit (documented or not documented).				No	Yes
Other – insurance carrier	Monthly – not documented	Weekly – not documented	As required – documented	Monthly – documented	Weekly – documented
Do field employees participate in safety meetings? If "Yes", indicate the frequency and type of meeting (documented or not documented).				No	Yes
Monthly – not documented	Weekly – not documented	Daily – not documented	Monthly – documented	Weekly – documented	Daily – documented
Do field employees receive training? If "Yes", indicate the type of training (check all that apply).				No	Yes
Computer based (CBT)	On-the-Job/ Buddy System	Site-specific (i.e. HASP)	New hire orientation	Defensive Driving	Behavior-based safety

6. OSHA Inspections/Violations

Has OSHA inspected any of your job sites in the past five (5) years?			Yes	No
If "Yes" above, indicate the <u>number</u> of inspections (including zero) for each type listed below.				
Other	Accident	Complaint	Referral	Planned
Indicate the total <u>number</u> of citations (including zero) issued for each type of violation listed below.				
Willful	Serious	Repeat	Other	

7. Safety Statistics

Is your company familiar with the recording criteria and determination of work-related injuries as per the OSHA regulations (29 CFR 1904)? If no, skip to Section 8.	No	Yes
Does your company maintain an OSHA 300 Log? If no, provide a reason below and skip to Section 8.	No	Yes

Reason:	
What is the NAICS code (formerly SIC) reported on your OSHA Form 300A?	

STAFFING	2004	2005	2006	YTD
1. Average number of full time employees				
2. Average number of part-time or temporary workers				
3. Average number of leased employees				
STATISTICS – from the OSHA 300 Logs	2004	2005	2006	YTD
1. Number of work hours (in 000's, e.g., 50,000 hours = 50)				
2. Number of fatalities				
3. Number of injuries w/days away from work and/or restricted work activity				
4. Number of injuries w/days away from work				
5. Number of days away from work				
6. Number of days of restricted work activity				
7. Number of injuries without lost workdays				

8. Worker Injuries and Compensation Claims

If a company answered "Yes" to the questions in Section 7, skip to "CLAIMS" below.		
Have any of your employees or other supervised individuals (i.e. temporary or lease workers) been injured on the job requiring first aid or medical treatment? If "Yes", complete the Statistics and Claims section below.	No	Yes

STATISTICS – work related injuries	2004	2005	2006	YTD
1. Average number of full time employees				
2. Average number of part-time or temporary workers				
3. Average number of leased workers				
4. Number of fatalities				
5. Number of workers injured that could not perform their normal job the following day, or the task they were doing when injured				
6. Number of workers injured that could not or did return to work the following day (including weekends, holidays, vacations)				
7. Number of workers injured that received first aid or medical treatment (at a clinic/hospital or in the field)				
CLAIMS – from insurance carrier/broker	2004	2005	2006	YTD
1. Total Number of Workers Compensation Claims filed				
2. Number of Open Workers Compensation Claims				
3. Total Amount of WC Claims (in $000's)				
4. Amount of Reserves for WC Claims				

9. Experience Modification Rate (EMR)

Does your company have an Experience Modification Rate? If no, provide a reason below and include a letter from your insurance carrier.	No	Yes
Reason:		

RATING – from insurance carrier/broker	Year Prior	Year Prior	Year Prior	Most Current
Experience modification rate (EMR)				
What is the policy period (month/yr) for your insurance?				

10. Areas of Service

Identify the region or state(s) that your company can provide service in.

All States												
Canada		Alberta	Ontario	Saskatchewan	Manitoba	Quebec	British Columbia					
West Coast		AZ	CA	CO	ID	MT	NM	NV	OR	UT	WA	WY
Midwest		AR	IA	IL	KS	MN	MO	ND	OK	SD	TX	WI
Southeast		AL	FL	GA	KY	LA	MS	NC	SC	TN	VA	WV
Northeast		CT	DE	IN	MA	MD	ME	MI	NH	NJ	NY	OH	PA	RI	VT

11. Certification – by an Authorized Company Representative

If the company provides or subcontracts Trucking/Transportation Services, has Parsons been contacted at the number below to receive a Transportation Safety Evaluation package for completion.	N/A	Yes
I hereby certify that all information provided in this Contractor Safety Evaluation Package is accurate and correct. Additional support documentation shall be provided upon request.	No	Yes

Contractor/Company Name	
Representative Name	
Representative Title	
Representative Signature	
Date	

Questions and/or completed packages should be forwarded to:

Gregory H. Beck
PARSONS
(732) 537-3502 office
(732) 875-0353 fax
gregory.beck@parsons.com

EXHIBIT 5.6 PARSONS SUBCONTRACTOR COMPETENT PERSON FORM

EXHIBIT 5.6
PARSONS SUBCONTRACTOR COMPETENT PERSON FORM

Definition

A competent person is a person having the ability to recognize existing and predictable hazards and having the authority to correct them.

Responsibility

The designated subcontractor competent person is responsible for recognizing and correcting safety risks/hazards. This person has the authority to stop work in a potential safety concern on the jobsite. This Subcontractor Manager and competent person are considered the contacts for Parsons projects.

This form must be completed by each subcontractor's manager and the subcontractor's designated competent persons. ***Where a subcontractor is responsible for multiple crafts, it will be necessary to maintain additional designated competent persons and forms.*** Each subcontractor on a Parsons project must submit this completed form to the Parsons Construction Manager before beginning work on the project and must update it any time the designated representative(s) changes.

Acknowledgment

I,_____ representing, _____
Subcontractor Manager Subcontractor Company Name

have assigned _____ to be the competent person in the areas indicated and I _____ acknowledge that this individual has been thoroughly trained and is experienced in hazard recognition and has the authority to stop work and correct hazards in the event of a potential hazardous or imminent danger situation.

_____ _____
Subcontractor Manager (Signature) Date

I, _____ acknowledge that I have been thoroughly trained and have the experience
Competent Person (Signature)

to perform the duties as the _____competent person in the areas marked below and
Subcontractor Company Name

I understand that I have the responsibility and authority to correct hazards and to stop work in the event of a potential hazardous or imminent danger situation.

_____ Asbestos	_____ Hearing Protection	_____ Welding/Cutting
_____ Respiratory Protection	_____ Scaffolding	_____ Rigging
_____ Cranes/Derricks	_____ Electrical	_____ Lead
_____ Fall Protection	_____ Ladders	_____ Excavations/Trenches
_____ Demolition	_____ Drilling	_____ First Aid/CPR
_____ Underground Const.	_____ Material/Personnel Hoists	_____ Concrete/Forms/Shoring
_____ Work Near Water	_____ Bolting/Riveting/Fitting	_____ Well Installation
_____ Soil and Water Sampling	_____ Permits	_____

SECTION 6

INVESTIGATION AND REMEDIATION PHASE

6.1 SITE RISK ANALYSIS

Before work begins, Project Managers lead a team that performs a risk analysis at each work site to identify hazards that require specific control measures. During weekly progress meetings, the Project Engineer and subcontractors submit written summaries of upcoming work tasks and associated risks and control measures to the Project Manager using the JSA form. The weekly summaries identify upcoming mobilization or demobilizations tasks, audits and inspections, competent person changes, training and new activities requiring a JSA. Subcontractors add activities to these summaries at least two weeks in advance of the work. General hazards that may be encountered during activities described in Section 2.0 are described below. Task specific hazards are addressed in more detail in task specific JSAs (**Attachment D**). Separate health and safety policies or procedures related to the hazards of new tasks may be developed and will be inserted into **Attachment E**.

6.1.1 Physical Hazards

Physical hazards that may be encountered during site activities include, but are not limited to electrocution, severe weather, slip/trip/falls, ultra-violet radiation, operation of motor vehicles and heavy equipment, traffic, lifting heavy objects, noise, induced illness, cold-related illness.

Electrocution

Field personnel will identify subsurface and overhead electrical sources and lines before sampling or ground disturbance activities commence. Precautions will be exercised when working near any overhead electrical lines. All operations will be discontinued at the first sign of thunder or lightening and will not recommence until 30 minutes after the last sign of thunder or lightening is observed.

When working near overhead electrical lines with a crane, drill rig, or other equipment, the field engineer shall ensure that overhead power lines are de-energized or separated from the equipment and its load by implementing one or more of the following [29 CFR 1910.333(c)(3); 29CFR 1926.550(a)(15)]:

- De-energize and visibly ground electrical distribution and transmission lines at the point of work;
- Use insulated barriers that are not part of equipment to prevent contact with lines; and
- If the power lines are not de-energized, operate equipment in the area only if a safe minimum clearance is maintained as follows:
    1. At least 10 feet for lines rated 50 kilovolts or below;
    2. At least 10 feet plus 0.4 inches for each kilovolt above 50 kilovolts; or

3. Maintain twice the length of the line insulator (but never less than 10 feet).

Overhead power lines, downed electrical wires, temporary electrical circuits, and buried electric cables can pose a danger of shock or electrocution if workers contact or sever them during construction activities. Electrical equipment used at sites may also pose a shock hazard to workers. To help minimize this hazard, low-voltage equipment with ground-fault interrupters and watertight corrosion-resistant connecting cables should be used on site whenever possible. OSHA standards for electrical safety are contained in 29 CFR parts 1926.403 through 1926.408 and 1926.416. OSHA standard 29 CFR part 1910.137 describes clothing and equipment for protection against electrical hazards. All applicable sections of these standards must be met. Other electrical standards of particular concern at construction sites include the following:

- Provide ground-fault circuit interrupters for all on-site wiring other than permanent wiring in buildings or structures;
- Protect employees from electrical shock by a program at least as stringent as 29 CFR, part 1926.416, Safety-Related Work Practices.
- Inspect extension cords for splices, taps, and breaks in the outer insulation cover and replace cord if any of these conditions are observed.

Slip, Trip, and Fall Hazards

The entire Site may contain a number of slip, trip, and fall hazards for site workers, such as:

- Holes, pits, or ditches;
- Slippery surfaces;
- Steep Grades;
- Uneven grades;
- Sharp objects, such as nails, metal shards, and broken glass.

Such hazards should be corrected or eliminated immediately. If the hazard cannot be immediately removed, then the On-Site Safety and Health officer must take action to warn the site workers of the hazards to prevent injury. The signs, signals, and barricades used to warn and protect site workers from these hazards will be in accordance with OSHA (refer to 29 CFR parts 1926.200 through 1926.202).

Ultraviolet Radiation

The sun emits ultraviolet radiation (UV) as heat and light. The skin's natural defense mechanisms attempt to reject the UV by distributing melanin pigmentation where needed. However, overexposure to direct sunlight can cause inflammation or blistering of the skin (sunburn). The use of sunscreen, long sleeve shirts, and wide brim hats can help prevent sunburn. Chronic exposure to UV radiation is known to cause skin cancer. In case of sunburn, do not apply burn ointment, cold cream, or butter to relieve pain. Use a dry dressing and get medical attention for severe, extensive sunburns. Also watch for dehydration. If a person is dehydrated, try and keep their fluid volume at their normal level.

Motor Vehicle and Heavy Equipment Hazards

Working with and around large motor vehicles and heavy equipment can be a major concern at this site. Due to improperly operated equipment, injuries can result from equipment hitting or running over personnel, or overturning of vehicles. Drill rigs clamps and ropes will be inspected in accordance with 29 CFR Part 1926.251. Vehicles and heavy equipment design and operation will be inspected according to 29 CFR Parts 1926.600 through 1926.602. In particular, the following precautions will be used to help prevent injuries and accidents:

- Brakes, hydraulic lines, light signals, fire extinguishers, fluid levels, steering, tires, horn, seat belts, and other safety devices will be checked and recorded on a log sheet at the beginning of each week or ten day work period;
- Motorized Equipment (other than passenger vehicles and pickup trucks or vans) will not be backed up unless the vehicle has a reverse signal alarm audible above the surrounding noise level, backup warning lights, or the vehicle is backed up only when an observer signals it is safe to do so;
- Motor vehicle cabs will be kept free of all non-essential items and all loose items will be secured;
- Operators are not permitted to use any distracting equipment while in the cab (e.g. portable music players, cell phones, radios), except for two-way radios;
- Operators are not permitted to exceed 12 hours of duty time in any 24-hour period, including time worked at another occupation;
- A minimum of 8 consecutive hours of rest must be provided in each 24-hour period;
- On-duty operators will not operate vehicles for a continuous period of more than 10 hours;
- Parking brakes will be set before shutting off any vehicle; and
- When working in parking lots/area, personnel will cone off the area where working and have an additional person standing by to observe traffic.

Traffic

Traffic at the Site may include cars, trucks, and heavy equipment. Personnel should use traffic control barriers to direct the flow of traffic away from active work areas. In addition, field personnel can use their vehicle as part of the traffic control system and to put an object between the field team member and on-coming traffic. Personnel should be aware of the site speed limit, 10 miles per hour. Drivers are not permitted to use any communication devices (e.g., cell phones) while driving. The driver and all passengers must use seatbelts in any moving vehicles at all times.

Lifting Heavy Equipment

Many types of objects are handled in normal day-to-day operations. Care should be taken in lifting and handling heavy or bulky items because they are the cause of many joint and back

injuries. The following fundamentals address the proper lifting of materials to avoid joint and back injuries:

- The size, shape, and weight of the object to be lifted must be considered. Site personnel will not lift more than they can handle comfortably;
- A firm grip on the object is essential, therefore the hands and object shall be free of oil, grease and water, which might prevent a firm grip;
- The hands, and especially the fingers shall be kept away from any points that cause them to be pinched or crushed, especially when setting the object down;
- The item will be inspected for metal slivers, jagged edges, burrs, rough or slippery surfaces and pinch points, and gloves shall be used, if necessary, to protect the hands;
- The feet will be placed far enough apart for good balance and stability;
- Personnel will ensure that solid footing is available prior to lifting the object;
- When lifting, get as close to the load as possible, bend the legs at the knees, and keep the back as straight as possible;
- To lift the object, the legs are straightened from their bending position;
- Never carry a load that you cannot see over or around;
- When placing an object down, the stance and position are identical to that for lifting: with the back kept straight and the legs bent at the knees, the object is lowered;
- If needed, back support devices will be provided to aid in preventing back injury during lifting activities; and
- Materials will not be moved over or suspended above personnel unless positive precautions have been taken to protect.

When two or more people are required to handle an 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. One person will be designated as "leader." The leader will direct the pick up, transfer, set down and release of the load, to ensure coordination. When carrying the object, each person, if possible, shall face the direction in which the object is being carried.

Noise

Planned activities involve the use of heavy equipment. The unprotected exposure of site workers to this noise during activities can result in noise-induced hearing loss. The onsite Construction S&H officer will ensure that either earmuffs or disposable foam earplugs are made available to all personnel near sources of high intensity noise. Hearing protection must have an adequate Noise Reduction Rating (NRR) value to reduce exposures to less than 85 dbA. High intensity noise is any continuous source with sound levels meeting or exceeding 85 dBA. Noise controls must also be used in order to reduce site worker exposures to less than 85 dBA. Engineering controls include replacing noisy equipment with quiet equipment, using silencers and mufflers, installing enclosures, and damping noisy equipment and parts. Administrative

controls include employee rotation, limiting use of noisy equipment, rescheduling work, and altering work practice.

Temperature Extremes: Cold Stress and Heat Stress

At the Queens site, workers may be exposed to extreme temperatures. The potential for cold stress and heat stress will be evaluated by the Project Health and Safety Officer for routine and non-routine site activities. If necessary, project controls and preventative practices may be implemented to protect workers from thermal stress, as outlined below.

Cold Stress

Cold weather conditions can be hazardous to the health and safety of employees, endanger the stability of the body system, and cause conditions such as hypothermia and frostbite. In order to alleviate the effects of cold environments, adequate precautions will be taken. This requires keeping the deep body temperature of workers above 36°C (96.8°F) and the core temperature above 35°C (95°F), as well as protecting body extremities from cold stress.

At air temperatures below -1°C (30°F), the wind chill index shall be measured at least every 4 hours. Equivalent wind chill temperature and frostbite precautions will be determined using the Wind Chill Index Table included below.

Engineering and administrative controls for cold stress prevention include the following:

- General or spot heating may be used to increase temperature at the site
- At temperatures below 5°C (40°F), metal handles of tools must be covered with thermal insulation
- Schedule work/rest periods and enforce scheduled work breaks as needed to prevent cold stress disorders
- Terminate exposure to cold when severe shivering or exhaustion becomes evident
- At air temperatures of 2°C (36°F) or below, workers who become immersed in water (or sweat) or whose clothing becomes wet must immediately be provided a change of clothing and treated for hypothermia
- Maintain protective supervision or a buddy system for those who work in temperatures below -7°C (20°F).

The use of personal protective equipment for cold stress prevention should follow these guidelines:

- All workers should have access to the following cold weather PPE: hard hat liners, face protection, and safety goggles with UV protection (for snowy conditions).
- In cold weather, workers are responsible for dressing in clothing appropriate to the work conditions. This includes wearing loose fitting clothing; protecting feet, hands, head, and face; wearing cotton clothing as the under layer; and using an outer impermeable layer when there is potential exposure to water

Heat Stress

The use of PPE at the Site may create heat stress. Heat Stress is defined by the American Conference of Governmental Industrial Hygienists (ACGIH) as "the net heat load to which a worker may be exposed from the combined contributions of metabolic cost of work, environmental factors (i.e. air temperature, humidity, air movement, and radiant heat exchange), and clothing requirements" (ACGIH, Threshold Limit Values and Biological Exposure Indices, 2004). Field personnel using Level B or C PPE will be monitored when the ambient temperature is 70°F or above. Table **6.1** and **Table 6.2** present the frequency for such monitoring. Monitoring frequency will increase as the ambient temperature increases or as slower recovery rates are observed. A person with a current first aid certification and who is trained to recognize heat stress symptoms will perform heat stress monitoring. One person on each field team shall be designated by the onsite S&H officer to monitor team members for heat stress. Personal heat stress monitoring may involve the following techniques:

- Heart rate. Count the radial pulse during a 30-second period as early as possible in the rest period.
    - If the heart rate exceeds 110 beats per minute (bpm) at the beginning of the rest period, shorten the next work cycle by one-third and keep the rest period the same.
    - If the heart rate still exceeds 110 bpm at the next rest period, shorten the following work cycle by one-third.
    - If the sustained heart rate during a work period is in excess of 180 bpm minus the workers age in years (180 - years), ensure that the exposure to heat stress is discontinued (e.g. by starting a new rest period).
- Oral temperature. Use a clinical thermometer (3 minutes under the tongue) or similar device to measure the oral temperature at the end of the work period (before drinking).
    - If oral temperature exceeds 99.6°F (37.6°C), shorten the next work cycle by one-third without changing the rest period.
    - If oral temperature still exceeds 99.6°F (37.6°C) at the beginning of the next rest period, shorten the following cycle by one-third.
    - Do not permit a worker to wear a semi-permeable or impermeable garment when oral temperature exceeds 100.6°F (38.1°C).
- Other methods for determining heat stress monitoring, such as the wet bulb globe temperature (WBGT). The additions to measured WBGT values based on clothing type, as recommended by the ACGIH, can also be used. For instance, cloth overalls add 6.3°F (3.5°C) to the WBGT, and double cloth overalls add 9°F (5°C) to the WBGT.

Proper training and preventive measures will aid in averting loss of work productivity and serious illness. Heat stress prevention is particularly important because once a person suffers from heat stroke or heat exhaustion, that person may be predisposed to additional heat related illness. To avoid heat stress, the following steps will be taken, based in part on guidance from the ACGIH:

- Adjust work schedules.
    - Modify work/rest schedules according to monitoring requirements (refer to **Table 6.1** and **Table 6.2**).
    - Mandate work slowdowns as needed.
    - Perform work during cooler hours of the day if possible, or at night if adequate lighting can be provided.
- Provide shelter (air-conditioned, if possible) or shaded areas to protect personnel during rest periods.
- Maintain worker's body fluids at normal levels. This is necessary to ensure that the cardiovascular system functions adequately. Daily fluid intake must approximately equal the amount of water lost in sweat, i.e., eight fluid ounces (0.23 liters) of water must be ingested for approximately every eight ounces (0.23 kg) of weight lost. The normal thirst mechanism is not sensitive enough to ensure that enough water will be drunk to replace lost sweat. When heavy sweating occurs, workers will be encouraged to consume more fluids. The following strategies may be useful:
    - Maintain fluid temperature at 50° to 60°F (10° to 16.6°C).
    - Provide small disposal cups that hold about four ounces (0.1 liter).
    - Have workers drink 16 ounces (0.5 liters) of fluid (preferably water or dilute drinks) before beginning work.
    - Urge workers to drink a cup or two every 15 to 20 minutes, or at each monitoring break. A total of 1 to 1.6 gallons (4 to 6 liters) of fluid per day are recommended, but more may be necessary to maintain body weight.
- Adjust expectations of those returning to work after a period of absence from hot exposure situations and encourage consumption of salty foods (with approval of physician if on a salt-restricted diet).
- Give special notice to workers taking any medications that may compromise normal function of the cardiovascular system, blood pressure, body temperature regulation, renal system, or sweat glands.

Workers will be trained to recognize the symptoms of heat stress. Workers will be encouraged to self-limit exposure and to observe co-workers in order to detect signs and symptoms of heat stress. These symptoms may include:

- Disorientation, confusion, or dizziness.
- Inexplicable irritability, malaise, or flu-like symptoms.
- If sweating stops and the skin becomes hot and dry, immediate emergency care with hospitalization is essential (see Section 4.11.3 for local medical services).

Housekeeping

The SHSO will be familiar with the OSHA requirements for sanitation (refer to 29 CFR part 1926.51). Portable drinking water containers must be capable of being tightly closed and equipped with a tap. Water shall never be dipped from containers. All drinking water containers will be marked to indicate the content and should never be used for other purposes. A common drinking cup is prohibited.

It is the duty of all site workers and the responsibility of the SHSO to recognize improper housekeeping practices and remedy them immediately.

- Debris shall be kept clear from work areas, passageways and stairs, in and around building areas or structures.
- Combustible materials shall be removed at regular intervals during the course of construction.
- Containers must be provided for the collection and separation of waste, trash, and refuse.
- Containers used to store oils, flammables, or hazardous substances (e.g., acids, caustics, harmful dust, etc.) must be covered.
- Garbage and other waste should be disposed of at frequent intervals.
- Access to fire extinguishers, first aid kits, or other safety items shall not be blocked.

6.1.2 Environmental Hazards

Severe Weather Hazards

During the course of field operations, severe weather may be encountered including thunderstorms, lightning, rainstorms, and other unsafe weather conditions (high winds and tornadoes). Criteria indicating severe weather conditions may exist include:

- High winds (greater than 40 miles per hour – depending on the tree cover and other site-specific conditions);
- Tornado watch or warning in place for the area including the site;
- Visible lightning;
- Extreme temperatures (greater than 100°F);
- Heavy rainfall that makes footing treacherous and visibility difficult; or
- Waves with white caps on the Creek.

Compressed Gas Safety

Cylinders of compressed gas may be used for air monitoring equipment or welding. Compressed gas must be secured to prevent falling. If cylinders of compressed gas are stored outside, they shall not be located in an area where motor vehicles may strike them. Storage area temperatures shall not exceed 125°F or be below -10°F. Containers shall not obstruct exit routes.

Piping, regulators, and other apparatus that are in use shall be maintained gas tight to prevent leakage. This is confirmed by the use of a compatible leak test solution (i.e., soap solution). Leak testing should be routinely performed at maximum operating pressure.

General Fire Hazards

Although fires and explosions may arise spontaneously, they are more commonly the result of carelessness during the conduct of Site activities such as moving drums, mixing/bulking of site chemicals, using open flames under explosive or flammable conditions, and during refueling of heavy or hand held equipment. Some potential causes of explosions and fires include:

- Mixing of incompatible chemicals, which cause reactions that spontaneously ignite due to the production of both flammable vapors and heat;
- Ignition of explosive or flammable chemical gases or vapors by external ignition sources;
- Ignition of materials due to oxygen enrichment;
- Agitation of shock or friction-sensitive compounds; and
- Sudden release of materials under pressure.

Personnel should be familiar with the location of the nearest fire extinguisher prior to commencing work.

Flammable Liquid Storage and Fire Prevention

Only appropriate safety containers will be used for the storage and handling of flammable liquids (i.e., gasoline). Containers will be appropriately marked.

To reduce the risks of fires and explosions, small quantities of flammable liquids must be stored in approved "safety" cans and labeled according to contents. Bulk storage of flammable materials should only be allowed in areas designated for this purpose. Open flames must be prohibited within 50 feet of flammable storage areas. OSHA standards for fire protection and prevention include:

- Assuring proper storage of flammable liquids
- Assuring adequate numbers and appropriate types of fire extinguishers
- Inspecting portable fire extinguishers and respirators at least monthly, and providing any necessary maintenance or testing
- Allowing open flames or cutting only in certain locations and with appropriate precautions
- Assuring proper use of mechanical or local exhaust ventilation

6.1.3 Ground Disturbance hazards

Excavations (test pits, or trenches) and drilling may be conducted throughout the site. Prior to any ground disturbance activity, efforts must be made to determine whether underground installations (i.e., sewers, telephone, water, fuel, electric lines, etc.), will be encountered and, if so, the underground installations location will be identified and marked out on the site. ExxonMobil has an established subsurface clearance protocol which shall be followed for any intrusive subsurface work (**Attachment C**). Any internal and or state required permits shall be obtained before commencing ground disturbance activities.

For excavations, the walls and faces of all excavations in which personnel are exposed to danger from moving ground must be guarded by a shoring system, sloping of the ground, or some other equivalent means. A safe means of exit from an excavation must be provided when the excavation depth is 4 feet or greater. Exit locations must be spaced at lateral intervals of 25 feet or less. Barrier tape must be utilized to warn and protect workers from open excavations. A certified competent person is required to inspect all excavation activities.

6.1.4 Drilling Hazards

Intrusive investigation or excavation of the subsurface in areas developed for commercial, industrial or residential use exposes Parsons to the risk of causing damage to underground utilities and structures on a daily basis.

The potential consequences of causing damage to an underground utility or structure include, but are not limited to the following:

- Injury or loss of life
- Financial responsibility for repair, lost time, and/or loss of service
- Loss of client
- Federal investigation of job site work practices
- Litigation (third party lawsuits)

The mandatory Subsurface Clearance Procedure provided in **Attachment C** is intended as a tool to aid in the management of risk, and ensures that a responsible standard is consistently applied at the project site whenever intrusion of the subsurface will occur.

6.1.5 Chemical Hazards

Based on a review of historic operations at the Site the chemicals of potential concern are limited to Benzene, Ethylbenzene, Toluene and meta (m-), ortho (o-), and para (p-) Xylene, (BTEX) in the surface and subsurface soils and site groundwater. These chemicals may be encountered during oversight of drilling and excavation activities or during sample collection and processing. Health hazards and the exposure limits associated with these chemicals of concern are included in **Table 6.3**.

The workers may be exposed to BTEX at the locations shown on the map during any operation where BTEX vapors are generated and could potentially be inhaled or by direct contact

with the soil and absorbed through the skin. Direct skin contact with certain BTEX compounds may cause skin irritation.

Personnel may also be exposed to solutions or chemicals associated with equipment decontamination procedures. As part of the project's hazard communications, all employees and contractors will have access to material safety data sheets (MSDS) applicable to chemicals that may be used during the Site investigation. MSDS are included in **Attachment F**.

The Air Monitoring Protocols and Personal Protective Equipment Program detailed in Sections 6.2.3 and 6.2.4, respectively will be adhered to in order to limit the exposure to such chemicals. Specifically, the following precautions should be taken when working in BTEX contaminated locations:

- Always determine the level of PPE required for each activity and location before starting work or entering these areas (see Section 6.2.4).
- Never place tools or equipment directly on the ground. Use a disposable ground cover.
- Dot not eat, drink, or store food in these areas.
- Remove protective clothing and boots upon leaving these areas and prior to entering vehicles or buildings.
- Always wash your hands and face thoroughly prior to breaks, lunch, when leaving work areas, and at the end of the shift.

6.1.6 Biological Hazards

Biological hazards can result from encounters with mammals, insects, snakes, spiders, ticks, plants, parasites, and pathogens. Mammals can bite or scratch when cornered or surprised. The bite or scratch can result in local infection or infection with systemic pathogens or parasites. Insect and spider bites can result in sever allergic reactions in sensitive individuals. Exposure to poison ivy poison oak or poison sumac results in skin rash. Ticks carry a number of serious diseases. Dead animal, organic wastes, and contaminated soil and water can harbor parasites and pathogens.

Snakes

Venomous snakes that may be encountered at the Former Exxon Site include members of the “pit-viper” family, Copperheads, Rattlesnake species.

Copperhead: These snakes are commonly found near water sources in wooded areas. Copperheads are generally less than 4 feet in length and are not particularly aggressive. Coloration ranges from golden brown to tan. These snakes have a banded pattern.

Timber Rattlesnake: These are large, not particularly aggressive snakes with yellow through or gray to black, with dark back and side blotches on front of body and blotches fused to form cross-bands on rear of body. Head is unmarked and tail is black. They can be found in many habitats including rocky hillsides, swampy areas, and canebrake thickets.

Eastern Diamondback Rattlesnake: These snakes are commonly found in dry habitats throughout the coastal plain including pine and oak hills, pine flatwoods, and abandoned farmland. They are the largest rattlers ranging from 3 to 8 feet in length. These thick-bodied snakes have highly destructive venom and are considered the most dangerous snakes in North America. The back of the snake is distinctively patterned with dark diamonds with light centers and bordered by cream to yellow-colored scales.

Snakebite is usually characterized by extreme pain and swelling at the site of the bite; the presence of one or more puncture wounds created by the fangs; and a general skin discoloration. The manifestations of the bite include general weakness, rapid pulse, nausea and vomiting, shortness of breath, dimness of vision, tingling or numbness of the tongue, mouth or scalp, and shock.

Physical reactions are aggravated by acute fear, anxiety, the amount of venom injected, the speed of absorption of venom into the victim's circulation, the size of the victim, protection provided by clothing (including shoes and gloves), quick anti-venom therapy, and location of the bite.

First Aid – The rules to follow if a snake bites someone are:

- DO NOT cut "Xs" over the bite area, as this will intensify the effect of the venom.
- DO NOT apply suction to the wound since this has a minimal effective in removing venom.
- DO NOT apply a tourniquet since this will concentrate the venom and increase the amount of tissue damage in the immediate area.
- If possible, try to get a good look at the snake so it can be identified for proper selection of anti-venom.
- DO NOT allow the victim to run for help since running increases the heart rate and will increase the spread of the venom throughout the body.
- Calm, reassure, and keep the victim calm and immobile. Do not delay evacuation.
- Have the victim hold the affected extremity lower than the body while waiting for medical assistance.
- Transport the victim to medical attention immediately.

An incision through the fang marks is not advisable; this procedure is too hazardous to underlying structures and at best removes only 20% of the venom. Do not use cold compresses, ice, dry ice, chemical ice packs, spray refrigerants, or other methods of cold therapy. The caregiver must consider several other factors. A person bitten by a snake should try to lie still and be quiet. If the bite is in the arm or leg, keep the bite lower than the heart. Staying still and holding the bite lower than the heart will help to slow any poison spreading through the body. Get medical care as soon as possible, even if the snake was known to be non-poisonous. The use of snakebite kits is prohibited. Because the fieldwork will be performed in the late fall and in the winter it is doubtful if any snakes would be encountered.

Identification Features — Non-poisonous snakes are often erroneously identified as poisonous. The features identified in the table below will assist in properly identifying a snake as poisonous or non-poisonous.

SNAKE IDENTIFICATION FEATURES

Feature	Poisonous	Non-Poisonous
Eye Pupils	Elliptical, or cat-like	Round
Sensing Pits	Pit between the eyelids and nostrils	No pit between the eyelids and nostrils
Teeth	Two enlarged teeth (fangs) in front of the upper jaw	All teeth are approximately the same size
Scales	Form a single row on the underside and below the tail	Arranged in a double row on the underside of the tail
Head	Head much wider than the neck	Head slightly wider than the neck
Tail	Single anal plate	Divided anal plate

Prevention of Snakebite — the best snakebite treatment is to avoid getting bitten. The following suggestions will help in this process:

- Learn to identify poisonous snakes – this shall be reviewed during site-specific safety training.
- Watch where you sit and place your hands and feet.
- Avoid rock piles, stacks of old boards, and brush in wooded areas. If movement is necessary, use a remote means to initially relocate the material. Prior to entering a heavily wooded or brush area, look and listen carefully.
- Never handle "dead" snakes; they may not be completely dead.
- Do not attempt to capture or kill ANY snakes.

Ticks

Ticks carrying Lyme Disease may be found throughout the U. S. living in grassy and wooded areas, and feeding on mammals such as mice, shrews, birds, raccoons, opossums, deer, and humans. Ticks may be encountered throughout the Site. Lyme Disease is caused by a bacterium, which may be transmitted by the bite of a tick. Not all ticks are infected with the bacterium. When an infected tick bites, the bacterium is passed into the bloodstream of the host, where it multiplies. If detected early, Lyme Disease can be treated with antibiotics.

The illness typically occurs in the summer months and is characterized by a slowly expanding red rash that develops a few days to a few weeks after the bite of an infected tick. The illness can be accompanied by flu-like symptoms, headache, stiff neck, fever, muscle aches, and/or general malaise. At this stage, treatment by a physician is usually effective; but if left alone, these early symptoms may disappear and more serious problems may follow. The most common late symptom of the untreated disease is arthritis; other problems include meningitis,

neurological, and cardiac abnormalities. NOTE: some people do not get the characteristic rash but progress directly to the later manifestations. Treatment of follow-on symptoms is more difficult than early symptoms and is not always successful.

Rocky Mountain Spotted Fever is another tick borne disease. Nearly all cases of infection occur in the spring and summer, generally several days after exposure to infected ticks. The onset of illness is abrupt and often accompanied by high fever, headache, chills, and severe weakness. After the fourth day of fever, victims develop a spotted pink rash that usually starts on the hands and feet and gradually extends to most of the body. Early detection and treatment significantly reduces the severity of illness. The disease responds to antibiotic therapy with tetracycline or chloramphenicol.

If found crawling on a person, ticks should be removed and burned or smashed between two rocks. Do not smash ticks with fingers. If a tick is found to be holding onto the skin, the tick should be covered with Vaseline until it can no longer breathe and backs out of the skin. At that time, all parts of the tick should be removed with tweezers. Do not squeeze the tick's body. Grasp it where the mouthparts enter the skin and tug gently, but firmly, until it releases its hold on the skin. Save the tick in a jar labeled with the date, body location of the bite, and the place where it may have been acquired. Areas of the skin where the tick may have crawled, as well as bite area will be scrubbed with soap and water. Hot showers are to be taken as soon as possible after site departure to wash away all ticks that have not adhered to the skin.

Precautions:

- Wear long pants and long sleeved shirts that fit tightly at the ankles and wrists; tape cuffs if necessary.
- Wear light colored clothing so ticks can be easily spotted.
- Tick repellents such as DEET (vapor-active repellant) and Permethrin may be useful. Apply DEET to any exposed skin surface (except eyes and lips) and Permethrin to field clothing (allow to dry prior to wearing).
- Inspect clothing frequently while in tick habitat.
- Inspect head and body thoroughly when you return from the field.
- Remove any ticks by tugging with tweezers. Do not squeeze or crush the tick. If possible, place the tick into a labeled vial for future identification.
- Be sure to remove all parts of the tick’s body, and wash and disinfect the bite site with alcohol or an antiseptic.
- For several days to several weeks after removal of the tick, look for the signs of the onset of Lyme disease, such as a rash that looks like a bulls-eye or an expanding red circle surrounding a light area, frequently seen with a small welt in the center.
- Also look for the signs of the onset of RMSF, such as an inflammation, which is visible in the form of a rash comprising many red spots under the skin, which appears 3 to 10 days after the tick bite.

Bees, Wasps, Hornets, and Other Insects

Symptoms of an insect bite are normally a sharp, immediate pain in the body part bitten. Poisonous insects and insect-like creatures that may be encountered at the site include the following:

- Bees (honeybees, bumble bees, wasps, and hornets);
- Scorpions;
- Caterpillars; and
- Beetles/Bugs.

Site personnel will comply with the following work practices:

- Personnel with a known hypersensitivity to bee, wasp, or hornet stings will inform the Site Manager of this condition prior to performing site activities.
- Personnel with a known hypersensitivity condition will keep emergency medication in their possession.
- All personnel will remain vigilant for the presence of these stinging insects. Discovered nests will be flagged and their location reported to other site personnel.

If stung, immediately inform the Site Manager to receive treatment.

Spiders

The two poisonous spiders that may be encountered at the site are the Brown Recluse and the Black Widow. The Brown Recluse is up to one inch long with a violin or "fiddle" shaped mark on the top of the head. The Black Widow is a smaller, bulbous black spider with a red hourglass-shaped mark on the underside.

Persons that have been bitten by a Brown Recluse or Black Widow spider should be immediately transported to a hospital. The spider should be collected (if possible) for confirmation of the species. Reactions to a Brown Recluse spider bite include mild to severe pain within two to eight hours and a star shaped area around the bite within three to four days. Significant tissue death and loss accompanies a Brown Recluse spider bite. Reactions to a Black Widow spider include intense pain at the site of the bite after approximately 15 to 60 minutes, followed by profuse sweating, rigid abdominal muscles, muscle spasms, breathing difficulty, slurred speech, poor coordination, dilated pupils, and generalized swelling of face and extremities.

First Aid

- If possible, catch the spider to confirm its identity. Even if the body is crushed, save it for identification.
- Clean the bitten area with soap and water or rubbing alcohol.
- To relieve pain, place an ice pack over the bite.

- Keep the victim quiet and monitor breathing.
- Seek immediate medical attention.

Poison Ivy/Poison Oak/Poison Sumac

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

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

Some of the most common and severe allergic reactions result from contact with poison ivy, poison oak, and poison sumac. Contact with the poisonous sap of these plants produces a severe rash characterized by redness, blisters, swelling, and intense burning, and itching. The victim also may develop a high fever and may be very ill. Ordinarily, the rash begins within a few hours after exposure, but it may be delayed for 24 to 48 hours.

The most distinctive features of poison ivy and poison oak are their leaves, which are composed of three leaflets each. In certain seasons, both plants also have greenish-white flowers and berries that grow in clusters. Poison sumac is a tall shrub or small tree with 6-12 leaflets arranged in pairs with a single leaflet at the end. This plant grows in wooded, swampy areas.

Avoidance of plant/sap contact is the only effective means of preventing the poisoning. A person experiencing symptoms of poisoning should remove contaminated clothing; wash all exposed areas thoroughly with soap and water. Apply calamine or other poison ivy/oak lotion if the rash is mild. Seek medical advice if a severe reaction occurs, or if there is a known history of previous sensitivity. Thorough washing of skin and clothing can be used after site work or after potential exposure to reduce severity of irritation.

Blood Borne Pathogens

Blood borne pathogens enter the human body and blood circulation system through punctures, cuts, or abrasions of the skin or mucous membranes. They are not transmitted through ingestion (swallowing), through the lungs (breathing), or by contact with whole, healthy skin. However, under the principle of universal precautions (see below), *all* blood, body fluids, or sewage should be considered infectious, and all skin and mucous membranes should be considered to have possible points of entry for pathogens. Parsons employees with potential exposure to blood borne pathogens are provided with a hepatitis B vaccination series at no cost; subcontractors are responsible for offering the vaccination to their employees who may be exposed.

There are a number of infections that are transmitted by insects and arthropods where the infection cycle includes the human blood system. Examples include malaria and Lyme disease, which are transmitted by mosquitoes and ticks, respectively. These diseases are serious, and the

possibility for infection should be considered in planning field operations in areas where these disease vectors are present. However, these diseases cannot be transmitted through personal contact with human blood, and are not covered by the OSHA Blood borne Pathogen Standard.

Potential blood borne pathogen exposures include:

- Contact with contaminated medical equipment, medical waste, sharps and other potential infectious material
- Medical emergency response operations such as administering first aid or CPR
- Contact with human wastes such as domestic sewage
- All body fluids in situations where it is difficult or impossible to differentiate between body fluid types

Only personnel designated as first responders with blood borne pathogen training may attempt to administer first aid in the case of an injury or other incident that could expose employees to blood or body fluids.

6.1.7 Work Near Water

Hazards associated with work near water and marine operation will apply for personnel working within 10 feet of the Newtown Creek Shoreline during general Site walks or shoreline surveys. Work near water hazards will also apply when working within 25 feet of the shoreline during high risk activities requiring mechanized equipment (i.e., test pitting and drilling) or when icy conditions exist. United States Coast Guard (USCG) approved personal flotation devices (PFDs) including life vests, float coats, or flotation suits (Mustang floaters or equivalent) must be worn by employees working within 10 feet (or 25 feet depending on the Site activity) of the Site shoreline, where the danger of drowning exists, and in the absence of a guardrail (42-inches high) or safety belt.

One or two people will be designated as Operator of the life saving skiff or motor boat as required by the USCG. The Operator must have an Emergency Rescue Procedure and Communication System in place and be familiar with how to operate the skiff or motor boat. The skiff or motor boat will be immediately available at locations where people are working adjacent to water and where the potential for drowning exists. During operation of the skiff or motor boat, the operator must be aware of other boaters and weather conditions which may influence the stability of the Creek and lead to possible drowning. Employees must follow the guidelines for On-Shore Work Near Water (**Attachment G**).

6.1.8 Investigation Derived Waste

IDW procedures will be performed using the procedures described in the Field Sampling Plan (FSP) (Appendix B to the Work Plan) and in accordance with industry standard protocols. The FSP includes protocols for the disposal of drill cuttings, PPE and for development, purge, pump test, and decontamination waters.

Equipment

- 55-gallon drums type D or E (as necessary).
- Tools to open/close drums.
- Funnel.
- 5-gallon bucket.
- 10-mil polyethylene plastic sheeting.
- Tuff-tanks, approximately 350-gallon capacity.
- Tarpaulins.
- Liquid Transfer Pumps.
- Equipment to transport drums.
- Equipment to transport non-contained solids.
- Waste code labels.
- pH indicators (paper and meter).
- VOC meter.
- Bailer.

Procedures

The Parsons field teams will coordinate with the ExxonMobil Site Coordinator regarding the handling and disposal of all IDW and PPE for site activities.

6.1.8.1 Soil Cuttings

During the routine course of site activities (drilling, sampling, or excavations) where materials are known or suspected to be contaminated, sampling activity will produce waste intrinsic to the Site. The disposition of this material must be carried out in a manner such as not to contribute further environmental degradation or pose a threat to public health or the environment. Materials generated during the investigation will not be disposed of on-site. Instead, the materials must be placed in containers and stored in a secured area of the site or transported to a central secured location. The need to perform analyses of the secured material will be determined by ExxonMobil. The material will be retained for remediation or disposal in accordance with regulations as part of the selected site remedy. Holes produced by soil borings are to be grouted to the surface.

If non-contaminated materials are to be disposed of on-site, the following must be considered:

1. Disposed cuttings or soil will not erode or flow off-site;
2. Disposed water will not flow through an area of contamination and thereby spread it to a clean area;

3. ExxonMobil or NYSDEC approves the disposal procedure.

6.1.8.2 Water

Similar to soils, an initial determination whether waste waters should be considered contaminated should be made by evaluating field instrument readings or by previous analytical information. Additional field tests to assist in that determination should be utilized if possible.

Uncontaminated Water – Water generated that is not considered contaminated may be reapplied directly to the ground surface and permitted to percolate back into the aquifer.

Contaminated Water – Where water is considered contaminated, the water generated may be reapplied to the ground surface provided all the following are met:

1. The water is not permitted to migrate off-site.
2. There is no potential for contaminating a previously uncontaminated aquifer (for example, the discharge will not be allowed if a lower aquifer is being tested and is contaminated while the upper aquifer in uncontaminated).
3. The discharge will not cause an increase to ground surface soil contamination.

If the above conditions cannot be met, the water shall be collected and secured at a single location (preferably the primary site under investigation). Collected water may be subsequently re-applied to ground surface only if, based on analytical results, there are indications that the above conditions can be met. If not proper disposal will be required.

6.1.8.3 General

Prior to the start of field activities, Parsons will notify the ExxonMobil Project Manager of their schedule for work that will produce waste. Parsons and ExxonMobil will estimate the amount of waste to be produced, the locations where it will be stored, and the number and types of containers required.

6.1.8.4 Labeling

All interim storage and transport containers will be labeled immediately prior to their use for packaging of waste materials. As interim storage and transfer containers are being filled, the environmental contractor using indelible ink will complete the label.

Necessary label information listed on each container for waste streams will include:

- Boring, Well, or Excavation Identification,
- Start accumulation date,
- Drum Identification (this uniquely identifies the drum),
- Signature of field inspector,
- Waste Stream Codes
    - A – Soils

- B – Liquids (ground water and decontamination water)
- C – Solvents used in decontamination
- D – PPE and disposable equipment.

6.1.9 Standard Site Operating Procedures

These are general guidelines for safe operations at the Former Exxon Site.

1. Never work alone in an isolated area.
2. Maintain line-of-sight with a worker during activities that could involve potentially hazardous substances.
3. Practice contamination avoidance. Never sit or kneel on potential contaminated ground, never lay equipment on the ground, avoid obvious sources of contamination such as puddles, and avoid unnecessary contact with on-site objects.
4. Hard hats must be worn on-site.
5. No eating, drinking or smoking in areas of sites that are suspected of being contaminated.
6. In the event PPE is ripped or torn, work shall stop and PPE shall be removed and replaced.
7. Be alert to any unusual changes in your own condition; never ignore warning signs. Notify the SHSO about suspected exposures or accidents.
8. A vehicle will be readily available for emergency use. All personnel at the site shall be familiar with the most direct route to the nearest hospital.
9. In the event of direct skin contact, the affected area shall be washed immediately with soap and water.
10. Copies of the generic HASP shall be readily accessible.
11. Note wind direction. Personnel shall remain upwind whenever possible during onsite activities.
12. Never climb over or under refuse or obstacles.
13. Hands and face should be thoroughly washed before eating, drinking, etc.

6.2 FIVE HAZARD CONTROL MEASURES – ORDER OF PRECEDENCE

Site hazards and hazards resulting from investigation and remediation activities are controlled using one or more of the control measures listed below. The order of precedence is as follows:

6.2.1 Engineer/Design to Eliminate or Minimize Hazards.

A major component of the design phase is to select appropriate safety features to eliminate a hazard and render it fail-safe or provide redundancy using backup components.

Site Work Zones

To reduce the spread of hazardous materials by workers from contaminated areas to clean areas, zones will be delineated at each site where different types of operations will occur. The flow of personnel between the zones will be controlled. The establishment of the work zones will help ensure that personnel are properly protected against the hazards present where they are working, that work activities and contamination are confined to the appropriate areas, and that personnel can be located and quickly evacuated in an emergency. The integrity and security of the work zones is the responsibility of the On-Site health and safety officer. A discussion of several typical work zones follows.

Exclusion Zone

The exclusion zone is the area where contamination does or could occur. An exclusion zone will be established for all Level C activities. Access into the exclusion zone will be controlled to ensure that personnel entering the areas are wearing proper protection (e.g., hard hat, gloves, steel-toed boots, respirators, etc). Smoking, eating, and drinking will not be permitted within the exclusion zone. The perimeter of the exclusion zone will be marked off with barrier tape or traffic cones. Air monitoring will be conducted at the perimeter.

The SHSO (or field team leader designee) will ensure that entry into any exclusion zone is controlled and will make certain that personnel entering this zone use the correct PPE. Air monitoring will be performed during sampling activities to ensure the proper protective ensemble is being used.

Contaminant Reduction Zone

The contamination reduction zone (CRZ) or decontamination zone will be established by the SHSO (or designee) as a buffer zone between the exclusion zone and the support zone for all Level C activities. The CRZ will be marked off with barrier tape and will contain the personnel and equipment decontamination station described in Section 6.2.4.1. When possible, the CRZ should be located upwind of the exclusion zone. Smoking, eating, and drinking will not be permitted in the CRZ.

Support Zone

The support zone will include the remaining areas of the job site. Break areas, operational direction, and support facilities (to include supplies, equipment storage and maintenance areas) will be located in this area. No equipment or personnel will be permitted to enter the support zone from the CRZ without passing through the personnel or equipment decontamination station.

6.2.2 Guard the Hazard

Hazards that cannot be eliminated by design must be reduced to an acceptable risk level by safety guards or isolation devices that render them inactive.

6.2.3 Provide Warnings

Hazards that cannot be totally eliminated by design or guarding are controlled through using a warning or alarm device.

Exposure/Air Monitoring Program

An environmental monitoring program will be developed based on site-specific information for the project. This plan describes general information on wind direction monitoring, volatile organic compound (VOC) monitoring, carbon monoxide monitoring, combustible atmosphere monitoring, oxygen deficiency or abundance monitoring, and dust monitoring.

Wind Direction Monitoring

A wind direction indicator (such as survey flagging tied to a stake) will be erected at every active work site. This will enable the SHSO and on-site personnel to determine upwind locations necessary for proper health and safety procedure implementation, (work areas relative to test pits and drilling activities) and, if necessary, evacuation procedures.

Volatile Organics Monitoring

Since former refining operations were conducted at this Site, fuel compounds including BTEX are identified as a concern for the purposes of health and safety. Benzene causes the most concern (cancer causing agent), and is a common additive to gasoline and fuel. As a result and due to its low action level, Benzene will be used as the indicator compound for monitoring organic vapor air concentrations. Short-term exposure to high levels of benzene can cause drowsiness, dizziness, unconsciousness, and death (see **Table 6.3**).

Exposure to benzene is likely to be encountered during investigation activities that disturb the ground surface including drilling, installation of monitoring wells, collecting soil samples, and excavating test pits. Exposure to benzene may also occur if personnel open a monitoring well cover that has been closed for an extended period of time. Personnel should be familiar with these potential exposure pathways.

To quantify exposure to benzene, the SHSO will monitor the levels of benzene in the worker breathing zone during all intrusive field activities using a photoionization detector (PID) (OVM-580B/580S or equivalent) equipped with a 10.6e V lamp (calibrated relative to benzene) to monitor VOC concentrations in the working area. Readings will be taken prior to start of intrusive work at the Site to establish background conditions. The PID monitoring will be supplemented with Draeger tubes specific for monitoring benzene.

The current OSHA PEL is 1 ppm over an 8-hour work period and a maximum 5 ppm Short Term Exposure Limit (STEL) for any 15 minute period. When the PID exceeds these action levels, benzene monitoring must take place using the Draeger tubes. The action level for benzene using the Draeger tubes is 0.5 ppm. Readings detected by the PID or other instrument will be used to determine the appropriate levels of protection. **Table 6.4** describes the decision logic that will be used to minimize the potential exposure to organic vapors and benzene. A

Respiratory Protection Program has been prepared in accordance with OSHA's Respiratory Protection Standard (29 CFR 1910.134) and is included in **Attachment H**.

If air monitoring detects benzene above the limits specified above, engineering and work practice controls (e.g., ventilation and worker rotation) will be implemented to reduce personnel exposure. If these methods are not sufficient, personnel will be required to don Level C PPE (respiratory protection). Contaminant concentrations measured during on-site air monitoring will be used to estimate the breakthrough times of the organic vapor cartridges using the Gerry O. Wood Math Model (Wood, G.O., Estimating Service Lives of Organic Vapor Cartridges, *American Industrial Hygiene Association Journal, 55:11-15, 1994).* Prior to donning Level C PPE, a cartridge change-out schedule will be developed and reviewed by ExxonMobil and Parsons Division Safety Manager for acceptance.

Carbon Monoxide Monitoring

A multi-gas meter (VRae) calibrated to detect carbon monoxide or other monitoring instrument deemed appropriate by the PHSO to monitor carbon monoxide in the working areas will be utilized. Readings detected by the analyzer or other instrument will be used to determine the appropriate levels of protection. Action levels are presented in **Table 6.4**.

Oxygen Enriched or Deficient Atmospheres Monitoring

A multi-gas meter (VRae) calibrated to detect oxygen or other monitoring instrument deemed appropriate by the PSM to monitor oxygen in the working areas will be utilized. Readings detected by the analyzer or other instrument will be used to determine the appropriate levels of protection. Action levels are presented in **Table 6.4**.

Combustible (Explosive) Gas Monitoring

In areas with high vapor concentrations, there is potential for enough gas or vapor to accumulate in the immediate work zone for the gas to ignite or explode. The concentration level at which this would occur is defined by a compounds lower explosive limit (LEL). Of the BTEX compounds anticipated at the Site, ethylbenzene has the lowest LEL (0.8%), therefore this compound will drive the monitoring requirements for personnel in the exclusion zone. A multi-gas meter (VRae) calibrated to detect LEL or other monitoring instrument deemed appropriate by the PSM to monitor LEL in the working areas will be utilized. Readings detected by the analyzer or other instrument will be used to determine the appropriate levels of protection. Action levels are presented in **Table 6.4**

Respirable Dust Monitoring

Air monitoring of the workers breathing zone for particulate dust and aerosol vapors will be completed during intrusive activities using a MiniRAM Portable Aerosol Monitor. The following measures will be used to minimize the potential for inhalation of respirable dust.

Dust Meter Readings - RAM 1 (mg/m^3)	Level of Action
Greater than or equal to 1 mg/m^3 sustained for 5 minutes	• Stop Work • Leave area • Contact Parsons SHSO / ExxonMobil SRT • Take corrective actions - wet area • Repeat Monitoring • Continue work if less than 1 mg/m^3
Greater than or equal to 5 mg/m^3 sustained for 5 minutes	• Stop work. • Leave area. • Contact Parsons SHSO / ExxonMobil SRT

Other

Other monitoring may be warranted during this project based on the activities to be conducted, monitored or reported concentrations of contaminants and the media affected. These considerations will be evaluated on an activity specific basis and included as an addendum to this plan.

Community Air Monitoring

Community air monitoring will be conducted using the New York State Department pf Health's (NYSDOH's) Generic Community Air Monitoring Plan (NYSDOH, 2000) as a guidance document and as described in Section 3.3.2 of the Work Plan (to which this HASP is an appendix).

6.2.4 Provide Special Procedures or Training

When design, guarding, or warnings cannot eliminate hazards, subcontractors must develop procedures, training, and audits to ensure safe completion of work. Training cannot be a substitute for hazard elimination when life-threatening hazards are present.

6.2.4.1 Personnel Decontamination

Level D or Modified Level D protection will be worn for initial entry on-site and initially for all activities. If air concentrations exceed action levels, workers will employ engineering controls first before upgrading the level of protection. Personal decontamination may be necessary for activities involving the use of Level C PPE. The SHSO will determine the proper procedures for decontamination based on the work activities and amount of contamination. To prevent harmful materials from being transferred into clean areas or from exposing unprotected workers, all field personnel exiting an area of potential contamination will undergo decontamination.

Temporary wash facilities will be provided in the decontamination zone for personnel hand/face washing. This may be substituted with disposable wet towels based on the weather conditions. Waste water will be transferred to 55 gallon drums and will be labeled as IDW.

Solid waste generated from the decontamination activities will also be placed in 55 gallon drums and labeled as IDW. Drum disposal will be arranged by an ExxonMobil representative. The following sections describe Levels D, and C decontamination, as well as decontamination procedures to be followed during medical emergencies. Level B PPE is not anticipated during the Site investigation.

Level D Decontamination

Level D protection will be worn for all general Site activities that do not involve contact with potentially contaminated soil or groundwater. Personnel in Level D will not be permitted to participate in subsurface activities unless they are located outside the exclusion zone. Personnel in Level D protection will be advised to wash their hands and face following work activities and prior to eating, drinking or smoking. Personnel should shower upon return to their residence at the end of the workday. Overalls, uniforms, or similar Level D clothing may be brushed clean.

Level C Decontamination

Level C protection will be worn for activities where personnel may be exposed to potentially contaminated soil or groundwater including drilling, well installation, sampling, and test pitting. Level C protection may include the use of a respirator while performing work in the exclusion zone if air monitoring results for BTEX compounds or dust exceed the action limits summarized in **Table 6.4**. Prior to leaving the exclusion zone, personnel will be required to pass through the CRZ and follow applicable procedures as described in **Table 6.5**.

6.2.4.2 Decontamination During Medical Emergencies

It is possible that decontamination may aggravate or cause more serious health effects during a medical emergency. Should prompt life-saving first aid and medical treatment be required, decontamination procedures should be omitted. Whenever possible, personnel should accompany contaminated victims to the medical facility to advise on matters involving decontamination.

Physical Injury

Physical injuries can range from a sprained ankle to a compound fracture, from a minor cut to severe bleeding. Depending on the seriousness of the injury, treatment may be given at the site by trained personnel. For more serious injuries, additional assistance may be required at the site or the victim may have to be transported to a medical facility.

Life saving care should be started immediately without considering decontamination. The outside garments can be removed if they do not cause delays, interfere with treatment, or aggravate the problem. Respirators and backpack assemblies must always be removed. Chemical-resistant clothing can be cut away. If the outer contaminated garments cannot be safely removed, the individual should be wrapped in plastic, rubber, or blankets to help prevent contaminating medical personnel and the inside of ambulances. Outside garments are then removed at the medical facility. No attempt should be made to wash or rinse the victim at the site. An exception would be if it is known that the individual has been contaminated with an extremely toxic or corrosive material that could also cause severe injury or loss of life to the

victim or other personnel. For minor medical problems or injuries, the normal decontamination procedure should be followed.

Heat Stress

Heat related illnesses range from mild heat fatigue to a serious heat stroke (Section 6.1.1). Heat stroke requires prompt treatment to prevent irreversible damage or death. Unless the victim is obviously contaminated, decontamination should be omitted or minimized and treatment begun immediately. Protective clothing may have to be cut off. The early stages of heat stress require prompt attention because, if ignored, heat stroke can result.

Chemical Exposure

Exposure to chemicals can be divided into two categories:

- Injuries from direct contact, such as acid burns or inhalation of toxic chemicals.
- Potential injury caused by gross contamination on clothing or equipment.

For inhaled contaminants, qualified physicians can only perform treatment. If the contaminant is on the skin or in the eyes, immediate measures must be taken to counteract the substances effect. First aid treatment generally includes flooding the affected area with water. For a few chemicals, water may cause more severe problems.

When protective clothing is grossly contaminated, contaminants may be transferred to treatment personnel or the wearer and cause additional injuries. Unless life-threatening problems have occurred simultaneously with splashes, the protective clothing should be washed off as rapidly as possible and carefully removed. Personnel and clothing decontamination is commonly performed using physical means, whereas equipment decontamination is often performed by chemical means. For more details on chemical exposure refer to Section 6.1.4.

6.2.5 Provide Personal Protective Equipment

To protect workers from injury, the last method in the order of precedence is the use of PPE such as hard hats, gloves, eye protection, life jackets, and other protective equipment with the understanding that bulky, cumbersome, and heavy PPE is often discarded or not used, rendering this method ineffective without proper controls. Emergency eyewash stations will be kept in the cab of the truck/drill rig to keep it from freezing and remain operational at all times.

PPE Selection

The selection and use of PPE at individual sites will initially be Level D unless specified by the SHSO. The unknown nature of hazardous waste site work and the possibility of changing conditions during the work may require changes in PPE. When changes in PPE become necessary, these changes shall be made in accordance with the action levels and criteria set forth in this plan. As a rule, levels of PPE will need to be reassessed if any of the following occur:

- Appearance of previously unidentified or anticipated chemical conditions or task hazards (this may require a HASP Addendum for ExxonMobil review and acceptance prior to proceeding).
- Ambient weather conditions change which impact the use of assigned PPE.
- A new task is introduced or a previously assigned and evaluated task is expanded in scope.

If work tasks are added to the Scope of Work (SOW) after approval of this HASP, the Division Safety Manager or PHSO shall identify and assess the task hazards, complete and sign a JSA form and designate the level and type of PPE to be used during conduct of the task. The new JSA, along with any other additions, changes or modifications to the approved HASP shall be approved by the Division Safety Manager, PHSO and/or the Project Manager. Subsequently, these modifications, resulting in a HASP Addendum, shall be reviewed and accepted by ExxonMobil's H&S representative prior to proceeding. The addendum will be inserted into **Attachment E** of this HASP.

OSHA Requirements for Personal Protective Equipment:

All personal protective equipment will meet the following applicable OSHA regulations:

Type of Protection	Regulation	Source
Eye and Face	29 CFR 1910.133 29 CFR 1926.102	ANSI Z87.1-2003
Respiratory	29 CFR 1910.134 29 CFR 1926.103	ANSI Z88.1-1980
Head	29 CFR 1910.135 29 CFR 1926.100	ANSI Z89.1-2003
Foot	29 CFR 1910.136 29 CFR 1926.96	ANSI Z41.1-1967

ANSI = American National Standards Institute

6.2.5.1 Levels of PPE

All workers engaged in fieldwork at the former Exxon Site shall take measures to be equipped with appropriate PPE for the eyes, face, head, extremities, and respiratory protection (if necessary). All such equipment will be used and maintained in a sanitary and reliable condition whenever it is made necessary by hazards present at the Former ExxonMobil Site. This section describes the levels of protection, which are planned for a full range of fieldwork, as well as the various types of PPE.

Site investigation activities are anticipated to occur in Level D and Level C. The need for a respirator will depend on the concentration of BTEX encountered during monitoring of the worker's breathing zone (Section 6.2.3). The following subsections describe basic equipment for each level of protection. Additional equipment may be required, based on the activities and conditions encountered at particular areas of the Site or as work scopes change.

Level D Protection

Initially for all activities, personnel will be in Level D protection. This includes safety glasses with permanent side shields, steel toe boots, hearing protection (e.g. when working within 25 feet of heavy equipment – the SHSO may decide to perform noise monitoring to determine quantitative measurements if necessary), metatarsal foot protectors (when sawing or jack hammering), long pants or jeans, traffic safety vests (when working on streets, sidewalks, parking lots, or driveways), short or long sleeve shirts, and hard hat. In addition, a personal flotation device maybe needed when working within 10 feet of the creek shoreline during general Site walks and within 25 feet of the shoreline during high risk activities.

Level C Protection

In addition to the items listed for Level D, Level C protection includes the following:

- Tyvek® when there is potential for skin to come into contact with potentially contaminated soil.
- Polycoat® used when incidental contact with wet and/or heavily stained soils or groundwater is probable.
- Saranex® used when incidental contact with free flowing product/residue is probable.
- Disposable boot covers when in contact with BTEX contaminated areas.
- Nitrile inner-gloves – blue.
- Latex outer gloves - green (when handling or in contact with heavily stained soils or liquids containing product).

Level C protection may also include a half or full face respirator with organic vapor cartridges (i.e. MSA GMC-H) if the potential to exceed the PEL for BTEX compounds exists (Section 6.2.3). The PID (or equivalent) and multi-gas meter will be the primary instruments for determining contaminant concentrations that may trigger a change in respiratory protection during intrusive and sampling activities. Other instruments such as Draeger tubes, miniRAMs and/or other particulate air monitors may also trigger changes in PPE. Action levels for changes in PPE are shown in **Table 6.4**. Both the respirators and chemical cartridges specified for use in Level C must be approved by the National Institute for Occupational Safety and Health (NIOSH) and the Mine Safety and Health Administration (MSHA). In addition, respirators and cartridges must be fit-tested prior to use in accordance with OSHA regulations (29 CFR 1910.1025; 29 CFR 1910.134) and as described in the Respiratory Protection Program included in **Attachment H**.

Half face or full face respirators **cannot** be used under the following conditions:

- Oxygen deficiency (ambient atmosphere contains less than 19.5 percent oxygen)
- IDLH concentration
- Contaminant levels exceed designated maximum use concentrations.
- Chemicals contain no warning properties

- High relative humidity

Level B Protection

Level B protective equipment is not anticipated for use during Site Investigation activities.

6.2.5.2 PPE Handling

Maintenance/Storage

All PPE should be stored in a cool, dry environment not directly exposed to weather or sunlight to prevent deterioration. Some PPE require special storage precautions such as respirators that should be cleaned and thoroughly dried after each use and before being stored in a sealable plastic bag.

Fitting

Respirators must be fitted prior to use in accordance with OSHA regulations (29 CFR 1910.1025; 29 CFR 1910.134). Fit testing must be conducted annually in accordance with 29 CFR 1910.134. This may be done at the site using Banana Oil and smoke tests. No beards are allowed, though small goatees and mustaches may be allowed.

Other PPE such as safety glasses, Tyvek suits, hearing protection (plug and muffs), safety goggles and hard hats come in several sizes. A variety of sizes will be offered. The SHSO will assist personnel in the proper selection of PPE.

Safety shoes are purchased off-site from shoe stores that will provide the proper fitting.

Training and Inspection

All original training in PPE is completed during HAZWOPER sessions. The site owner may implement subsequent site training.

All PPE should be inspected by the personnel using the PPE upon initial use and at least daily thereafter. PPE should be inspected prior to use for signs of cracks, stress, discoloration, holes, contamination, and uncleanliness.

Limits

Safety glasses, face shields, and safety goggles may fog up during work or if the humidity is high. These same PPE are easily scratched. If they become excessively scratched or fogged, they should be replaced. If fogging continues, the SHSO should be notified.

Hardhats can become scratched or dirty but this does not usually affect their usefulness. Stress cracks may form leading to sudden failure. When in doubt, use a new hard hat.

Safety shoes or boots may become excessively creased or cracked, as well as develop holes from exposure to chemicals or water. If this happens, the shoes should be replaced immediately.

Immersion in water or contaminated liquids may lead to premature failure due to repeated soaking and drying cycles.

Hearing protection earplugs are disposable and should not be reused beyond the original day of use.

Respirators may fail for a variety of reasons. Please watch out for these warning signs and if they occur, please replace the respirator and/or its cartridge: cracks or discoloration, odor passes through, or contamination. Some respirators, such as dust masks, are disposable and should not be used beyond that day. Respirator cartridges, in addition to sudden failures, have limited use depending on expected exposures over a period of time. Cartridge change-out schedules will be based on worst-case scenario exposure levels.

Self-contained breathing apparatus have limited air supplies. Please check the air cylinder before using and pay attention to its alarms.

Also pay attention to action levels and do not use inappropriate personal protective equipment at any time. When in doubt, please consult with your SHSO.

6.3 LOSS PREVENTION SYSTEM

ExxonMobil Global Remediation's Loss Prevention System Handbook (January 2005) states that LPS is a system to prevent or reduce incidents using behavior-based tools and proven management techniques. The goal of LPS is to prevent by identifying the factors that cause or contribute to the following incidents:

- Personal injuries (occupational injuries and illness).
- Equipment or property damage.
- Environmental Releases.
- Regulatory violations.
- Operational or system inefficiencies.
- Motor vehicle accidents.
- Near losses.

All personnel working on-site will be trained in accordance with ExxonMobil's Guidance Document as described in Section 2.1.1. Key tools of LPS are presented in the sections below. The LPS Handbook is presented in **Attachment A**.

6.3.1 Job Safety Analyses

JSA's are required as part of the LPS. A JSA will be developed for each activity listed in Section 2.0 and as required. JSAs consist of the following four steps:

- Identify the task and break it down into a series of sequential steps needed to complete the activity.

- Identify the hazards associated with each step that could cause injury when the task is performed. Consider the following energy sources when evaluating task hazards: motion, chemical, radiation, electrical, gravity, heat/cold, biological, and pressure.
- Identify the specific hazard control measure used for each step in accordance with order-of-precedence method of control to eliminate or minimize the risk of injury arising from the identified hazard.
- Identify someone to be responsible for implementing the control measure identified.

The U.S. Army Corps of Engineers website www.swl.usace.army.mil/safety/asaindex.html contains a library of sample JSAs that may be useful for future tasks at the Site. The Parsons PWeb should also be checked for JSAs. The Project Managers may use the following list as a guide in determining the oversight JSAs for various operations and critical tasks.

- **Confined Spaces. C**onfined space work requires special consideration, evaluation, controls and applicable training for the entrant, attendant, supervisor and rescue personnel. Each space should be reviewed for regulatory compliance.
- **Fall Protection.** Fall protection is required when employees are working more than 6 feet above the normal work surface level. Consider how and where ladders, scaffold, work platforms, or lifts (including scissors or aerial lifts), roofing work and leading edges are used. Evaluate protective measures such as fall protection plans, use of personal fall arrest systems, and the work surfaces for slip and fall hazards and protection.
- **Field Activities.** Many different types of activities occur in the field from excavations, groundwater sampling, soil sampling, liner installation, well installation and monitoring, and pump tests. A variety of hazards could be incurred with each activity such as biological, slip/trips/falls and lacerations. An activity hazard analysis is required for each different field activity to identify the hazards and controls.
- **Field Visit.** When a field visit occurs, it may be before any field activities are taking place. However, there may still be hazards present such as walking or driving in fields with uneven terrain, poisonous vegetation, etc. Although personal protective equipment such as a hard hat and safety glasses may not be needed, sturdy work boots, long pants, long sleeve shirts and sunscreen may be necessary.
- **Heavy Equipment Operation. E**valuate the use of heavy equipment in operations such as site clearing, grading, drilling and excavation or lifting. Controls should include equipment alarms, use of qualified operators, equipment inspections, and any specific OSHA regulatory requirements.
- **Mobilization/Demobilization. C**onduct an initial site inspection for pre-job planning. The inspection should cover potential exposures such as the location of electrical lines, underground utilities, nearby structures, traffic conditions, site security needs, public exposures general liability, and other potential exposures.
- **Portable Hand and Power Tools. E**valuate the tools to be used and the ways that workers are protected from the hazards associated with the use of tools. Consider tool maintenance requirements; electrical requirements; the use of ground fault circuit

interrupters, grounding, extension cords, and tool inspection procedures; and employee training and PPE requirements.

- **Premobilization inspection**. Conduct an initial site inspection for pre-job planning. The inspection should cover potential exposures such as the location of electrical lines, underground utilities, nearby structures, traffic conditions, site security needs, public exposures, general liability, and other potential exposures.
- **Work Near Water**. Analyze work adjacent to water for potential hazards.
- **Traffic controls**. Plan the traffic controls for delivery of equipment or materials as well as any equipment operations. Control measures include warning signs, flagmen, traffic stoppage and control, and unloading procedures.
- **Material storage**. Consider where materials and equipment will be stored on site. Implement measures to protect against chemical spills/releases, fire, vandalism and theft of tools, equipment, or materials. Also consider the hazards that may exist for workers when they are storing or retrieving those materials.
- **Material handling**. Consider the size and weight of loads, the equipment to be used, how the equipment is set up and protected, and safety and maintenance inspections of material handling and rigging equipment. Also consider employee training in the use of the equipment or personal body mechanics when engaged in manual material handling activities.
- **Personal protective equipment (PPE**). Consider operations where PPE is required and the type of PPE required (e.g. Eye, head, foot, hearing and hand protection, and types of special protective clothing – Tyvek and Nomex coveralls).
- **On-site traffic**. Internal traffic control plans should include ways to restrict the number of vehicles on site, the flow of vehicles through the site, haul roads, speed controls, subcontractor employee parking areas, merging of site traffic with local vehicle traffic, pedestrian controls in traffic zones, access by emergency and rescue vehicles and operator controls.
- **Employee training**. Always review the safety training needs of employees. Training should include initial site safety orientations. Some operations (e.g., HAZWOPER activities and work near water) may require special training that must be checked and evaluated.
- **Vehicle Operation.** Although driving a vehicle may be second nature to many individuals, there are many hazards and controls that need to be identified. Fatigue and distractions are two hazards that many individuals do not think about on a regular basis. Operating off-road vehicles such as an All-Terrain Vehicle (ATV) also require training.

Exhibit 6.1 is a sample JSA form**. Exhibit 6.2** is a Daily JSA Training Record that identifies which JSAs apply to a given day's activities. The Training Record is used to show JSAs applicable to each day's activities and are reviewed and assigned by all field team members. The Record will be stored in the field office for the task duration. JSAs will be

modified or new ones will be developed when field conditions, personnel, or activities change. Completed JSAs can be found in **Attachment D**.

6.4 SAFETY SYSTEMS ANALYSIS

The PARCOMM Safety Manager uses the safety systems analysis for field staff and subcontractors whose work requires that they be on site for over six months. The analysis provides management with a rating that reflects the safety and health program effectiveness. Appendix B1 to the SHARP Management manual provides the program, protocol, and methodology.

6.5 REMEDIATION SITE INSPECTION

The remediation site inspection is a protocol designed to identify and correct unsafe acts and conditions, as well as recognize safe work practices and accomplishments, in Parsons or subcontractors' scope of work. The Project Manager or Project Safety Manager should develop standard safety checklists appropriate to the work being performed. The Project Manager shall develop a checklist based on questions from the audit programs in Appendix B of the SHARP Manual.

Inspections involve a daily or weekly walk around of a project site that focuses on safety. The Project Manager or Project Engineer responsible for the work conducts inspections, accompanied by the Project Safety Manager as necessary. Daily walk rounds do not have to be documented, but once a week the Project Manager prepares an inspection report using **Exhibit 6.3** and forwards it to the Project Safety Manager for maintaining in the project file. Items found to be out of compliance must be assigned to the responsible party for corrective action and the corrective action tracked to completion. Subcontractors shall be advised of noncompliance items using a Notice of Subcontractor Violation, included as **Exhibit 6.4**.

6.6 DAILY SITE WALK CHECKLIST

The Project Manager, Project Engineer or Project Safety Manager conducts a daily safety site walk to identify problem areas (**Exhibit 6.3)**. Items found to be out of compliance must be assigned corrective action and the corrective action tracked to completion. **Exhibit 6.3** should be tailored to the scope as needed.

6.7 SAFETY AND HEALTH ENFORCEMENT

Parsons and its subcontractors enforce all applicable requirements of OSHA 1910 and 1926 where applicable. In addition, subcontractors must comply with and enforce Parsons site requirements.

Parsons and its subcontractors have written progressive disciplinary systems available for review in the respective Human Resources departments.

6.8 NOTICE OF VIOLATION OF SAFETY AND HEALTH REGULATIONS

The project has a formal notice of subcontractor violation of safety and health regulations program to ensure that violations are issued in an immediately dangerous to life and health

(IDLH) situation or when the subcontractor repeatedly fails to comply with safety and health requirements.

The notice (**Exhibit 6.5**) documents poor performance and requires a response from subcontractor senior management. The notice contains five distinct levels of discipline, from submission of a recovery plan to contract termination.

6.9 COMPETENT FIRST AID PERSON

The OSHA Regulations (29 CFR 1910.151 and 1926.50) state the employer shall ensure the ready availability of medical personnel for advice and consultation on matters of occupational health. In the absence of an infirmary, clinic, hospital, or physician, that is reasonably accessible in terms of time and distance to the worksite (i.e. 4 minutes for activities that can be expected to result in an accident involving suffocation, severe bleeding, or other life threatening or permanently disabling injury or illness and 15 minutes for other types of injuries), which is available for the treatment of injured employees, a person who has a valid certificate in first-aid training from the U.S. Bureau of Mines, the American Red Cross, or equivalent training that can be verified by documentary evidence, shall be available at the worksite to render first aid. First-aid supplies must be accessible for immediate use and be of sufficient size and number to handle common first aid incidents.

The response time and distance to the nearest clinic, hospital or physician identified in Section 4.11.3 has been determined to be 9 minutes. Based on the activities provided in the Scope of Work (Section 2.1) and the list of JSA included in Section 6.3, the project could potentially expect to have an accident involving suffocation, severe bleeding, or other life threatening or permanently disabling injury or illness. Since the response time for Emergency Medical Services (EMS) based on the activities for this project is not reasonably accessible, the project will require at least one individual on-site at all times that work is being performed to have a valid certificate in CPR and first aid. The employee(s) listed below are assigned to the project, will be on site at all times when work is being performed and will have a valid certificate in CPR and first aid.

Employee Name	Office Location	Date of CPR and First Aid Training Expiration
To Be Determined	Long Island City, NY	

Table 6.1

Suggested Frequency of Physiological Monitoring for Fit and Acclimated Workers[a]

Adjusted Temperature[b]	Normal Work Ensemble[c]	Impermeable Ensemble
90°F or above (32.2°C) or above	After each 45 min. of work	After each 15 min. of work
87.5°F (30.8°-32.2°C)	After each 60 min. of work	After each 30 min. of work
82.5°-87.5°F (28.1°-30.8°C)	After each 90 min. of work	After each 60 min. of work
77.5°-82.5°F (25.3°-28.1°C)	After each 120 min. of work	After each 90 min. of work
72.5°-77.5°F (22.5°-25.3°C)	After each 150 min. of work	After each 120 min. of work

a For work levels of 250 kilocalories/hour.

b Calculate the adjusted air temperature (ta adj) by using this equation: ta adj ^{o}F = ta ^{o}F + (13 x % sunshine). Measure air temperature (ta) with a standard mercury-in-glass thermometer, with the bulb shielded from radiant heat. Estimate percent sunshine by judging what percent time the sun is not covered by clouds that are thick enough to produce a shadow. (100 percent sunshine = no cloud cover and a sharp, distinct shadow; 0 percent sunshine = no shadows.)

c A normal work ensemble consists of cotton coveralls or other cotton clothing with long sleeves and pants.

Table 6.2 - HEAT INDEX

ENVIRONMENTAL TEMPERATURE (Fahrenheit)

RELATIVE HUMIDITY	70	75	80	85	90	95	100	105	110	115	120
	APPARENT TEMPERATURE*										
0%	64	69	73	78	83	87	91	95	99	103	107
10%	65	70	75	80	85	90	95	100	105	111	116
20%	66	72	77	82	87	93	99	105	112	120	**130**
30%	67	73	78	84	90	96	104	113	123	**135**	**148**
40%	68	74	79	86	93	101	110	123	**137**	**151**	
50%	69	75	81	88	96	107	120	**135**	**150**		
60%	70	76	82	90	100	114	**132**	**149**			
70%	70	77	85	93	106	124	**144**				
80%	71	78	86	97	113	**136**					
90%	71	79	88	102	122						
100%	72	80	91	108							

*Combined Index of Heat and Humidity...what it "feels like" to the body
Source: National Oceanic and Atmospheric Administration

How to use Heat Index:
1. Across top locate Environmental Temperature
2. Down left side locate Relative Humidity
3. Follow across and down to find Apparent Temperature
4. Determine Heat Stress Risk on chart at right

Note: Exposure to full sunshine can increase Heat Index values by up to 15 degrees F.

Apparent Temperature	Heat Stress Risk with Physical Activity and/or Prolonged Exposure
90-105	Heat Cramps or Heat Exhaustion Possible
105-130	Heat Cramps or Heat Exhaustion Likely, Heat Stroke Possible
>130	Heatstroke Highly Likely

TABLE 6.3
CONTAMINANTS WITH POTENTIAL OCCUPATIONAL RISK

TABLE 6.3
CONTAMINANTS WITH POTENTIAL OCCUPATIONAL RISK

Known Contaminant	Highest Observed Concentration[1] (Specify units and media)	PEL	IDLH	STEL	Vapor Pressure (mm Hg)	Odor Threshold (ppm) [3]	LEL (%)	Symptoms and Effects of Acute Exposure	Additional Information / Chronic Exposure
		PPM or mg/m3 [2]	PPM or mg/m3	PPM or mg/m3					
Benzene	Water; varied concentrations	0.5 ppm [4] / 1.0 ppm	500 ppm	5 ppm	75	119	1.2	Irritates eyes, skin, and respiratory system; causes giddiness, nausea, staggered gait, fatigue, anorexia, lassitude, dermatitis, and bone marrow depression.	Flammable liquid, aromatic odor; carcinogen - minimixe all possible exposures
Toluene	TBD	200 ppm	500 ppm	150 ppm / 300 ppm (CEIL)	20	37	1.1	Irritates eyes, nose, skin, respiratory and central nervous systems. Also affects liver and kidneys. Causes fatigue, weakness, confusion, euphoria, dizziness, headache, dilated pupils, tearing, muscle fatigue, nervousness, insomnia, paresthesia, dermatitis, liver and kidney damage.	Flammable and colorless liquid with a sweet, pungent, benzene-like odor.
Ethyl benzene	TBD	PEL = 100 ppm (435 mg/m^3);	800 ppm (10% LEL)	125 ppm (545 mg/m3) (TLV-STEL)	10	0.6	0.8	Irration to eyes, skin, mucous membrane; headache; dermatitis, narcosis, coma. Target organs include eyes, skin, respiratory system and central nervous sytem.	Flammable and colorless liquid with an aromatic odor.
m - Xylene	TBD	100 (435 mg/m^3)	900 ppm	150 ppm (655 mg/m3)	9	20	1.1	Irritates eyes, skin, nose, throat, respiratory system, central nervous system, GI tract, blood, liver, and kidneys. Causes dizziness, excitement, drowsiness, incoordination, staggering gait; corneal vacuolization, anorexia, nausea, vomiting, abdominal pain, and dermatitis.	Flammable and colorless liquid with an aromatic odor.
o - Xylene	TBD	100 (435 mg/m^3)	900 ppm	150 ppm (655 mg/m3)	7	20	0.9	Irritates eyes, skin, nose, throat, respiratory system, central nervous system, GI tract, blood, liver, and kidneys. Causes dizziness, excitement, drowsiness, incoordination, staggering gait; corneal vacuolization, anorexia, nausea, vomiting, abdominal pain, and dermatitis.	Flammable and colorless liquid with an aromatic odor.

TABLE 6.3 (CONTINUED)

TABLE 6.3
CONTAMINANTS WITH POTENTIAL OCCUPATIONAL RISK

Known Contaminant	Highest Observed Concentration[1] (Specify units and media)	PEL	IDLH	STEL	Vapor Pressure (mm Hg)	Odor Threshold (ppm) [3]	LEL (%)	Symptoms and Effects of Acute Exposure	Additional Information / Chronic Exposure
		PPM or mg/m3 [2]	PPM or mg/m3	PPM or mg/m3					
p - Xylene	TBD	100 (435 mg/m^3)	900 ppm	150 ppm (655 mg/m3)	9	20	1.1	Irritates eyes, skin, nose, throat, respiratory system, central nervous system, GI tract, blood, liver, and kidneys. Causes dizziness, excitement, drowsiness, incoordination, staggering gait; corneal vacuolization, anorexia, nausea, vomiting, abdominal pain, and dermatitis.	Flammable and colorless liquid with an aromatic odor.

Notes:

[1] Based on a review of historic data for the Site.

[2] 29 CFR 1910, June 30, 1993

[3] ACGIH 1989 Highest reported value of acceptable odor threshold range.

[4] Indicates ExxonMobil Limit. Stop work and notify ExxonMobil PM. Note that the OSHA limit is 1.0 ppm.

CEIL = Ceiling Limit - not to exceed at any time during the workday.
IDLH = Immediately Dangerous to Life and Health
PEL = Permissable Exposure Limit (8-hour Time weighted average)
STEL - 15 minute Short Term Expsure Limit
TLV = Threshold Limit Value
TWA = Time Weighted Average

Table 6.4

Action Levels for Changes in Respiratory Protection

Contaminant	PEL/TLB/ TWA	Monitoring Instrument	Action Level	PPE	Action Taken
VOCs	n/a	PID	<1 ppm	Level D	None.
			> 1 ppm	Level D	Monitor for benzene with Draeger tube.
			1-5 ppm	Level D	Implement engineering controls to suppress vapor levels.
			5-25 ppm	Level C (qualitative fit test)	Take 3 consecutive readings. If confirmed, wear full face piece respirator. Continue engineering controls to suppress vapor levels.
			> 25 ppm		Stop work activities until engineering controls are implemented to suppress vapor levels.
Benzene	OSHA PEL 1 ppm	Draeger Tube	> 1 ppm	Level C (qualitative fit test)	Take 3 consecutive readings. If confirmed, wear full face piece respirator. Continue engineering controls to suppress vapor levels.
Oxygen	Not Applicable	Multi-gas Meter	> 19.5 % and < 20.5%	Level D	None.
	Not Applicable	Multi-gas Meter	$\leq$ 19.5 % (oxygen deficient)	Level C may be necessary	Stop work activities and leave the area until engineering controls are implemented to increase oxygen levels above 19.5 %. If oxygen levels won't increase, don a SCBA. Do not wear a half or full face respirator with cartridges because it won't protect you from an oxygen deficient atmosphere.

Table 6.4 (continued)
Action Levels for Changes in Respiratory Protection

Contaminant	PEL/TLB/ TWA	Monitoring Instrument	Action Level	PPE	Action Taken
Oxygen (continued)	Not Applicable	Multi-gas Meter	$\geq$ 20.5 % (oxygen enriched)		Stop work activities and leave the area until engineering controls are implemented to decrease oxygen levels below 20.5 %. If oxygen levels won't decrease, work may not continue. A SCBA can't be worn due to extreme explosion hazard.
Carbon Monoxide	OSHA PEL 50 ppm	Multi-gas Meter	< 25 ppm	Level D	None
			> 25 ppm		Stop work activities until engineering controls are implemented to reduce levels below 25 ppm.
Combustible/ Explosive Limit (LEL), based on Ethylbenzene	LEL 0.8%	Multi-gas Meter	< 0.8 %	Level D	None
			> 0.8%		Stop work activities and leave the work area until engineering controls are implemented. Work may not continue unless the LEL can be reduced.
Dust	Not Applicable	Mini-RAM	< 1 mg/m^3 sustained for 5 minutes	Level D	None
	Not Applicable	Mini-RAM	$\geq$ 1 mg/m^3 sustained for 5 minutes		Stop work and leave the work area until levels fall below 1 mg/m^3. To expedite the process, wet the ground surface to reduce dust levels.
	Not Applicable	Mini-RAM	$\geq$ 5 mg/m^3 sustained for 5 minutes		Stop work and leave the work area. Contact the SHSO.

Note: All readings that will be used to determine the appropriateness of an upgrade in PPE shall be taken in the worker's breathing zone. PID readings shall be sustained readings of 15 minutes or more. Multi-gas meter readings shall be 30 second sampling periods with the meter held in the worker's breathing zone.

Readings will be taken at the beginning of the day, changes in work activities and during all sampling activities. If readings exceed Level D, then stop work, leave the area or allow the area to ventilate. If actions levels are maintained then consult with the SHSO on upgrading PPE appropriately.

If Level C PPE (respiratory protection) is required, contaminant concentrations measured during on-site air monitoring will be used to estimate the breakthrough times of the organic vapor cartridges using the Gerry O. Wood Math Model (Wood, G.O., Estimating Service Lives of Organic Vapor Cartridges, *American Industrial Hygiene Association Journal, 55:11-15, 1994). P*rior to donning Level C PPE, a cartridge change-out schedule will be developed and reviewed by ExxonMobil and Parsons Division Safety Manager for acceptance.

TABLE 6.5
LEVEL C DECONTAMINATION PROCEDURES

* Decontamination procedures can be modified by the SHSO based on work activities and potential contamination.

STATION	NAME	DESCRIPTION
Station 1	Segregated Equipment Drop	Deposit equipment used on the site (tools, sampling devices and containers, monitoring instruments, clipboards, etc.) on plastic drop cloths or in different containers with plastic liners. Each will be contaminated to a different degree. Segregation at the drop reduces the probability of cross-contamination. Necessary equipment includes containers of various sizes, plastic liners, and plastic drop cloths.
Station 2	Suit, Safety Boots, Hardhat, Safety Glasses Wash/Rinse & Outer Glove Wash/Rinse/Removal	Thoroughly wash chemically resistant suit, safety boots, hardhat, safety glasses (goggles) and outer-gloves. Scrub with long-handle, soft-bristle scrub brush and rinse with copious amounts of Alconox/water solution. Repeat as many times as needed. Remove the outer gloves and deposit in individually marked plastic bags. Necessary equipment includes: • Wash tub (30 gal. or large enough for person to stand in); • Spray unit with Alconox/water solution; • Long-handle soft-bristle scrub brushes. • Water; and • Plastic Bags.
Station 3	Cartridge or Mask Change	If a worker leaves the exclusion zone to change a cartridge or the mask, this is the last step in the decontamination procedures. The worker's cartridges or mask are exchanged, new outer gloves are donned, and joints are taped. The worker then returns to duty. Otherwise the worker proceeds to Station 4. Necessary equipment includes cartridges or masks, tape, boot covers, & gloves.
Station 4	Suit/Safety Boot Removal and Inner-Glove Wash/Rinse	Remove safety boots and deposit in individually marked plastic bags. With assistance of helper, remove suit. Wash inner gloves with Alconox/water solution that will not harm skin. Repeat as many times as necessary. Rinse inner gloves with water. Repeat as many times as necessary. Deposit in container with plastic liner. Necessary equipment includes: • Container with plastic liner • Bench or stool • Alconox/water solution • Long-handle soft bristle brush • Water

TABLE 6.5 (CONTINUED)
LEVEL C — DECONTAMINATION PROCEDURES

* Decontamination procedures can be modified by the SHSO based on work activities and potential contamination.

STATION	NAME	DESCRIPTION
Station 5	Respirator Removal	Remove face-piece. Avoid touching face. Wash respirator in clean, sanitized solution, allow it to dry and deposit face-piece in plastic bag. Store in clean area. Necessary equipment includes: • Plastic bags; • Sanitizing solution; and, • Cotton.
Station 6	Inner-Glove Removal	Remove inner gloves and deposit in container with plastic liner. Necessary equipment includes: • Container with plastic liner.
Station 7	Field Wash	Wash hands and face. Necessary equipment includes: • Water; • Soap; • Tables; • Wash basins or buckets; and, • Clean towels.
Station 8	Redress	If re-entering Exclusion Zone put on clean field clothes (e.g., Tyvek, gloves, etc.). Necessary equipment includes: • Table; and, • Clothing. The Site Health and Safety Officer (SHSO) will monitor the decontamination system for effectiveness.

Exhibit 6.1 Job Safety Analysis

EXHIBIT 6.2
DAILY JOB SAFETY ANALYSIS TRAINING RECORD

EXHIBIT 6.3
WEEKLY HSSE INSPECTION CHECKLIST

EXHIBIT 6.3
WEEKLY HSSE INSPECTION CHECKLIST

continued

EXHIBIT 6.4
NOTICE OF NONCOMPLIANCE WITH HSSE REGULATIONS

EXHIBIT 6.5
NOTICE OF SUBCONTRACTOR VIOLATION
OF HSSE REGULATIONS

SECTION 7

SAFETY TRAINING

7.1 PROJECT SAFETY ORIENTATION

The Parsons Project Manager, PSM, FTL, or SSO conducts the site-specific orientation for all new Parsons staff and subcontractor management personnel.

The Orientation takes approximately one hour to complete and consists of applicable Exxon Mobil, Parsons, and regulatory reference material, including:

- Applicable OSHA 1910 General Industry and 1926 Construction Regulations and others as required
- Parsons applicable requirements, including items covered in Section 4.2
- Subcontractor requirements

In addition, all personnel must receive some level of LPS training, typically a one-hour orientation or 8-hour complete LPS training. More information on LPS training is available in **Attachment A** or on the Parsons ExxonMobil website.

All visitors must receive a brief orientation as described in Section 4.2 and listed on **Exhibit 4.1**, and be escorted by the Project Manager, Project Engineer, Project Safety Manager or a designee familiar with the potential hazards on the project.

7.2 PARSONSU SAFETY MODULES AND START TRAINING – ZERO INCIDENT TECHNIQUES

Consistent with Parsons corporate initiatives in safety training, the Project Manager will identify all applicable personnel (i.e. managers, engineers and supervisors, including subcontractor personnel), that shall be current in the completion of safety modules on ParsonsU and that should receive START training to further Parsons' goal of zero incidents.

The PARCOMM and Industrial Division Safety Manager serve as the certified trainers for periodic START training sessions for new personnel. They should be contacted if personnel need to receive training.

7.3 DAILY TOOLBOX SAFETY MEETINGS

Parsons and its subcontractors conduct daily toolbox safety meetings at the beginning of each shift. These meetings include topics relevant to upcoming work and may include reviews of recent incidents or near misses from the previous shift activities, safe or at risk observations from the previous shift, activities planned for the current shift, anticipated hazards, engineering controls, work practices, PPE to protect against hazards, and any additional safety topic or comments. These safety meetings are informal and brief, usually 5 minutes long, and all workers

must participate. Supervisors should always ask whether any workers have questions before they are released for work. Toolbox safety meetings will be documented and signed by all individuals accessing the Site using a Safety Meeting Sign-In Sheet (**Exhibit 7.1**). The Project Manager or SHSO is responsible for the toolbox training content and documenting and retaining these records.

7.4 JOB SAFETY ANALYSIS TRAINING

When the job safety analysis is complete, the Parsons Project Manager/Engineer/Supervisor or subcontractor conducts a training session with all employees involved with the analyzed task. The training may be informal and at the site where the task is performed. Employees should be given an opportunity to provide input regarding task steps, hazards identified, and appropriate control measures.

7.5 REGULATORY TRAINING PROGRAMS

OSHA regulations require specific training in certain circumstances. Based on the scope of work and meetings with regulatory officials, the following training topics are provided on the project:

- General – all workers engaged in activities, which are potentially exposed to hazardous substances and health hazards must be trained to meet 1910.120(e)(1). Annual 8-hour refresher training as per 29 CFR 1910.120(e)(3) is required for workers and supervisors must be trained to meet 29 CFR 1910.120(e)(4).
- CPR/AED/First aid – provided to personnel based on project activities identified in the Scope of Work (i.e. life threatening) and EMS response time (i.e. less than 15 minutes). See Section 6.9.
- Respiratory protection – must meet 29 CFR 1910.134. Medical qualification by a physician is required to wear a respirator. Annual fit testing and training is also required.
- Signaling
- Excavation/trenching – must meet 29 CFR 1926.651.
- **Others to be added as needed or determined**

The Project Manager determines the necessary training and coordinates the training with the Project Safety Manager.

7.6 OSHA OUTREACH PROGRAMS

When applicable, the project may use qualified instructors and online courses to conduct OSHA 10-hour construction safety training. If applicable, supervisory staff must complete the 30-hour course. Depending on the scope of work, similar requirements may be included in all subcontracts. Participants successfully completing the course receive a certificate of completion from OSHA.

7.7 SPECIALIZED TRAINING AND ORIENTATIONS

Project personnel receive specialized training on client rules and requirements as well as the unique tools, equipment, and procedures used to perform the work. The project budget includes funding for the following training:

Description	Attendees	Schedule
General rules and safety requirements	All workers assigned to the site	Half-hour training session, provided to new employee on the first day of work at the site.
Behavior-based safety training (LPS)	Project managers, field personnel and routine subcontractors	Full day session (8-hours).
Behavior-based safety training (LPS)	Administrative personnel and non-routine subcontractors	Awareness training (1-hour), which can be provided by an individual that has received the one-day course.
Controlled substance and alcohol awareness training	Supervisors	When assigned to a client that requires substance abuse and alcohol testing.

EXHIBIT 7.1
SAFETY MEETING SIGN-IN SHEET

EXHIBIT 7.1
SAFETY MEETING SIGN-IN SHEET

Safety Meeting Presenter: _____ Date: _____

Current Weather Conditions:

Temperature (^{o}F) = _____ Wind Direction = _____ Wind Speed = _____

Clear - Sunny – Cloudy – Rain - Snow Forecast = _____

Current Site Conditions (circle as appropriate):

Dry - Wet - Muddy - Frozen - Snow Covered - Other (describe) _____

1. Incidents or Injuries to report from Previous Day Activities: No □ Yes □ - explain below:

_____

2. Safe and/or At-Risk Observations from Previous Day Activities:_____

_____

_____

3. Activities Taking Place Today: _____

_____

_____

4. Anticipated Hazards: _____

_____

_____

5. Engineering Controls-Work Practices-PPE to Protect Against Hazards: _____

_____

_____

6. Additional Safety Topic or Comments: _____

_____

EXHIBIT 7.1
SAFETY MEETING SIGN-IN SHEET

CONTINUED

EXHIBIT 7.1 (CONT'D)
SAFETY MEETING SIGN-IN SHEET

PRINTED NAME	MORNING	AFTERNOON	SIGNATURE	COMPANY
	DATE	DATE		

SECTION 8

RECORDKEEPING AND POSTING

Parsons and its subcontractors must comply with the record keeping requirements of OSHA, Owner, Parsons Corporation, and this safety program, including:

- OSHA 300 logs
- Medical treatment and follow-up
- Cranes
- Heavy equipment inspection logs
- Fall protection
- Training
- Inspections
- Audits
- Others as required

The Project Manager is the official record keeper for files relating to Parsons employees. Each subcontractor maintains its files.

The project displays OSHA posters in conspicuous places as required by OSHA, including one poster on the main bulletin board located in the Number One Field Office. The OSHA 300 log for the project or the GBU shall be posted from February 1 – April 30 of each calendar year.

SECTION 9

SAFETY AND HEALTH REQUIREMENTS

9.1 SAFETY AND HEALTH REQUIREMENTS

Table 9.1 represents OSHA, ExxonMobil, and Parsons corporate regulations and requirements applicable to the project. Based on the most recent risk assessments, Parsons Project Manager and Project Safety Manager update the listed topics periodically. Training and other requirements are updated in this HASP as required by changes to **Table 9.1**.

Parsons and its subcontractors are individually responsible for training their respective employees and for complying with all project requirements. Failure to comply could lead to disciplinary actions against Parsons employees and subcontractors or their employees.

TABLE 9.1 – COMPETENT PERSON AND ACTIVITY HAZARDS ANALYSIS REQUIREMENTS

	Safety and Health Requirement	OSHA Regulation	EM 385-1-1 Regulation	Competent Qualified Person-Supv	Training Required	Written Plan and JSA Required
1.	General Safety & Health	1926.20	01.A	*Yes*	*Yes*	*Yes*
2.	Safety Training	1926.21	01.B.01	*Yes*	*Yes*	*Yes*
3.	First Aid and Medical	1926.23, 50	03.A	*Yes*	*Yes*	*Yes*
4.	Fire Protection and Prevention	1926.24, 150-155, 352	09.A	*Yes*	*Yes*	*Yes*
5.	Housekeeping	1926.25	14.C	*N/A*	*N/A*	*N/A*
6.	Personal Protective Equipment	1926.28, 95-98, 100-107	05.A	*Yes*	*Yes*	*Yes*
7.	Acceptable Certifications	1926.29		*Yes*	*Yes*	*Yes*
8.	Emergency Employee Action Plans	1926.35	01.E	*Recommended*	*Yes*	*Yes*
9.	Noise Exposure	1910.95; 1926.52	05.C	*Yes*	*Yes*	*Yes*
10.	Gases, Vapors, Dusts and Mists	1926.1926.55		*Yes*	*Yes*	*Yes*
11.	Ventilation	1926.57, 353		*Recommended*	*Yes*	*Yes*
12.	Hazard Communication	1926.59	1.B.06	*Yes*	*Yes*	*Yes*
13.	Hazardous Waste Operations and Emergency Response	1910.120; 1926.65	28.A	*Yes* *Supv – 8 hr*	*Yes*	*Yes*
14.	Signaling	1926.201	08.B	*Recommended*	*N/A*	*Yes*
15.	Barricades	1926.202		*N/A*	*N/A*	*N/A*
16.	Material Storage	1926.250	14.B	*N/A*	*Yes*	*Yes*
17.	Waste Disposal	1926.252	14.D	*Yes*	*Yes*	*Yes*
18.	Tools	1926.300-307	13.A	*N/A*	*N/A*	*Yes*
19.	Gas Welding and Cutting	1926.350	10.A	*Recommended*	*Yes*	*Yes*
20.	Arc Welding	1926.351	10.E	*Recommended*	*Yes*	*Yes*
21.	Electrical	1926.400-415	11.E	*Yes*	*Yes*	*Yes*
22.	General Electrical	1926.416	11.A	*Yes*	*Yes*	*Yes*
23.	Batteries/Battery Charging Equipment	1926.441	11.E	*N/A*	*Yes*	*Yes*
24.	Motor Vehicles, Mechanized Equipment	1926.600-603	18.A	*Yes*	*Yes*	*Yes*
25.	Marine Operations and Equipment	1926.606	16.F	*Yes*	*Yes*	*Yes*
26.	Excavations	1926.650-652	25.A	*Yes*	*Yes*	*Yes*
27.	Excavation Permit	N/A	N/A	*Yes*	*Yes*	*Yes*
28.	Underground Construction	1926.800	26.A	*Yes*	*Yes*	*Yes*
29.	Compressed Air	1926.803	26.I	*Yes*	*Yes*	*Yes*
30.	Rollover Protective Structures; Overhead Protection	1926.1000-1003 inclusive		*N/A*	*N/A*	*Yes*
31.	Liveboating	1926.1087	30.A.05	*Yes*	*Yes*	*Yes*
32.	Internal Traffic Control	N/A	8.D	*N/A*	*Yes*	*Yes*

ATTACHMENT A

LPS HANDBOOK

ExxonMobil

Job Safety Analysis (JSA) Form

Revision - 0

Date of Revision - 01/08/05

COMPANY/ PROJECT NAME or ID/ LOCATION (City, State)	DATE	☐ NEW ☐ REVISED	PAGE 1 of

WORK ACTIVITY (Description):

DEVELOPMENT TEAM	POSITION / TITLE	REVIEWED BY:	POSITION / TITLE

MINIMUM REQUIRED PERSONAL PROTECTIVE EQUIPMENT (SEE CRITICAL ACTIONS FOR TASK-SPECIFIC REQUIREMENTS)

☐ REFLECTIVE VEST	☐ GOGGLES	☐ AIR PURIFYING RESPIRATOR	☐ GLOVES _____
☐ HARD HAT	☐ FACE SHIELD	☐ SUPPLIED RESPIRATOR	☐ OTHER _____
☐ LIFELINE / HARNESS	☐ HEARING PROTECTION	☐ PPE CLOTHING _____	
☐ SAFETY GLASSES	☐ SAFETY SHOES _____		

[1]JOB STEPS	[2]POTENTIAL HAZARDS	[3]CRITICAL ACTIONS TO MITIGATE HAZARDS
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		

[1] Each Job or Operation consists of a set of steps. Be sure to list all the steps in the sequence that they are performed. Specify the equipment or other details to set the basis for the associated hazards in Column 2

[2] A hazard is a potential danger. What can go wrong? How can someone get hurt? Consider, but do not limit, the analysis to: **Contact** - victim is struck by or strikes an object; **Caught** - victim is caught on, caught in or caught between objects; **Fall** - victim falls to ground or lower level (includes slips and trips); **Exertion** - excessive strain or stress / ergonomics / lifting techniques; **Exposure** - inhalation/skin hazards. Specify the hazards and do not limit the description to a single word such as "Caught"

[3] Aligning with the first two columns, describe what actions or procedures are necessary to eliminate or minimize the hazards. Be clear, concise and specific. Use objective, observable and quantified terms. Avoid subjective general statements such as, "be careful" or "use as appropriate".

ExxonMobil Refining & Supply - Global Remediation
LOSS PREVENTION OBSERVATION Revised January 2005

Location/Project Name: _____ **Date:** _____
Observer Name/Company: _____ **Time:** _____
Observer Title: _____

Task Observed

Drilling:		Dewatering:		Gauging:		UST Removal:	
GeoProbe/Direct push:		Pump Test:		Sampling:		Mobile Rem/Vac event:	
Excavation/Trenching:		Rigging/Lifting:		O&M:		Heavy Equipment Ops	
Subsurface clearance:		Demolition:		System Install:		NAPL Recovery:	
Pavement Cutting:		Carbon Change:		System Start up:		Other (Specify):	

Description of Task Observed and Background Information

Positive Comments

Conclusions /Why the Questionable Items occurred/Root Cause analysis

Session Conducted By: _____ **Date:** _____
Name of Observee's Supervisor: _____ **Time:** _____

Questionable Observations/Root Cause Analysis

Personal Factor:
(1) Lack of skill or knowledge
(2) Correct way takes more time/requires more effort
(3) Shortcutting standard procedures is rewarded or appreciated
(4) In past, did not follow procedures or acceptable practices and no incident occurred

Job Factor:
(5) Lack of or inadequate operational procedures or work standards
(6) Inadequate communication of expectations or work standards
(7) Inadequate tools or equipment

Questionable Observation #	Root Cause Analysis #	Solution(s) To Prevent Potential Loss from Occurring	Person Responsible	Agreed Due Date	Date Completed

Results of Verification (were solutions done?) and Validation (were solutions effective?)

Reviewed by: _____ **Date:** _____
Approved by: _____ **Time:** _____

ExxonMobil Refining & Supply - Global Remediation
LOSS PREVENTION OBSERVATION Revised January, 2005

PERSONAL PROTECTIVE EQUIPMENT	CORRECT	???	COMMENTS
1. Hearing Protection (e.g. Ear Plugs)			
2. Head Protection (e.g.Hard Hat)			
3. Eye Protection (e.g.Safety Glasses)			
4. Hand Protection (e.g.Gloves)			
5. Foot Protection (e.g.Safety Shoes)			
6. Respiratory Protection			
7. Fall Protection (e.g. harness)			
8. Reflective Vest/High Visibility Clothing			
9. Other (Specify)			
BODY USE AND POSITIONING	**CORRECT**	**???**	**COMMENTS**
10. Correct Body Use and Positioning When Lifting/Pushing/Pulling			
11. Pinching Points/Moving Equipment - Hands/Body Clear			
12. Mounts/Dismounts Using 3-Point Stance			
13. Other (Specify)			
WORK ENVIRONMENT	**CORRECT**	**???**	**COMMENTS**
14. Work/Walk Surface Free of Obstructions (e.g. tripping hazards)			
15. Housekeeping/Storage			
16. Defined and Secured (e.g. warning devices, barricades, cones, flags)			
17. Safety Shut Down Devices			
18. Proper Storage/Disposal of Sample & Waste materials			
19. Other (Specify)			
OPERATING PROCEDURES	**CORRECT**	**???**	**COMMENTS**
20. SPSA Performed/Job Planning			
21. Work Permit/Authorization to Work (Hot, Cold, LOTO, Confined Space)			
22. JSA Reviewed & Followed			
23. Checks Area for Hazards			
24. Interfaces with Other Functions (awareness with other personnel on site)			
25. Subsurface Structures Identified			
26. Other (Specify)			
TOOLS/EQUIPMENT	**CORRECT**	**???**	**COMMENTS**
27. Hand tool Selection, Condition & Use			
28. Power tool Selection, Condition & Use			
29. Equipment (inc heavy) Sel/Cond/Use			
30. Other (Specify)			
Total #	0	0	
% Correct **[(Total Correct/(Total Correct + Total Questionable))*100]**	#DIV/0!		

"Nobody Gets Hurt"

ExxonMobil Refining & Supply - Global Remediation
LOSS/NEAR LOSS INVESTIGATION
(Revised – April 20, 2006)

Incident # (must be included after # is assigned)

PART 1: ADMINISTRATIVE INFORMATION

GLOBAL REMEDIATION REGION:
- ☐ United States
- ☐ Americas South
- ☐ Europe/Africa/Middle East
- ☐ Asia Pacific
- ☐ T&SS

BUSINESS CLIENT: (Check all that apply)
- ☐ Retail
- ☐ Refining
- ☐ Distribution
- ☐ Pipeline
- ☐ Upstream
- ☐ Chemical
- ☐ Lubes
- ☐ Superfund
- ☐ Mining

REPORT TYPE
- ☐ Loss
- ☐ Near Loss

REPORT STATUS
- ☐ Initial (24 hr)
- ☐ Final (5-10 days) Date:_____
- ☐ Solutions Completed Date:_____
- ☐ V&V Completed Date:_____

CORPORATE REPORTABLE:
- ☐ Yes
- ☐ No

From lists below, please select option that best categorizes the incident. When selecting an Injury or Illness, also indicate the severity level.

COMPLETE THIS SECTION ONLY FOR LOSSES

INCIDENT TYPES
- ☐ INJURY
- ☐ ILLNESS

------Severity Level------
- ☐ Fatality
- ☐ Lost Time
- ☐ Restricted Work
- ☐ Medical Treatment
- ☐ First Aid

ENVIRONMENTAL
- ☐ Spill / Release
- ☐ Permit Exceedance
- ☐ Fine / Penalty
- ☐ NOV
- ☐ Misdirected Waste
- ☐ Consent Order

PROPERTY DAMAGE
- ☐ Property Damage

PERSONNEL INVOLVED
- ☐ ExxonMobil Employee
- ☐ Contractor
- ☐ Subcontractor
- ☐ Third Party

ESTIMATED COST OF PROPERTY DAMAGE:
- ☐ **< $50K**
- ☐ **≥ $50K (8021 Report required)**

COST OF FINE / PENALTY:
- ☐ **< $500**
- ☐ **≥ $500**

DATE OCCURRED	TIME ☐ AM ☐ PM	SITE / FACILITY / STORE #
DATE REPORTED	TIME ☐ AM ☐ PM	INCIDENT LOCATION (CITY, STATE AND COUNTRY IF OUTSIDE THE U.S.)

EM AREA MGR NAME	EM PROJECT MGR NAME	EM PROJECT MGR PHONE NUMBER
CONSULTANT/CONTRACTOR COMPANY NAME	SUPERVISOR'S NAME	SUPERVISOR'S PHONE NUMBER
SUBCONTRACTOR COMPANY NAME	SUPERVISOR'S NAME	SUPERVISOR'S PHONE NUMBER

LIST INDIVIDUALS INVOLVED AND THEIR OCCUPATION	COMPANY NAME / # YRS. WORKING / # YRS. IN CURRENT POSITION IF 3rd PARTY, LIST ADDRESS AND PHONE NUMBER

JOB TASK

☐ Carbon Changeout	☐ Gauging/Bailing	☐ Operations/Maintenance	☐ Subsurface Clearance
☐ Demolition	☐ Geoprobe	☐ Pavement Cutting	☐ System Install
☐ Dewatering	☐ Heavy Equip Ops	☐ Pump/Pilot Test	☐ System Startup
☐ Drilling	☐ Mobil Rem/Vac Event	☐ Rigging/Lifting	☐ UST Removal
☐ Excavation/Trenching	☐ Motor Vehicle	☐ Sampling	☐ Waste Management
	☐ NAPL Recovery		☐ Other:_____

WAS ALCOHOL/DRUG USE SUSPECTED? ☐ **Yes** ☐ **No**

IF ALCOHOL OR DRUGS WERE SUSPECTED SUMMARIZE ACTIONS TAKEN/TESTING (WHERE LEGALLY PERMISSIBLE):

ATTACHED INFORMATION: (Check all that apply and attach in PART 5: ATTACHMENTS)

☐ **PHOTO** ☐ **SKETCHES** ☐ **NEWSPAPER** ☐ **VEHICLE REPORT** ☐ **OTHER**

WITNESSES	NAME	ADDRESS	CITY/STATE	PHONE

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EQUIPMENT INVOLVED: (Select all that apply)

Fixed – Piping, General
- ☐ Piping
- ☐ Piping, Hose

Fixed – Storage/Tankage
- ☐ Tank, Underground
- ☐ Tank, Underground Double Wall

Fixed - Vessel
- ☐ Drum, Separator, Vertical

Instrumentation – Instrument System
- ☐ Local Control Panel

Machinery – Drilling Equipment
- ☐ Drill Rig

Machinery - Pump
- ☐ Pump, Submerged

Support Equipment – Communication/Computing
- ☐ Audio Communication (Telemetry)

Support Equipment – Maintenance/Testing Tools
- ☐ Hand Tool, Hammer
- ☐ Hand Tool, Knife
- ☐ Hand Tool, Non Powered
- ☐ Hand Tool, Powered
- ☐ Hand Tool, Powered, Drill
- ☐ Hand Tool, Powered, Grinder
- ☐ Hand Tool, Powered, Hydraulic Torque
- ☐ Hand Tool, Powered, Saw
- ☐ Hand Tool, Powered, Wrench
- ☐ Hand Tool, Saw
- ☐ Hand Tool, Screwdriver
- ☐ Hand Tool, Shears
- ☐ Hand Tool, Shovel
- ☐ Hand Tool, Wrench
- ☐ Ladder, Extension
- ☐ Ladder, Platform
- ☐ Ladder, Step
- ☐ Maintenance Tool, General
- ☐ Space Heater, Electric

Support Equipment – Oil Spill Response
- ☐ Boom Material

Support Equipment – Remediation Equipment
- ☐ Blower
- ☐ Carbon Drum/Vessel
- ☐ Compressor
- ☐ Critical Equipment
- ☐ Drilling Equipment, Vacuum
- ☐ Exclusion Zone Equipment
- ☐ Fencing
- ☐ Filter
- ☐ Fire Extinguisher
- ☐ Manifold
- ☐ Oxidizer
- ☐ PPE - Eye
- ☐ PPE - Fall
- ☐ PPE - Foot
- ☐ PPE - Hand
- ☐ PPE - Head
- ☐ PPE - Hearing
- ☐ PPE - Respiratory
- ☐ PPE - Vest/Clothing
- ☐ PPE - Other
- ☐ Pumps (transfer, electrical)
- ☐ Remediation Shed/Trailer
- ☐ Separator
- ☐ Surge Tanks
- ☐ System - Air Sparging
- ☐ System - Carbon Treatment
- ☐ System - Chemical Oxidation
- ☐ System - Dual Phase Product Recovery
- ☐ System - Groundwater Pump and Treat
- ☐ System - Vapor Extraction
- ☐ System - Vapor Phase Treatment
- ☐ System - Other
- ☐ Well - Extraction
- ☐ Well - Monitoring
- ☐ Well - Recovery

Support Equipment - Sampling Equipment
- ☐ Bailer
- ☐ Geoprobe
- ☐ Hand Auger
- ☐ Photo-ionization Device
- ☐ Sample Container
- ☐ Split Spoon Sampler

Support Equipment - Snow Removal
- ☐ Snow Plow

Work Equipment - Crane
- ☐ Crane, Mobile

Work Equipment - Earth Moving Equipment
- ☐ Bulldozer
- ☐ Dump Truck
- ☐ Excavator / Power Shovel
- ☐ Front End Loader
- ☐ Grader

Work Equipment - Lifting Equipment
- ☐ Chain Block
- ☐ Forklift
- ☐ Hoist
- ☐ Hook/Clamp/Buckle, etc.
- ☐ Jack
- ☐ Manlift/Basket/Cherry Picker
- ☐ Rope
- ☐ Sling
- ☐ Winch
- ☐ Wire Rope

Work Equipment - Lifting Equipment
- ☐ Automobile
- ☐ Tractor Trailer
- ☐ Truck, Flatbed
- ☐ Truck, Pickup
- ☐ Truck, Tank Truck
- ☐ Truck, Vacuum

Other:_____

IF THE LOSS IS AN INJURY OR ILLNESS, COMPLETE THE FOLLOWING AS APPROPRIATE:

TYPE OF INJURY/ILLNESS
- ☐ Amputation/Avulsion
- ☐ Bruise/Contusion
- ☐ Burn - Chemical
- ☐ Burn - Thermal or Electrical
- ☐ Concussion/Unconscious
- ☐ Crush
- ☐ Cut/Scrape/Puncture
- ☐ Dislocation
- ☐ Foreign Object in Eye
- ☐ Fracture
- ☐ Hernia/Rupture
- ☐ Irritation
- ☐ Poisoning
- ☐ Sprain/Strain
- ☐ Sting/Bite
- ☐ Heat Stress/Exhaustion/Sunstroke
- ☐ Hypothermia
- ☐ Physical Agents - Radiation, etc.
- ☐ Repeat Trauma - CTS
- ☐ Repeat Trauma - Other Disorder
- ☐ Respiratory - Toxic Agents
- ☐ Skin Disease or Disorder
- ☐ Other:_____
- ☐ Unknown

BODY PART AFFECTED
- ☐ Abdomen/Groin
- ☐ Ankle
- ☐ Back/Spine
- ☐ Calf/Shin
- ☐ Central Nervous
- ☐ Chest
- ☐ Circulatory/Blood
- ☐ Ear
- ☐ Elbow
- ☐ Eye
- ☐ Face
- ☐ Fingers
- ☐ Foot
- ☐ Forearm
- ☐ Hand
- ☐ Hip
- ☐ Internal Organs
- ☐ Jaw
- ☐ Knee
- ☐ Neck
- ☐ Nose
- ☐ Respiratory
- ☐ Ribs
- ☐ Scalp
- ☐ Shoulder
- ☐ Skull
- ☐ Thigh
- ☐ Toes
- ☐ Tongue
- ☐ Tooth/Teeth
- ☐ Upper Arm
- ☐ Urinary
- ☐ Wrist

SOURCE OF INCIDENT

Body Position/Force
- ☐ Line of Fire
- ☐ Overexertion/Strain
- ☐ Personal Energy
- ☐ Struck Against Object
- ☐ Struck By Object
- ☐ **Buried**
- ☐ **Caught In, Under, Between**

Chemical Exposure
- ☐ Inhalation
- ☐ Ingestion
- ☐ Physical Contact

Contact By
- ☐ Animal/Insect/Plant
- ☐ Blood/Potentially Infectious Materials
- ☐ Electricity
- ☐ Noise
- ☐ Other Physical Agents
- ☐ Radiation
- ☐ Temperature Extremes

- ☐ **Drowning**

Falls
- ☐ Fall, From Elevation
- ☐ Fall, Same Level
- ☐ Slip or Trip Without Fall

- ☐ **Other**
- ☐ **Suffocate/Asphyxiate (Lack of Oxygen)**
- ☐ **Transportation Incident**

LOST TIME or RESTRICTED WORK:	START DATE	# OF ESTIMATED DAYS	# OF ACTUAL DAYS	☐ No Reassignment ☐ Permanently Reassigned ☐ Temporarily Reassigned

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IF THE LOSS/NEAR LOSS IS A SPILL OR RELEASE, COMPLETE THE FOLLOWING AS APPROPRIATE:

MATERIAL INVOLVED:	AMOUNT RELEASED: (Specify amount & measurement unit, e.g. Gal, pH, PPM, etc.)	MEDIUM RELEASED TO: ☐Air ☐Subsurface/Groundwater ☐Other ☐Surface Water - Onshore ☐Soil

AUTHORITIES NOTIFIED	NAME	AGENCY	RESPONSE	DATE/TIME

IF THE LOSS IS A PROPERTY DAMAGE, COMPLETE THE FOLLOWING AS APPROPRIATE:

PROPERTY DAMAGED:	DESCRIPTION OF DAMAGE:	ESTIMATED COST:
☐Company ☐Contractor ☐Local Community ☐Personal		

PART 2: WHAT HAPPENED AND INCIDENT DETAILS

WHAT HAPPENED? DESCRIPTION OF LOSS/NEAR LOSS (EXPLAIN THE SEQUENCE OF EVENTS AND ALL PERTINENT FACTS INCLUDING RESPONSE ACTIONS TAKEN, BE BRIEF AND SPECIFIC). IF AN INJURY OR ILLNESS, DESCRIBE THE INJURY AND TREATMENT GIVEN.

SUMMARY (1-2 sentences):

POTENTIAL LOSS (IF A NEAR LOSS):

BACKGROUND DETAILS (as brief as possible):

IMMEDIATE CORRECTIVE ACTIONS TAKEN:

PART 3: INVESTIGATION TEAM ANALYSIS

CONCLUSION: WHY IT HAPPENED (LIST & NUMBER CAUSAL FACTORS AND CORRESPONDING ROOT CAUSES)

ROOT CAUSE(S) AND SOLUTION(S): HOW TO PREVENT INCIDENT FROM RECURRING

CAUSAL FACTOR #	ROOT CAUSE #	OIMS SYSTEM #	SOLUTION(S) [Must Match Root Cause] #	SOLUTION(S) [Must Match Root Cause] Solution(s)	PERSON RESPONSIBLE	AGREED DUE DATE	COMPLETION DATE
			1				
			2				
			3				
			4				
			5				
			6				

INVESTIGATION TEAM:

PRINT NAME	JOB POSITION	DATE	SIGNATURE

PART 4: STEWARDSHIP ACTIONS

QUALITY REVIEW QUESTIONS

Were the root causes identified? ☐YES If no, explain: ____

Do root cause and recommendation "match?" ☐YES If no, explain:____

Is the recommendation feasible and maintainable? ☐YES If no, explain:____

Is this a repeat incident? ☐NO If yes, explain: ____

QUALITY REVIEWED BY: (See questions above)

PRINT NAME	JOB POSITION	DATE	SIGNATURE

RESULTS OF VERIFICATION AND VALIDATION

Verification: Were the solutions implemented? ☐YES ☐NO

VERIFICATION BY:

SOL #	VERIFIER'S NAME	JOB POSITION (COMPANY)	DATE VERIFIED	DETAILS	SIGNATURE

Validation: Were the solutions effective in addressing the root causes? ☐YES ☐NO

VALIDATION BY:

SOL #	VALIDATOR'S NAME	JOB POSITION (COMPANY)	DATE VALIDATED	DETAILS	SIGNATURE

PART 5: ATTACHMENTS (PHOTOS, SKETCHES, ETC.)

ExxonMobil
Refining & Supply

Global Remediation

Loss Prevention System
January 2005

Introduction

ExxonMobil is committed to conducting business in a manner that protects the safety and health of employees, as well as the environment, others involved in its operations, its customers, and the public. This commitment requires compliance with all applicable laws and regulations, facilities that are designed and operated to high standards, and systematic identification and management of safety, health and environmental risks.

The Operations Integrity Management System (OIMS) provides a structured approach within ExxonMobil. The Loss Prevention System (LPS) meets the OIMS requirement for a Personnel Safety System to be in place. LPS consists of several tools that help us to comply with various OIMS elements such as Management Leadership, Commitment and Accountability, Risk Assessment, Training, Incident Investigation and Analysis, and Operations Integrity Assessment and Improvement.

This hand book provides an overview of the LPS Tools Management System.

Loss Prevention System Handbook
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INTRODUCTION TO THE LOSS PREVENTION SYSTEM (LPS)

Definition of LPS

LPS is a system to prevent or reduce incidents, defined as either a loss or a near loss, using behavior-based tools and proven management techniques. This prevention or reduction of incidents is accomplished in a work culture that:

- Emphasizes proactive activities;
- Capitalizes on the job expertise of personnel;
- Maximizes use of positive reinforcement;
- Integrates the LPS tools with the daily business; and
- Practices "providing direction from the top down while solving problems from the bottom up."

Types of Incidents Targeted for Prevention

The goal of LPS is to prevent or reduce the occurrence of seven types of incidents.

- Personal injuries (defined as occupational injuries and illnesses).
- Equipment or property damage
- Environmental releases.
- Regulatory violations.
- Operational or system inefficiencies.
- Motor vehicle accidents.
- Near losses

How Does LPS Address These Seven Types of Incidents?

Several LPS tools work specifically to identify those factors that cause or contribute to these seven types of incidents. Furthermore, these tools implement solutions to eliminate or reduce the likelihood that the adverse event will recur. Before providing an overview of the LPS tools and activities, let's review the fundamental concepts of LPS.

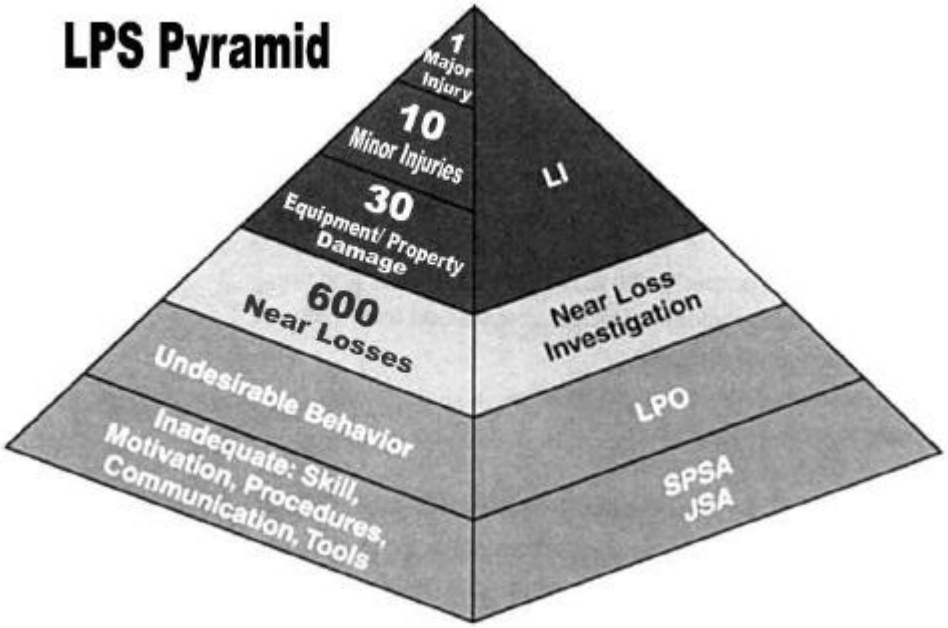
LPS Pyramid Strategy

In 1969, an extensive safety study was conducted by the Insurance Company of North America. An analysis was made of 1,753,498 accidents that were reported by 297 companies. These organizations represented 21 different industrial groups who worked more than 3 billion employee-hours during the time period studied.[1]

1. Bird, FE Jr. and Loftus, RG. Loss Control Management, Loganville, GA: Institute Press: 1976

The analysis produced ratios for the various severity levels of incidents. The study indicated that for every major workplace injury there were 10 minor injuries. A major injury included fatalities, permanent disabilities, or lost time injuries. Minor injuries included cases of restricted work activity, medical treatment cases, and significant first aid injuries. The study also indicated that for each major injury there occurred about 30 cases of equipment or property damage and 600 "near-losses" where circumstances nearly resulted in an accident.

The ratio of major injuries to incidents of lesser severity can vary by industry, or even by work group, but the concept of a Loss Ratio Triangle has proven valid for all work units. The LPS Pyramid (below) illustrates the loss ratio concept.



Loss Sequence

The loss process typically consists of a sequence of six phases from the initial root causes to a major loss event. These levels are shown on the left side of the LPS Pyramid. The sequence of events flows from the bottom to the top of the pyramid. At the base of the pyramid are the root causes of all types of incidents or losses. These root causes reflect inadequate emphasis by the individual or the organization to always complete a task according to safe work standards. This attitude results in deviations from safe work standards. These deviations are identified as "undesirable behaviors".

If nothing is done to address these deviations, the undesirable behaviors continue, and when additional factors are present, the stage is set for a near loss. If these behavioral patterns persist and additional contributing factors exist, loss events occur, resulting in business disruption, equipment damage, minor injury, or major injury.

The incident reduction strategy adopted by most organizations is to focus on the top level of the pyramid. In other words, the majority of the organization's time and efforts to reduce incidents

concentrate on investigations of lost-time injuries only. This approach is a mistake for at least two reasons. First, the organization functions in a crisis mode -- which is precisely where the organization has positioned itself. As professional as the investigation efforts might be, the energy to solve these problems only happens "after the fact." Seldom, if ever, are investigations conducted of minor injury cases, equipment damage, and minor spills or releases, not to mention near losses. The organization fails to see the common threads of root causes and contributing factors that run through each of these levels and types of incidents.

This reactive approach is a mistake for a second reason. Companies prefer to develop incident reduction strategies and make decisions based on analyses of solid facts, not on hunches and myths. Therefore, if the organization only investigates the upper level of the pyramid, it loses hundreds of opportunities to learn from incident and near loss experiences at the lower levels. The factors that cause or contribute to incidents at the lower levels are very similar to the root causes of the incidents at the upper levels of the pyramid.

The fundamental pyramid strategy for incident reduction and prevention is quite basic. As the organization identifies and eliminates root causes of near losses and incidents at the lower levels, it eventually will prevent occurrences of those more serious incidents at the upper levels. Then, the organization operates proactively rather than reactively.

Traditional Safety Contrasted with the Loss Prevention System

To summarize the basic pyramid philosophy, let's contrast LPS with the traditional safety programs of most companies.

- Traditional safety focuses only on the top of the pyramid. LPS has tools that address all levels of the pyramid, with the primary focus on the *lower* levels.
- Traditional safety tends to limit its efforts to personal injuries and, on some occasions, regulatory violations. LPS attacks all seven types of incidents, going beyond injuries and government violations to include environmental releases, equipment/property damage, and near losses.
- Traditional safety programs are reactive while LPS is a proactive approach to preventing incidents by anticipating and resolving risks and hazards before incidents result.
- Traditional safety programs miss the information that can be gathered from lower severity events, while LPS makes decisions based on the wealth of information available from the lower levels of the pyramid.

Characteristics of LPS

LPS is a business philosophy, it is systematic, and it is custom-made. What do these three phrases mean in practical terms for everyday operations?

LPS is a Business Philosophy.

By "business philosophy" we mean that LPS represents a fundamental strategy regarding how an organization should operate a business safely. More specifically, LPS has four principles that are essential to its success. Adherence to these principles is an absolute prerequisite for improving safety performance.

Principle 1: Develop and communicate the LPS plan. This principle means that the organization's overall business plan must include LPS. Each person should know the generalities of the overall LPS plan and, at the same time, be familiar with the specifics of his/her role to help achieve LPS goals and objectives.

Principle 2: Everyone must participate. Overall direction for LPS implementation will be provided from the "top down," while determination of such specifics as how to best use the LPS tools will be from the "bottom up." All levels of the organization must be actively involved, with each person having the opportunity to develop ownership and familiarity with the daily use of LPS tools and activities.

Principle 3: Eliminate hazards before incidents occur. Although LPS includes investigations of incidents that already have occurred, the majority of time spent on LPS tools and activities should be proactive. In other words, most LPS efforts should focus on identifying and eliminating hazards and risks before an injury or other type of incident takes place, not after the fact.

Principle 4: Integrate LPS tools and activities with the daily business. All LPS tools and activities should be designed and developed so that they are integrated into the normal, recurring business affairs of the organization. Some of the LPS activities occur daily, while others take place weekly or monthly. SPSAs, job safety analyses, loss investigations, loss prevention observations and the communication of key findings must be performed as part of the job, just as any production or maintenance task is part of the normal business.

LPS is Systematic.

LPS follows a standard set of operating guidelines day after day to systematically minimize all types of incidents previously mentioned. These guidelines include:

Guideline 1: LPS requires investigations of all incidents, regardless of the level of severity. The purpose of investigations is to examine information from each incident as it occurs and then implement recommended solutions that should eliminate or reduce the likelihood that the incident will recur. For example, all degrees of injury severity are examined because research has proven that the causes of minor injuries are nearly identical to those causes of more serious injuries. Therefore, if the organization can determine the cause of a first-aid case, it is likely to avoid a more serious injury that eventually could occur.

Guideline 2: LPS requires that (1) Safe Performance Self-Assessments (SPSAs) be performed at least daily by all persons before beginning to work; (2) that pre-operational safety standards be checked before starting certain tasks; and (3) that compliance with operational safety standards be maintained. There are two purposes of these three safety checks. The first is to identify and correct those circumstances that do not meet safe work standards. The second purpose is to establish organizational controls to ensure that substandard circumstances are corrected and do not recur.

Guideline 3: LPS requires conducting Loss Prevention Observations (LPOs) on a planned and regular basis. An LPO is a systematic tool for observing a work process and determining if the job or task is being performed according to certain safety/loss prevention standards. The general objective of the LPO is to help maximize the effectiveness of each work process.

Guideline 4: LPS requires that a Job Safety Analysis (JSA) be developed for all major work tasks or processes. JSAs help reduce hazards in the workplace by studying a task or job in order to develop the safest, most effective way to accomplish it. The JSA process involves defining the major steps in a job or task, identifying the hazards associated with each step, and then developing safe work procedures that will eliminate or minimize the hazards. Similar to an LPO, the JSA proactively identifies and eliminates the potential for losses.

Guideline 5: LPS requires full communication of loss cases, as well as results in the application and use of LPS tools. These communications include dissemination and discussion of (1) the root causes of recent losses, (2) recommendations to prevent loss recurrence, and (3) results of previously implemented investigation recommendations. The communications take place at several different times, including safety discussions at the beginning of each day, discussions of Safety Alerts or GR SH&E Performance Reports following losses, written materials in company publications, and BestNet Postings.

Guideline 6: LPS requires that internal loss prevention assessments or evaluations be conducted periodically. These assessments or evaluations are necessary to ensure that the LPS plan is being followed and that quality standards are being maintained for each of the LPS tools and activities. With regularly planned assessments, deviations from LPS can be resolved quickly.

Guideline 7: LPS requires that persons at all levels of the organization be accountable for loss prevention performance. Accountability should not be interpreted as a negative event. Under LPS, accountability refers to recognition for excellent loss prevention performance, as well as coaching and counseling for unsatisfactory performance. The intent is to change behavior in a positive fashion, not punish people.

LPS is Custom Made.

Although most loss prevention systems operate under the same fundamental principles and within a general framework, LPS is custom-made to match the unique needs of each work group. This tailoring is done to ensure that LPS reflects the specific circumstances, characteristics, resources, and hazards of each organization.

Definition

Unless otherwise specified in this handbook, the term "Contractor" or "Consultant/Contractor" represents all consultants, contractors and subcontractors performing remediation related work at any ExxonMobil Global Remediation project site.

TOOL: SAFE PERFORMANCE SELF-ASSESSMENT (SPSA)

EXPECTATION: All personnel will perform SPSAs at the beginning of the day, when changing tasks during the shift, before doing new activities for the first time, for non-routine activities, when changes in the working conditions occur (e.g., weather, traffic) and immediately following a near loss incident or loss incident.

OVERVIEW: Many processes, operations, and tasks have risks with the potential to result in injuries and other types of loss. Before these risks can be eliminated or controlled, they must be identified. The Safe Performance Self-Assessment, or SPSA, is a tool that enables personnel to probe day-to-day operational and procedural systems to identify hazards that (1) may have been overlooked in the equipment or process design; (2) may have developed after installation or after start-up; (3) may exist because of a lack of proper procedures or training; or (4) may exist due to equipment or process modifications; (5) may exist because of site specific concerns such as weather, location, traffic, etc.

This tool is based on the principle of all personnel taking responsibility for his or her own safety in all daily activities and taking the time to:

- ASSESS the risk!
- ANALYZE how to reduce the risk!
- ACT to ensure safe operations!

EXPECTED BENEFITS

This tool requires that everyone performing the SPSA view each step of his/her work activity as part of a system. In doing so, he/she assesses the potential hazards of each step in the operation, while keeping in mind the relationship between steps and the interaction among workers, equipment, materials, and the work environment. Other benefits of the SPSA include:

- Identifying hazardous conditions and potential losses;
- Providing information to enable effective controls or procedures to be established;
- Determining whether personnel have the appropriate training, knowledge and skill level to perform the job safely; and
- Discovering and eliminating unsafe work procedures, practices, positions, and actions.

SAFE PERFORMANCE SELF-ASSESSMENT PROCESS
The SPSA is a three-step hazard and risk assessment process.

The ***first step*** of the SPSA is to ***"ASSESS the risk!"*** Personnel must assess the risks associated with each job. Personnel should assess hazards and ask, "What could go wrong?" "What is the worst thing that could happen if something goes wrong?" This assessment is very similar to the second step in conducting a Job Safety Analysis. Below are some sample questions to ask:

- Are there materials on the floor that could trip a worker?
- Is lighting adequate?
- Are there any electrical hazards at the job site? Are overhead powerlines a concern to the work?
- Are there any explosive hazards associated with the job? Can any develop?
- Are tools, including hand tools, machines and equipment in need of repair?
- Is there excessive noise in the work area, hindering worker communication?
- Is fire protection equipment readily accessible? Have I been trained to use it?
- Are trucks or motorized vehicles properly equipped with brakes, overhead guards, backup signals, horns, steering gear, and identification? Are chocks available to stabilize equipment?
- Am I wearing the correct personal protective equipment?
- Is ventilation adequate, especially in confined spaces?
- Have tests been made for oxygen deficiency and toxic gases?
- Is the equipment properly locked and tagged out?
- Is any critical safety device altered in this process?
- Have all appropriate markouts been identified?
- Is traffic a concern?
- Have tanks been properly drained, cleaned and gas freed?

The ***second step*** of the SPSA process is to ***"ANALYZE how to reduce the risk!"*** The individual should evaluate each risk identified during the assessment process to ensure appropriate safeguards are in place to control the hazard. During this step, personnel should analyze the hazards and ensure that he/she has the appropriate training, knowledge, tools, and personal protective equipment to perform the job safely.

The ***third step*** is to ***"ACT to ensure safe operations!"*** Personnel should take the necessary steps to ensure the job is done safely. This step includes taking appropriate action such as locking out equipment, placing warning cones, positioning trucks, standing out of the line-of-fire, and following safe operating procedures.

SAFE PERFORMANCE SELF-ASSESSMENT CARD

All personnel are issued an SPSA card. This card is intended to be used as a personal reminder to ***think*** about the safety aspects of a job. This card also reminds us that we as individuals are responsible for, and empowered with, the appropriate authority to ensure that no work is performed or continued if it cannot be done safely.

WHEN TO CONDUCT SAFE PERFORMANCE SELF-ASSESSMENTS

Beginning of the work day: Personnel should take a few minutes before starting work each day to review the work activities to be performed during the day. This time period should be used for checking safety equipment, conducting pre-startup inspections, conducting work site inspections, reviewing on-going work activities, reviewing active work permits, and checking compliance with lockouts/tagouts.

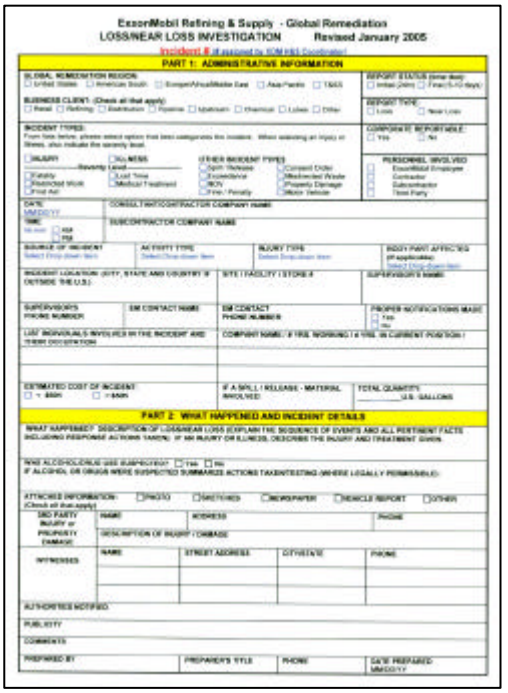
New Activities or Equipment: An SPSA should be conducted before performing any new activity during the day or any activity for the first time. This check would include stopping to ensure that a safe operating procedure is available and understood. This SPSA may identify that a more thorough and comprehensive Job Safety Analysis (JSA) technique be used to develop proper procedures.

Temporary Activities: Non-routine activities, such as (1) major construction or demolition activities, (2) changes or alterations to critical safety devices, or (3) other changes in the normal operating procedures present the potential for hazards to exist. During these non-routine activities or unusual circumstances, an SPSA should be conducted. Additionally, if during any activity the individual feels unsure that the work can be performed safely, an SPSA should be conducted.

Losses or Near Losses: A SPSA must be conducted following any near loss or loss to analyze the potential for recurrence. After a loss or near loss, personnel must STOP all activities until it is determined that it is safe to resume.

TOOL: LOSS/NEAR LOSS INVESTIGATION (L/NLI)

EXPECTATION: All loss incidents, including first aid cases, injuries, environmental releases, equipment and property damage, motor vehicle accidents, regulatory violations, operational or system inefficiencies and near losses will be reported and investigated to determine the root cause. In addition, solutions will be developed to prevent recurrence.


ExxonMobil Refining & Supply - Global Remediation
LOSS/NEAR LOSS INVESTIGATION Revised January 2005
PART 1: ADMINISTRATIVE INFORMATION
PART 2: WHAT HAPPENED AND INCIDENT DETAILS

OVERVIEW: The purpose of a Loss/Near Loss Investigation (L/NLI) is to prevent similar events from recurring. The L/NLI tool examines all incidents in exactly the same manner. It is not appropriate to separate an event that actually caused an injury from an event such as a fire, spill, equipment damage, or motor vehicle accident solely because fortunate circumstances prevented an injury from occurring. We will investigate all types of incidents, regardless of the severity level.

Safety research indicates that for every major incident there are hundreds of near losses. By identifying root causes and taking corrective actions before a serious incident occurs, similar events that could potentially result in a major injury or other type of loss can be avoided. In other words, by managing near losses and the less severe incidents, major losses can be prevented.

Safety research also indicates that 90% of incident root causes can be traced to unsafe acts while only 10% are the result of unsafe conditions. However, the focus of "traditional" safety programs has been on changing conditions. LPS provides the tools to help investigators accurately identify the root cause(s) of the incident, concentrating on work activities, while maintaining provisions to address workplace conditions.

EXPECTED BENEFITS

If personnel at all levels of the organization work within the spirit of LPS, the majority of investigations will be for near losses rather than losses. Collectively, nonetheless, both near losses and loss investigations should yield several benefits.

- **For near loss events**, proactive identification and resolution of hazards before a loss occurs.
- **For actual losses**, determination of root cause(s) and development of solution(s) to eliminate or minimize the hazard.

- **For all investigations**, personnel input regarding the effectiveness of solutions and whether or not the hazardous circumstances have been resolved satisfactorily.
- **A tool to track safety trends and tendencies** with the vast majority of data directing the organization's efforts toward levels of the pyramid below major injuries.

TYPES OF INCIDENTS INVESTIGATED
The types of incidents investigated under this system include:

Personal Injuries	Fatality/Permanent Disability Lost Time Restricted Duty Medical Treatment First Aid
Motor Vehicle Accidents	All levels of severity
Environmental Releases	All levels of severity
Equipment or Property Damage	All levels of severity
Regulatory Violations	All levels of severity
Operational or System Inefficiencies	All levels of severity
Near Losses	All levels of severity

Contractor Incidents
The same incident reporting, investigation, and analysis procedures will be followed for any of the above listed incidents that occur to contractors providing services at ExxonMobil Global Remediation project sites. Use of LPS tools extends to contractors. Our vision of "Nobody Gets Hurt" cannot be reached without the safe performance of all contractors. It is important that we identify and investigate all losses and near losses to determine the root cause(s) and develop solutions to prevent the near loss or loss from recurring.

In contractor incidents, the contractor may conduct the investigation. The investigation team will include contractor workers and a contractor supervisor. ExxonMobil personnel will also participate on the investigation team to provide knowledge of the project site and to help assure the proper use of LPS.

Near Loss Reporting
Near loss investigations are an integral part of the LPS investigation system. No personnel should feel threatened regarding honest reporting of near loss incidents. Because the root causes and contributing factors are nearly always the same for near losses and actual incidents, it would not be appropriate to investigate them differently. A near loss is simply an incident that was

avoided because of more favorable circumstances. By managing near losses, more severe incidents can be prevented. To properly determine the root cause(s) of a near loss, we will use the same analysis technique as for a loss investigation. This approach provides several benefits. First, it is a reminder that ***circumstances*** rather than effective systems prevented this near loss from resulting in an injury or loss. Second, the information needed to track the investigation process and determine the root cause is the same whether the incident is a near loss or an actual loss. Third, the person reporting the near loss is probably the one most familiar with the events leading to the incident and the person most suitable to identify the root cause(s) and make the appropriate recommendation(s) to prevent this event from recurring.

Personnel are encouraged to report all near losses without fear of reprimand or peer pressure. It is important to provide as much information about the near loss as possible. However, personnel may report near losses anonymously if they choose to do so. Remember, though, anonymous reporting hinders fact gathering and the communications of results to the people involved.

LOSS/NEAR LOSS INVESTIGATION (L/NLI) TEAM

Personnel knowledge and experience are the keys to the success of the L/NLI tool. Our organization recognizes that the people who perform the tasks where an incident occurs have the knowledge to identify the real root cause(s) and develop the solution(s) that will likely keep the incident from recurring. This is why personnel involved will conduct the initial investigation of all incidents. The team composition will vary depending on the type, location, and severity of the incident. The recommended members of the investigation team are listed in the Loss/Near Loss Investigation Responsibilities Matrix. Management may designate other personnel in addition to the members listed, as appropriate (i.e., EM GR Senior Safety Advisor, law department, engineering specialist).

Loss/Near Loss Incident Investigation Responsibility Matrix

Fatality/permanent disability	EM GR Area Manager EM GR Project Manager Consultant/Contractor Project Manager EM GR Senior Safety Advisor	EM Downstream and Chemicals SH&E Manager EM GR Remediation Manager EM GR Area Manager EM Legal Dept. EM GR Senior Safety Advisor
Lost time	EM GR Project Manager Consultant/Contractor Project Manager	EM GR Remediation Manager EM GR Area Manager EM GR Senior Safety Advisor
Restricted activity	EM GR Project Manager Consultant/Contractor Project Manager	EM GR Remediation Manager EM GR Area Manager EM GR Senior Safety Advisor
Medical Treatment	EM GR Project Manager Consultant/Contractor Project Manager	EM GR Remediation Manager EM GR Area Manager EM GR Senior Safety Advisor
First aid	EM GR Project Manager Consultant/Contractor Project Manager	EM GR Area Manager EM GR Senior Safety Advisor
All levels of severity	EM GR Project Manager Consultant/Contractor Project Manager	EM GR Remediation Manager EM GR Area Manager EM GR Senior Safety Advisor
All levels of severity	EM GR Project Manager Consultant/Contractor Project Manager	EM GR Remediation Manager EM GR Area Manager EM GR Senior Safety Advisor
All levels of severity	EM GR Project Manager Consultant/Contractor Project Manager	EM GR Remediation Manager EM GR Area Manager EM GR Senior Safety Advisor
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	EM GR Project Manager Consultant/Contractor Project Manager	EM GR Remediation Manager EM GR Area Manager EM GR Senior Safety Advisor

Note 1: Positions listed in matrix are minimum persons to participate in investigation process.
Special cases may require participation of other groups such as training, engineering, purchasing, etc. This determination will be made on a case-by-case basis.
Note 2: Initial investigation should be **initiated** within 24 hours of the incident occurrence.
Note 3: Normally a minimum of three employees should participate in an investigation; this number may be less depending on the size of the project and the total number of personnel.

Loss/Near Loss Incident Investigation (L/NLI) Process Flow Chart

	Injuries, equipment/property damage, motor vehicle accidents, environmental releases, regulatory violations, operational or system inefficiencies or near losses
	Involved personnel notifies supervisor of incident & stops operation until it is determined safe to resume. Supervisor notifies appropriate agencies & EM Project Manager to begin communication of incident. • EM GR Project Manager provides initial incident information via electronic mail to EM GR Area Manager and the EM GR Senior Safety Advisor with copy to appropriate management personnel. • EM GR Senior Safety Advisor provides information to appropriate personnel & enters incident into Loss Prevention Information System (LPIS).
	Involved personnel & First-Line Supervisor (Consultant/Contractor PM) conduct initial risk assessment of incident & determine if it is safe to resume operations.
	First-Line Supervisor (Consultant/Contractor PM) initiates investigation process. • Notifies appropriate team members. • Team begins initial fact finding.
	Investigation team reviews facts of incident & prepares loss investigation report. • Identifies root causes. • Develops solutions to prevent incident reoccurrence.
	EM GR Project Manager reviews L/NLI report for quality and coordinates responsibilities & due dates. • Reviews for accuracy, identification of root causes, & development of sound solutions. • Approves or recycles to team with specific advice regarding quality problems. • Contacts persons responsible for overseeing or implementing solution to obtain an agreed due date.
	EM GR Area Manager reviews L/NLI report for quality & continues review process, as appropriate. • Reviews according to Quality Review guidelines, approves, or returns to EM GR Project Manager with recommendations. • Reports reviewed and EM GR Remediation Manager contacted with advice (if necessary) per LPS Responsibility Summary: Loss Investigations.
	EM GR Senior Safety Advisor distributes summary of incident & solutions to field via Safety Alert or GR SH&E Performance Report. • All First-Line Supervisors (Consultant PM) and EM GR Project Managers discuss L/NLI report summary & solutions with appropriate personnel. • First-Line Supervisors coordinate implementation of solutions, as appropriate, & discuss changes in detail with appropriate personnel.
	• EM GR Remediation Manager performs desktop review of LI reports (according to the Loss/Near Loss Incident Investigation Responsibility Matrix), monitoring for quality & compliance with L/NLI reporting system. • EM GR Remediation Manager provides feedback to direct reports regarding findings.
	• First-Line Supervisors (Consultant/Contractor PM) and EM GR Project Managers verify & validate 100% of solutions in respective area of responsibility. • EM GR Area Manager field verifies & validates randomly selected L/NLI solutions (according to the Loss/Near Loss Incident Investigation Responsibility Matrix).

LOSS/NEAR LOSS INVESTIGATION (L/NLI) PROCESS

Immediately following an incident, all appropriate operations will be stopped until it is determined that it is safe to resume! This assessment may be as simple as a person performing a SPSA.

When Should the Investigation Be Done?

The severity or *potential* severity of the incident will determine when the investigation should be initiated.

If a person sustains a major injury, if the injury is minor but potentially could have been much worse, or if the injury cannot be explained and could occur again, the **operation must be stopped** and the investigation should be initiated immediately.

It is important to prevent an incident from recurring under the same circumstances. All Loss/Near Loss Investigations should be initiated and an initial report submitted within 24 hours and completed according to the Loss/Near Loss Investigation Responsibilities matrix (Final LI in 5 days; Final NLI in 10 days). Losses and near losses give the signal that something in the system is wrong; listen to these signals!

Scheduling an Investigation

The supervisor is responsible for initiating the investigation process. It is important that all incidents be investigated as soon as possible. ***It is critical that the L/NLI give priority to the health and safety of affected personnel.*** After the area is secure, injured people have received appropriate medical attention, and appropriate notifications have been made, then efforts can concentrate on initiating the L/NLI.

The longer the delay in examining the incident scene and interviewing witnesses, the greater the possibility of obtaining erroneous or incomplete information. Additionally, if the investigation process is delayed, the message sent to personnel is "the injury was not important to the organization." Intended or not, this message obviously is not what we want to convey.

Investigation Reporting

All L/NLI reporting should utilize the Global Remediation Loss/Near Loss Investigation (L/NLI) Form. The purpose of the L/NLI Form is fourfold.

- State clearly what happened.
- Conclude why the incident occurred by identifying causal and contributing factors.
- Determine root cause(s).
- Develop solution(s) to prevent similar events from occurring in the future.

A typical L/NLI Form is shown on the following pages as a reference.

Fact Gathering

It is essential that proper information and data gathering take place at all times during the investigation. The accuracy and thoroughness with which the investigators obtain and record

information and data will largely determine the quality of the final report and the effectiveness of corrective actions.

For minor incidents, the information may be gathered by the supervisor or other personnel immediately following the incident. Based on the complexity of the situation, this information may be all that is necessary to enable the investigation team to analyze the incident, to determine the root cause and to develop solutions. More complex situations may require the investigation team to revisit the incident site or re-interview key witnesses to obtain answers to questions that may arise during the investigation process.

Photographs or videotapes of the scene and damaged equipment should be taken from all sides and from various distances. Sketches or drawings could also be pertinent to the investigation. This is especially important when the investigation team is not able to visit the incident scene.

Description of Incident
It is critical to accurately describe what happened. Do not speculate on causes, since all facts have not been gathered and analyzed at this point. Your description should be clear and concise. For example:

"A spill of 50 gallons of diesel fuel occurred when mechanics opened the flange on transfer line Number 2 from Tank 101. No injuries occurred. Spill contained in the area drainage system. Line was previously isolated and drained by unit operator prior to issuing work permit. Meeting scheduled with operator and mechanics to investigate source of spill and determine root causes."

Conclusion: Determining the Causal and Contributing Factors
The conclusion section describes WHY the loss or near loss occurred. Avoid repeating what happened (Description of Incident) and focus instead on causal and contributing factors. It is important to investigate beyond mere symptoms to identify fundamental causes and contributing factors which led to the event. Only then can accurate root causes be identified.

Determining the Root Cause(s) of the Causal and Contributing Factors
The Root Cause Analysis Flow Chart (RCAF, see below) is utilized for all investigations. This chart leads investigators through a range of possibilities for factors that cause or contribute to incidents. This keeps investigators focused on potential root causes, steering them away from symptoms.

Any incident may have one or more root causes. Those that relate to the person involved in the incident, his/her peers, or the supervisor are referred to as "personal factors". Causes that pertain to the system or environment within which the incident occurred are referred to as "job factors". The investigation team should use the Root Cause Analysis Flow Chart (RCAF) to identify the real root cause(s).

ExxonMobil Refining & Supply - Global Remediation
LOSS/NEAR LOSS INVESTIGATION Revised January 2005

Incident # (# assigned by XOM H&S Coordinator)

PART 1: ADMINISTRATIVE INFORMATION

GLOBAL REMEDIATION REGION:
☐ United States ☐ Americas South ☐ Europe/Africa/Middle East ☐ Asia Pacific ☐ T&SS

BUSINESS CLIENT: (Check all that apply)
☐ Retail ☐ Refining ☐ Distribution ☐ Pipeline ☐ Upstream ☐ Chemical ☐ Lubes ☐ Other

REPORT STATUS (time due):
☐ Initial (24hr) ☐ Final (5-10 days)

REPORT TYPE:
☐ Loss ☐ Near Loss

INCIDENT TYPES:
From lists below, please select option that best categorizes the incident. When selecting an Injury or Illness, also indicate the severity level.

☐ INJURY ☐ ILLNESS

Severity Level
☐ Fatality ☐ Lost Time
☐ Restricted Work ☐ Medical Treatment
☐ First Aid

OTHER INCIDENT TYPES
☐ Spill / Release ☐ Consent Order
☐ Exceedance ☐ Misdirected Waste
☐ NOV ☐ Property Damage
☐ Fine / Penalty ☐ Motor Vehicle

CORPORATE REPORTABLE:
☐ Yes ☐ No

PERSONNEL INVOLVED
☐ ExxonMobil Employee
☐ Contractor
☐ Subcontractor
☐ Third Party

DATE MM/DD/YY	CONSULTANT/CONTRACTOR COMPANY NAME
TIME hh:mm ☐ AM ☐ PM	SUBCONTRACTOR COMPANY NAME

SOURCE OF INCIDENT	ACTIVITY TYPE	INJURY TYPE	BODY PART AFFECTED (If applicable)
Select Drop-down Item	Select Drop-down Item	Select Drop-down Item	Select Drop-down Item

INCIDENT LOCATION (CITY, STATE AND COUNTRY IF OUTSIDE THE U.S.)	SITE / FACILITY / STORE #	SUPERVISOR'S NAME

SUPERVISOR'S PHONE NUMBER	EM CONTACT NAME	EM CONTACT PHONE NUMBER	PROPER NOTIFICATIONS MADE
			☐ Yes ☐ No

LIST INDIVIDUALS INVOLVED IN THE INCIDENT AND THEIR OCCUPATION	COMPANY NAME / # YRS. WORKING / # YRS. IN CURRENT POSITION /

ESTIMATED COST OF INCIDENT:	IF A SPILL / RELEASE - MATERIAL INVOLVED:	TOTAL QUANTITY:
☐ < $50K ☐ > $50K		_____U.S. GALLONS

PART 2: WHAT HAPPENED AND INCIDENT DETAILS

WHAT HAPPENED? DESCRIPTION OF LOSS/NEAR LOSS (EXPLAIN THE SEQUENCE OF EVENTS AND ALL PERTINENT FACTS INCLUDING RESPONSE ACTIONS TAKEN). IF AN INJURY OR ILLNESS, DESCRIBE THE INJURY AND TREATMENT GIVEN.

WAS ALCOHOL/DRUG USE SUSPECTED? ☐ Yes ☐ No
IF ALCOHOL OR DRUGS WERE SUSPECTED SUMMARIZE ACTIONS TAKEN/TESTING (WHERE LEGALLY PERMISSIBLE):

ATTACHED INFORMATION: (Check all that apply) ☐PHOTO ☐SKETCHES ☐NEWSPAPER ☐VEHICLE REPORT ☐OTHER

3RD PARTY INJURY or PROPERTY DAMAGE	NAME	ADDRESS	PHONE
	DESCRIPTION OF INJURY / DAMAGE		

WITNESSES	NAME	STREET ADDRESS	CITY/STATE	PHONE

AUTHORITIES NOTIFIED

PUBLICITY

COMMENTS

PREPARED BY	PREPARER'S TITLE	PHONE	DATE PREPARED MM/DD/YY

PART 3: INVESTIGATION TEAM ANALYSIS

CONCLUSION: WHY IT HAPPENDED (LIST & NUMBER CAUSAL FACTORS AND CORRESPONDING ROOT CAUSES)

ROOT CAUSE(S) AND SOLUTION(S): HOW TO PREVENT INCIDENT FROM RECURRING

CAUSAL FACTOR #	ROOT CAUSE #	OIMS SYSTEM #	SOLUTION(S) [Must Match Root Cause]	PERSON RESPONSIBLE	AGREED DUE DATE	COMPLETION DATE

INVESTIGATION TEAM:

PRINT NAME	JOB POSITION	DATE	SIGNATURE

PART 4: STEWARDSHIP ACTIONS

QUALITY REVIEW QUESTIONS

Were the root causes identified? ☐ Yes If no, explain:

Do root cause and recommendation "match?" ☐ Yes If no, explain:

Is the recommendation feasible and maintainable? ☐ Yes If no, explain:

Is this a repeat incident? ☐ No If yes, explain:

QUALITY REVIEWED BY: (See questions above)

PRINT NAME	JOB POSITION	DATE	SIGNATURE

RESULTS OF VERIFICATION AND VALIDATION

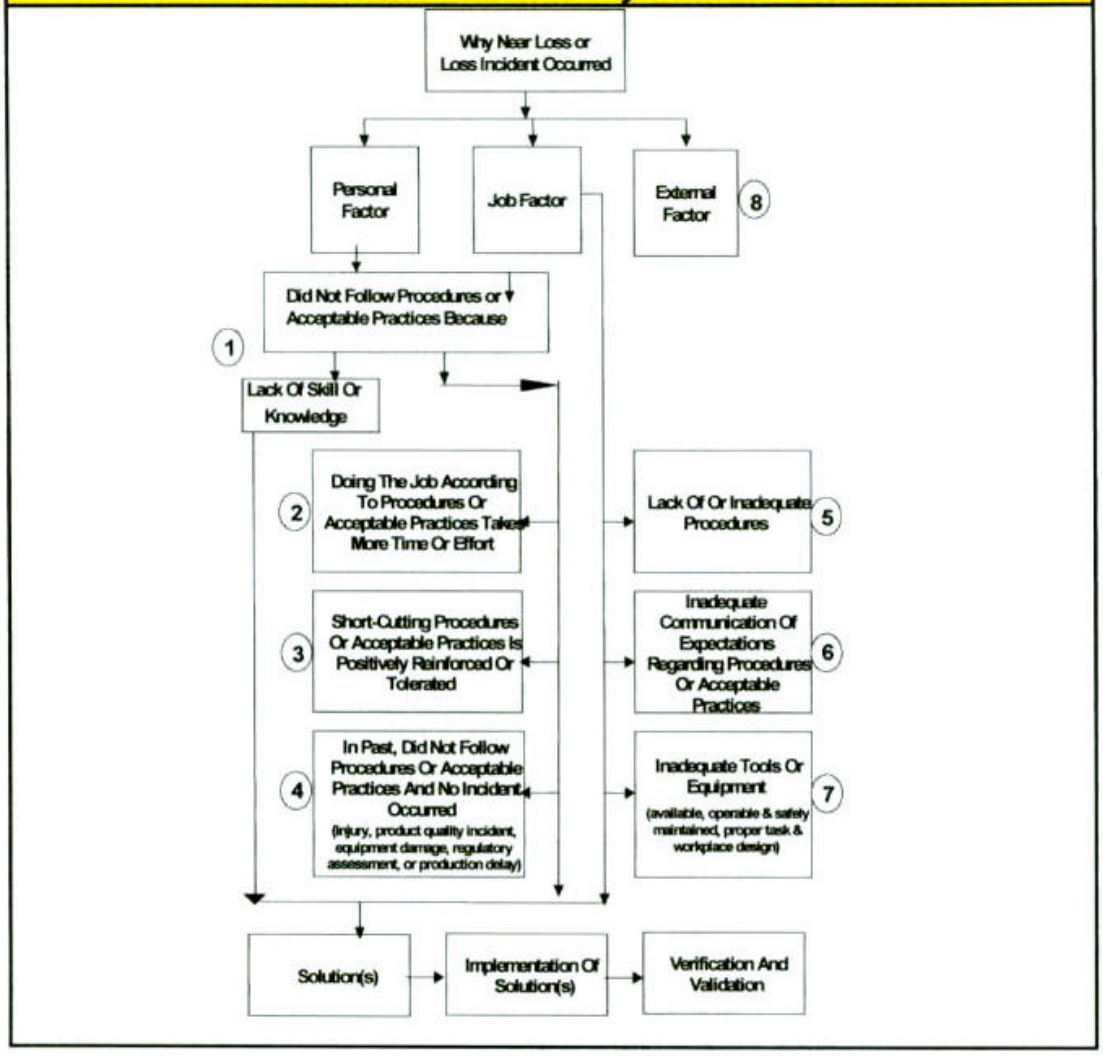
Verification: Were the solutions implemented? Explain:

Validation: Were the solutions effective in addressing the root causes? Explain:

VERIFICATION AND VALIDATION BY: (See questions above)

PRINT NAME	JOB POSITION	DATE	SIGNATURE

Part 5: Root Cause Analysis Flowchart



Development of Solution(s)
Each root cause must be addressed by a solution, with a responsible person identified and notified for solution implementation. The investigation team cannot identify a root cause and then make no recommendation to address it. Furthermore, there must be a “match” between the root cause and the solution.

There are a few guidelines to follow when deciding what solution to recommend to prevent an incident from recurring. While there are exceptions, the investigation team generally should adhere to these guidelines.

- Solutions should be practical. The most effective solutions to most injury hazards, as well as other types of losses, address basic worker activities, developing and maintaining standards for job procedures, providing and using the right tools, etc.

- Solutions should be specific and verifiable. For example, "Always work safely" is neither specific nor verifiable. It should be easy for people not involved with the incident to tell whether the solution was implemented or not.

- The most effective solutions are those that focus on personal or job factors over which the worker or supervisor has control.

- Solutions need not be expensive. A million-dollar solution is not needed for a one hundred-dollar hazard. Again, the majority of effective solutions are relatively inexpensive and implemented with resources within one's own organization.

- The investigating team should consider whether the organization could live with the solution indefinitely before final commitment is made. This commitment is not merely for the week or month. It must be sustainable. If solutions are made that even border being close to unsustainable, the solutions must be re-evaluated. Otherwise, the road is being paved for “loss in credibility".

REVIEW PROCESS AND VERIFICATION / VALIDATION OF SOLUTIONS
Generally, the roles and responsibilities of the investigation and review process are listed in the "LPS Responsibility Summary: Loss/Near Loss Investigation (L/NLI)" on the next page. Review and follow-up of L/NLIs is important to ensure the effectiveness of the process.

Quality reviews of L/NLIs begin with the immediate Project Manager and continue up through the executive management levels. At each level there is an opportunity to provide positive feedback or constructive advice for the continued improvement of LPS tool effectiveness.

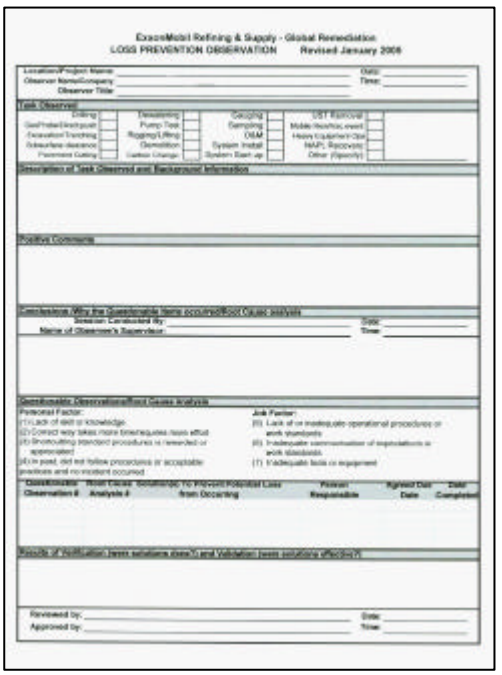
Management follow-up of L/NLIs also includes verification that the solutions have been implemented and validation that the solutions have adequately addressed the root causes of the incident. Again, each of these provides opportunities for positive management feedback to those involved in the investigation.

LPS Responsibility Summary: Loss) / Near Loss Investigation (L/NLI) System

	Personnel (e.g., Consultant Field Technicians, Subcontractors and ExxonMobil Employees)	Consultant/Contractor Project Manager	ExxonMobil GR Project Manager	ExxonMobil GR Senior Safety Advisor	ExxonMobil GR Area Manager	ExxonMobil GR Manager
	Notify supervisor & stop operation until it is determined safe to resume operations.	Transmit initial notification of incident to ExxonMobil GR Project Manager; evaluate risk of incident reoccurrence.	Transmit initial notification of incident to ExxonMobil GR Area Manager. Follow up on initial notification.	Receive initial notification, confirm classification & forward as required.	Receive Initial Notification.	Receive Initial Notification.
	Participate as team member in investigation, help to identify root causes & develop solutions.	Initiate investigation process; select personnel for investigation team; participate/lead investigation team.	Participate per Loss/Near Loss Investigation Responsibility Matrix.	Participate per Loss/Near Loss Investigation Responsibility Matrix.	Participate per Loss/Near Loss Investigation Responsibility Matrix.	Participate per Loss/Near Loss Investigation Responsibility Matrix.
	Participate on investigation team by completing the Loss /Near Loss Investigation Form (L/NLI Form).	Review all L/NLI reports for accuracy & approve/ modify solution; forward for review and approval. Submit initial L/NLI report within 24 hours; final LI report in 5 days; final NLI report in 10 days.	Review L/NLI reports for quality and provide feedback. Submit initial L/NLI report within 24 hours; final LI report in 5 days; final NLI report in 10 days.	Conduct Quality Review and provide feedback on an ongoing basis.	Review 2 L/NLI Reports per month & steward L/NLI process for quality, timeliness, participation and provide feedback. Submit L/NLI reports up-line as directed.	Review 1 L/NLI Report per month & steward L/NLI process for quality, timeliness, participation, and provide feedback.
	Review L/NLI communications and Safety Alerts & GR SH&E Performance Reports. .	Communicate L/NLI information to personnel, including Safety Alerts & GR SH&E Performance Reports, as appropriate.	Review all Safety Alerts & GR SH&E Performance Reports. Ensure L/NLI information is communicated to Consultant/Contractor.	Develop and distribute all Safety Alerts & GR SH&E Performance Reports.	Review all Safety Alerts and GR SH&E Performance Reports. Ensure L/NLI information is communicated.	Steward Safety Alert and GR SH&E Performance Report process; review Safety Alerts and GR SH&E Performance Reports as appropriate.
	Implement as directed. Notify supervisor of effectiveness.	Manage implementation; field verify and validate (V&V) all solutions. Conduct V&V on at least 1 L/NLI per month and provide feedback.	Field verify and validate L/NLI on an ongoing basis; feedback to Consultant/Contractor Project Manager on verification and validation findings.	Issue Monthly Summary Report & Ad-hoc Reports, as needed.	Field-verify and validate 2 L/NLI per year; feedback to direct reports on V&V findings.	Field-verify and validate 1 L/NLI per year; feedback to direct reports on V&V findings.

TOOL: LOSS PREVENTION OBSERVATION (LPO)

EXPECTATION: Loss Prevention Observations will be conducted in a planned fashion. Observations will be done throughout the day, at different times, and, for all remediation activities.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OVERVIEW: It is imperative to establish a habit of identifying and correcting potential hazards and other incidents by maintaining a constructive line of communication among personnel and by intervening to correct unsafe acts or conditions. This type of safety culture establishes an active caring climate that naturally results in safer, more conscientious behavior. It is important that all personnel send the message to their co-workers that safety is important to them. Standing by idly while someone is performing a job incorrectly or walking by an unsafe condition sends the message of not caring.

The vehicle to drive this communication and safety intervention is the Loss Prevention Observation, or LPO. ***The focus of the observation is on the work task being completed not the individual.*** Personnel will observe co-workers performing normal job activities and the observers will document all questionable activities or conditions that deviate from standard procedures. If the observer notices an activity or condition that could lead to an incident, he/she will stop the work process and resolve the circumstances immediately (enlisting the help of the supervisor if needed). All deviations from standard procedures must be documented for subsequent field follow-ups and to proactively share potential loss circumstances with other locations. ***Simply telling someone to be safe does not get the job done.***

EXPECTED BENEFITS

The observer and the supervisor will share with the observee those significantly important tasks that were observed as done correctly, as well as the potential hazards or concerns that were identified. This discussion provides an opportunity for the following achievements:

- Immediate positive reinforcement of the tasks that were observed as performed exactly according to standards. Positive reinforcement dramatically increases the chances that correct behaviors will be repeated and become habits.

- Prompt feedback and correction of questionable activities or conditions. The constructive criticism reinforces to the personnel that someone cares that the job is performed safely.

- A method to solicit personnel recommendations to improve the safety of the job being performed (e.g., availability of tools, training needs, procedures). This opportunity builds personnel involvement into the whole observation process.

- A tool to track and identify both positive and negative safety trends. Observation data enable the organization to focus proactively (bottom of the pyramid) and address those key areas of the business where greater risks exist.

LOSS PREVENTION OBSERVATION PROCESS

Identification of Target Areas

Work tasks that have the greatest potential for loss reduction should be targeted. Selection of target areas should include a review of past injury and loss cases, as well as consideration of the hazard levels associated with the occupations or tasks. It is important to focus attention on activities where higher risks exist. This strategy does not preclude performing observations on lower risk activities but merely concentrates attention and effort where we can make the most significant improvement.

Selection of Observers

Management is responsible for selecting personnel to conduct observations. Each company will have personnel designated to conduct observations.

The diligence of the observer is a key to the observation process. Personnel familiar with the task being performed should be the ***primary*** persons conducting observations. These observers should have complete credibility with both peers and management. In addition, they should have the detailed knowledge to understand the components of the occupation or task being observed.

Additional observations will be made periodically by supervisors, managers, and other personnel. Although these people may not have the same knowledge of the task being observed, their own expertise and experience may help them to recognize potential hazards not seen by personnel performing the work. This process also provides opportunities for sharing "best practices" throughout an organization.

It is important that all levels of management be involved in the observation process during their visits to the field to lend support to the observer and supervisor. The role of observer will also be rotated among company personnel so that over a period of time everyone has the opportunity to be an observer.

Training Observers

Personnel must be trained and approved to conduct Loss Prevention Observations. Observers will perform their duties for a period of approximately three to four months. Then, additional observers will be trained and the process continues. Trainers at the local levels will coordinate and conduct training for all observers. This training is required to ensure that persons conducting the observations adhere to basic observation principles. Two of the more important principles are:

- The observer must note those work practices that are correct and consistent with standard job procedures and JSAs; then, the observee supervisor must provide positive reinforcement for those same work practices.

- The observer must identify potential deviations from standard job procedures and JSAs that could possibly result in an incident and assist in the development of sound solutions to prevent the root cause(s) from recurring.

Scheduling
Local management is responsible for scheduling observations. Management should randomly schedule the observations to ensure they reflect a representative sample of the tasks being performed and work conditions (summer/winter, day/night, start/middle/end of day, etc). Additional emphasis should be placed on those areas having the greatest potential for risk reduction.

Shortly before the observation is to occur, the observer should confirm the timing of the observation and feedback discussion with the area supervisor and with the person who will be performing the task.

Preparation
Before the observation, the observer should review standard job procedures and JSAs related to the scheduled task. He/She should also review any recent loss or near loss reports involving the task being observed and any LPOs recently conducted on the same task. This review process does not require much time and can be an excellent refresher regarding the details of the job standards. Finally, the observer should talk with the observee's supervisor to schedule the feedback discussion session as soon as possible after the observation.

The observer will use one of the observation forms to guide him/her through the observation. Much of the top portion of Side 1 of the LPO form should be completed by the observer before the observation of the task begins. Just prior to the observation, the observer should confirm with the observee that he/she will be watching the task being performed for about 20 to 30 minutes. Then, the observer should place himself/herself in a location where he/she can observe the process without interfering with the work activity.

Observation
The observer should document on the observation form the task being observed and note the correct and questionable activities or procedures observed during the process. Using Side 2 of the LPO form, the observer should mark either as correct or questionable <u>each time</u> a specific task is performed. LPO observers should compare worker activities and workplace conditions with established standard job procedures and JSAs. It is essential to add comments related to both correct and questionable actions to clearly document what was observed because it is easy to forget the details of these observation items later during the discussion session.

It is just as important to document the correct activities as it is to document questionable ones.

Frequency and Duration of Observation
The typical length of time to observe a work process should be 20 to 30 minutes. For longer activities, the observer should conduct observations in the target areas at various times throughout the work process. This strategy ensures that the observation process is representative of the entire work activity.

Loss Prevention Observations should be conducted frequently. The frequency with which observations will be conducted depends on the risk of the job being performed, ongoing activities (i.e., a large excavation project that lasts for days/weeks) and loss/near loss experience. It is suggested that companies establish a target goal for observations that they can manage effectively. It is essential that we do not sacrifice quality to obtain quantity. It is better to conduct a few observations correctly, identify the root cause(s), reach consensus on the solutions and implement them, than it is to conduct several ineffective observations. It is important, however, to conduct enough high quality LPOs to achieve a representative sampling of the current work activities and to maintain regular involvement of all personnel in the observation process.

Discussion of Results/Observation Feedback Session
Upon completion of an observation, the observee supervisor will meet with the observer and observee to discuss the observation results. This discussion should take place within 24 hours of the observation. To be effective, the feedback discussion must be completed within this time period.

There are five main points that supervisors should follow for proper conduct of the observation feedback discussion session. Strict adherence to these points will set the stage for a positive, productive discussion. The points should be covered in the following order:
(1) Review the purpose for conducting an observation,
(2) Provide positive reinforcement for significantly important safe activities that were performed correctly,
(3) Communicate the percentage of observed tasks done safely,
(4) Constructively review activities/conditions observed as possibly being contrary to standard job procedures and/or JSAs, identify root causes of deviations from acceptable standards and agree upon solutions to prevent deviations from recurring, and
(5) Summarize the entire observation process at the conclusion of the feedback discussion session by repeating items 1-4 above and restating the solutions to eliminate the questionable activities or conditions.

Before beginning the feedback session, the Supervisor should review the "Supervisor's Feedback Tool" to reinforce the correct way to facilitate an observation feedback session.

The supervisor will emphasize at the start of each feedback session "WHY" we conduct Loss Prevention Observations. Continued communication of the observation purpose is very important to stay focused on the goal of creating a loss-free workplace. Each feedback session should begin with "The reason we conduct observations is..."

Then, the supervisor will review the observation results with the observee and observer, emphasizing the positive points noted during the observation process. Positive feedback must include items that are truly important to the safe performance of the job. Aim for the "4 for 1" reinforcement rule, i. e., try to point out 4 positive points for every "questionable" item. Next, the supervisor should communicate the percentage of tasks observed as being done safely, as calculated at the bottom of Side 2 of the LPO form. To be useful, this feedback must be truly genuine and sincere.

Next, the supervisor should point out those items that were observed as being “questionable” and perhaps against accepted work standards. Any constructive criticism of undesirable work performance should:
(1) Identify precisely the deviation from a work standard that occurred,
(2) Explain why it was not correct, and
(3) Discuss how to keep it from recurring.

The supervisor should include the observee in the analysis of any undesirable activities or conditions. Personnel input regarding root causes and solutions is vital for the success of the observation.

The feedback discussion session should conclude with an overall summary of the items reviewed, including any proposed solutions. Again, the advice and recommendations of all employees and contractors are important to truly improve the safety of the workplace.

Determination of Root Cause
During the feedback session, the observer, supervisor, and observee will mutually identify the root cause(s) of the questionable items. The Root Cause Analysis Flow Chart should be used to pinpoint why the deviation from safe standards occurred. This process is the same as determining root causes for Loss or Near Loss Investigations.

The root causes for observed deviations from standards could be any one or a combination of the following:

Personal Factors

- Lack of skill or knowledge.
- Correct way takes more time and/or requires more effort.
- Short-cutting standard procedures is positively reinforced or tolerated.
- In the past, no incident occurred when procedures were not followed.

Job Factors

- Lack of or inadequate operational procedures or work standards.
- Inadequate communication of expectations regarding procedures or standards.
- Inadequate tools or equipment.

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LOSS PREVENTION OBSERVATION Revised January 2005

Location/Project Name: _____ **Date:** _____
Observer Name/Company: _____ **Time:** _____
Observer Title: _____

Task Observed

Drilling:		Dewatering:		Gauging:		UST Removal:	
GeoProbe/Direct push:		Pump Test:		Sampling:		Mobile Rem/Vac event:	
Excavation/Trenching:		Rigging/Lifting:		O&M:		Heavy Equipment Ops:	
Subsurface clearance:		Demolition:		System Install:		NAPL Recovery:	
Pavement Cutting:		Carbon Change:		System Start up:		Other (Specify):	

Description of Task Observed and Background Information

Positive Comments

Conclusions /Why the Questionable Items occurred/Root Cause analysis

Session Conducted By: _____ **Date:** _____
Name of Observee's Supervisor: _____ **Time:** _____

Questionable Observations/Root Cause Analysis

Personal Factor:
(1) Lack of skill or knowledge
(2) Correct way takes more time/requires more effort
(3) Shortcutting standard procedures is rewarded or appreciated
(4) In past, did not follow procedures or acceptable practices and no incident occurred

Job Factor:
(5) Lack of or inadequate operational procedures or work standards
(6) Inadequate communication of expectations or work standards
(7) Inadequate tools or equipment

Questionable Observation #	Root Cause Analysis #	Solution(s) To Prevent Potential Loss from Occurring	Person Responsible	Agreed Due Date	Date Completed

Results of Verification (were solutions done?) and Validation (were solutions effective?)

Reviewed by: _____ **Date:** _____
Approved by: _____ **Time:** _____

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PERSONAL PROTECTIVE EQUIPMENT	CORRECT	???	COMMENTS
1. Hearing Protection (e.g. Ear Plugs)			
2. Head Protection (e.g.Hard Hat)			
3. Eye Protection (e.g.Safety Glasses)			
4. Hand Protection (e.g.Gloves)			
5. Foot Protection (e.g.Safety Shoes)			
6. Respiratory Protection			
7. Fall Protection (e.g. harness)			
8. Reflective Vest/High Visibility Clothing			
9. Other (Specify)			
BODY USE AND POSITIONING	**CORRECT**	**???**	**COMMENTS**
10. Correct Body Use and Positioning When Lifting/Pushing/Pulling			
11. Pinching Points/Moving Equipment - Hands/Body Clear			
12. Mounts/Dismounts Using 3-Point Stance			
13. Other (Specify)			
WORK ENVIRONMENT	**CORRECT**	**???**	**COMMENTS**
14. Work/Walk Surface Free of Obstructions (e.g. tripping hazards)			
15. Housekeeping/Storage			
16. Defined and Secured (e.g. warning devices, barricades, cones, flags)			
17. Safety Shut Down Devices			
18. Proper Storage/Disposal of Sample & Waste materials			
19. Other (Specify)			
OPERATING PROCEDURES	**CORRECT**	**???**	**COMMENTS**
20. SPSA Performed/Job Planning			
21. Work Permit/Authorization to Work (Hot, Cold, LOTO, Confined Space)			
22. JSA Reviewed & Followed			
23. Checks Area for Hazards			
24. Interfaces with Other Functions (awareness with other personnel on site)			
25. Subsurface Structures Identified			
26. Other (Specify)			
TOOLS/EQUIPMENT	**CORRECT**	**???**	**COMMENTS**
27. Hand tool Selection, Condition & Use			
28. Power tool Selection, Condition & Use			
29. Equipment (inc heavy) Sel/Cond/Use			
30. Other (Specify)			
Total #	0	0	
% Correct **[(Total Correct/(Total Correct + Total Questionable))*100]**	#DIV/0!		

"Nobody Gets Hurt"

EXXONMOBIL REFINING & SUPPLY GLOBAL REMEDIATION

LOSS PREVENTION OBSERVATION

LIGHT VEHICLE (CAR/TRUCK) REVISED JANUARY 2005

LOCATION/PROJECT NAME			CONTROL #
OBSERVER NAME	OBSERVER TITLE	OBSERVATION DATE	OBSERVATION TIME
OBSERVEE: DATA ☐ EMPLOYEE ☐ CONTRACTOR	CONTRACTOR COMPANY	REGULAR JOB? ☐ YES ☐ NO	REGULAR SHIFT? ☐ YES ☐ NO / TASK OBSERVED

WEATHER / ROAD CONDITIONS (Check ONE That Best Applies)

☐ PAVED ROAD WET	☐ DOWNHILL	☐ FOGGY / HAZY	☐ OTHER
☐ PAVED ROAD DRY	☐ NIGHT TIME	☐ SNOW COVERED	
☐ UPHILL	☐ DAYLIGHT	☐ ICY	

DESCRIPTION OF TASK & BACKGROUND INFORMATION

POSITIVE COMMENTS

FEEDBACK SESSION CONDUCTED BY:	DATE OF FEEDBACK SESSION	TIME OF FEEDBACK SESSION	NAME OF OBSERVEE'S SUPERVISOR

CONCLUSIONS (Why Questionable Items Occurred)

QUESTIONABLE OBSERVATIONS/ROOT CAUSE ANALYSIS

PERSONAL FACTOR:

(1) ☐ LACK OF SKILL OR KNOWLEDEGE

(2) ☐ CORRECT WAY TAKES MORE TIME AND/OR REQUIRES MORE EFFORT

(3) ☐ SHORTCUTTING STANDARD PROCEDURES IS POSITTVELY REINFORCED OR TOLERATED

(4) ☐ IN PAST DID NOT FOLLOW PROCEDURES OR ACCEPTABLE PRACTICES AND NO INCIDENT OCCURRED

JOB FACTOR:

(5) ☐ LACK OF / INADEQUATE OPERATIONAL PROCEDURES OR WORK STANDARDS

(6) ☐ INADEQUATE COMMUNICATION OF EXPECTATIONS REGARDING PROCEDURES OR STANDARDS

(7) ☐ INADEQUATE TOOLS OR EQUIPMENT

QUES ITEM #	RCA #	SOLUTIONS TO PREVENT POTENTIAL LOSS FROM OCCURRING	PERSON RESPONSIBLE	AGREED DUE DATE	DATE COMPLETE	V&V DATE

RESULTS OF VERIFICATION AND VALIDATION	

REVIEWED BY	REVIEWER TITLE	DATE:	COMMENTS

LOSS PREVENTION OBSERVATION

LIGHT VEHICLE (CAR/TRUCK) REVISED JANUARY 2005

GENERAL *Vehicle and Safety Check*	CORRECT	???	COMMENTS
1- Wipers & washer/clean windows/mirrors			
2- Tires for inflation and tread			
3- Registration/insurance/last maintenance report			
4- Horn/lights operation/instrument panel			
5- Body damage/overall vehicle appearance			
6- Under-vehicle check for leaks/obstructions			
7- Secure loose items			
8- Adjust seat/head rest/mirrors			
9- Seat belts/shoulder harness (driver/passengers)			
If Long Journey	CORRECT	???	COMMENTS
10- Check fluid levels			
11- Fire extinguisher/triangles/first aid kit/jack/spare			
DRIVING *Attitude*	CORRECT	???	COMMENTS
12- Attentive driving			
13- Yields right-of-way and allows other vehicles to merge, change lanes, turn, etc.			
14- Respects pedestrians, cyclists, other drivers			
15- Is courteous/tolerant of others' poor driving			
General Driving Habits	CORRECT	???	COMMENTS
16- Two hands on wheel at 9 and 3 position			
17- Skill in handling distractions (cellular, beeper)			
18- Adjusts to traffic conditions			
19- Uses turn signals			
20- Following distance is appropriate (2-second rule)			
21- Appropriate speed for driving conditions			
22- Before backing up, looks behind vehicle/checks for traffic, pedestrians, parked vehicles			
Scanning	CORRECT	???	COMMENTS
23- Scans the road ahead (2-3 blocks-1/4 mile) and anticipates actions of others to avoid sudden swerves, stops, lane changes, tight merges, etc.			
24- Checks mirrors every 5-8 seconds and stays out of other drivers' blind spots			
25- Checks for hazards on the road, e.g., animals, debris, road conditions			
26- Reads and obeys traffic signals			
Slowing/Stopping	CORRECT	???	COMMENTS
27- Makes complete stop at signals, at a safe distance; allows front vehicle to move before accelerating			
28- Scans intersection left and right/anticipates intent of other vehicles before reaching "point of no return"			
29- Covers brakes safely and adjusts speed			
Merging/Passing/Lane Changes	CORRECT	???	COMMENTS
30- Uses signals, checks blind spots, leaves adequate space before pulling back into lane			
PARKING/PARKING LOT	CORRECT	???	COMMENTS
31- Obeys signs and uses signals in parking lot			
32- Maintains proper speed inside the lot			
33- Ensures vehicle is legally/properly parked			
34- Sets parking brake and secures vehicle			
??? = Questionable Item **TOTAL**			% SAFE : _____ {(TOTAL CORRECT/(TOTAL CORRECT + TOTAL QUESTIONABLE)} X 100]

Supervisor's Feedback Tool

Review this checklist prior to an LPO feedback session

Tips for effective feedback

- Conduct the feedback session as soon as possible after the LPO is completed
- Maintain eye contact
- Aim for the 4 to 1 reinforcement rule
- Be specific, give examples

Opening statement: The reason for conducting the LPO is to...

- Focus on the bottom of the pyramid
- Identify and correct questionable items
- Reinforce LPO's as a positive

Review positives from LPO and their benefits to the individual and the organization

- Mention specific behaviors that are significantly critical to safe performance
- Emphasize the percentage of tasks observed as performed correctly

Discuss any questionable items from the LPO

- Ensure that all parties agree that a questionable item exists
- Relate questionable activities to potential consequences (i.e. spills, injury, etc.)
- Describe the deviation from the standard to ensure understanding

Identify the root causes of questionable items

- Ensure all parties agree on the root causes
- Ensure that each questionable item has an identified root cause

Develop a solution and an action plan

- Each root cause must identify a solution, person responsible for implementing and due date
- Solutions should be practical and sustainable

Closing Statement (60 seconds or less)

- Review reason for conducting LPO
- Review positive aspects of LPO
- Review consequences of questionable items
- Restate root causes and solutions
- Thank all participants
- Give observer feedback on the quality of the LPO

Development of Solutions
The inclusion of all personnel who participated in the LPO in the development of solutions is critical to understanding why deviations from standard job procedures or JSAs occur and how to eliminate recurrences. One of the purposes of these observation feedback sessions is to seek the advice and recommendations of field personnel. Remember that solutions should be practical, inexpensive, and sustainable over the long term. In addition, solutions should focus on factors over which the personnel or supervisor has control.

After identifying the root cause(s), the group should follow the same solution guidelines as outlined in the Loss/Near Loss Investigation (L/NLI) Process section in this handbook.

Following the review and approval process (which parallels the L/NLI Process), the appropriate company management should contact the person(s) responsible for implementing the solution(s). Personnel must agree to the solution(s) and also agree to the due date(s).

REVIEW PROCESS AND VERIFICATION / VALIDATION OF SOLUTIONS

Generally, the roles and responsibilities of the observation and review process are listed in the "LPS Responsibility Summary: Loss Prevention Observations (LPO)" on page 38. Review and follow-up of LPOs is important to ensure the effectiveness of the process.

Quality reviews of LPOs begin with the immediate Project Manager and continue up through the executive management levels. At each level there is an opportunity to provide positive feedback or constructive advice for the continued improvement of LPS tool effectiveness.

Management follow-up of LPOs also includes verification that the solutions have been implemented and validation that the solutions have adequately addressed the root causes of the incident. Again, each of these provides opportunities for positive management feedback to those involved in the observation.

TREND ANALYSIS / INFORMATION REPORTS

The Consultant/Contractor will track information from the observation form including solutions and conduct trend analyses. The ExxonMobil GR Senior Safety Advisor will also analyze observation and loss/near loss investigation information to identify trends or potential problem areas. Information from observations provides the opportunity to implement solutions to address safety concerns before they result in an incident (focusing on the bottom of the LPS pyramid).

Results will be used to plan strategies to reduce the number of incidents. In addition, observation information should be used as topics for safety meetings and other communications within each organization.

Loss Prevention Observation (LPO) Process Flow Chart

	Consultant/Contractor Project Managers and their personnel select work processes or tasks having greatest potential for loss reduction • Targets based on history of losses, near losses, recent LPOs, & potential hazards. • Post target areas. • Review & adjust targets as appropriate.
	Consultant/Contractor Project Manager facilitates selection of observers & schedules observation during monthly safety meeting. • Observers must be trained in observation techniques. • Observers are designated for each work area & should rotate according to LPO plan. • Scheduling should allow for some flexibility (a few hours) in the timing of a LPO during the workday.
	Observer completes the following activities in preparation for observation: • Reviews target areas. • Reviews recent loss & near loss investigations related to target areas. • Reviews pertinent standard job procedures & job safety analyses (JSA). • Reviews recently completed LPOs for same target areas. • Schedules feedback discussion session with supervisor.
	• Observer compares how work task is performed to standard job procedures and JSAs. • Observes work task for approximately 20 to 30 minutes. • Identifies and notes critically important & correct activities. • Notes questionable activities & conditions. • Completes appropriate sections of observation form.
	Observer gives overview of observation to designated Consultant/Contractor Project Manager. • Performed immediately following observation; generally requires no more than five minutes. • Explanation of positive performance noted. • Explanation of questionable activities & conditions noted. • Confirms time & location of feedback discussion session. • Quality review done by supervisor according to guidelines.
	Consultant/Contractor Project Manager is responsible for facilitating feedback discussion session • Conducted within 24 hours of observation. • Active participation by supervisor, observee, & observer. • Discussion should follow these main points in the order given: • (1) Restate LPO purpose; • (2) Discuss positive behaviors; • (3) Mention % of tasks observed as done correctly; • (4) Discuss questionable items, identify root causes, & develop solutions; • (5) Summarize entire process by repeating points 1-4. • Also opportunity for supervisor to provide quality feedback to observer.
	Consultant/Contractor Manager and ExxonMobil GR Managers review LPO forms per LPS Responsibility Summary: Loss Prevention Observation Systems and provide feedback.
	Consultant/Contractor Managers and ExxonMobil GR Senior Safety Advisor communicates LPO analyses and solutions per LPS Responsibility Summary: Loss Prevention Observation System. Consultant/Contractor Managers coordinate implementation of solutions.
	• Consultant/Contractor Project Manager and ExxonMobil GR Managers verify & validate LPO solutions per LPS Responsibility Summary: Loss Prevention Observation System. Field personnel provide feedback to Consultant/Contractor Project Manager on solution effectiveness.

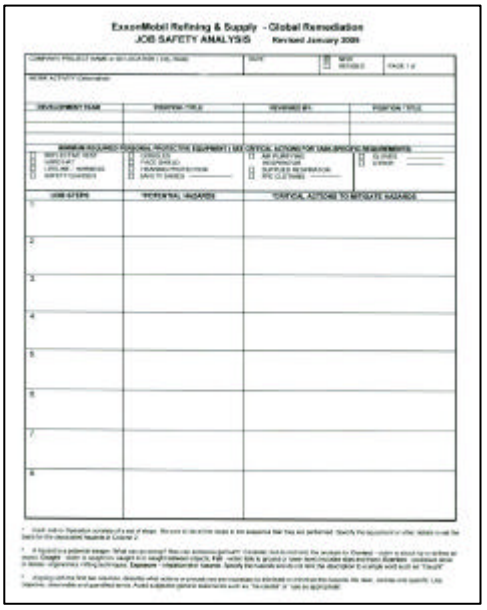
LPS Responsibility Summary: Loss Prevention Observations (LPO)

	Personnel (e.g., Consultant/Contractor Field Technicians, Subcontractors and ExxonMobil Employees)	Consultant/Contractor Project Manager	ExxonMobil GR Project Manager	ExxonMobil GR Senior Safety Advisor	ExxonMobil GR Area Manager	ExxonMobil GR Manager
	Participate in selection of target areas.	Facilitate selection of target areas with assistance from personnel.	Monitor process to ensure LPOs conducted in target areas as scheduled.	Assist monitoring process to ensure LPOs conducted in target area.	Monitor process to ensure LPOs conducted in target areas.	Monitor process to ensure LPOs conducted in target areas.
	Perform LPO. (Approximately 1/every 400 field man-hours).	Select & ensure observer training; schedule time for LPO observation; ensure LPOs are conducted and meet compliance with target areas. Perform LPO. (Approximately 1/every 400 field man-hours).	Perform six LPOs per year on field personnel and participate in feedback session.	Assist in the monitoring of the LPO process, as appropriate.	Monitor overall LPO process. Participate in conducting 2 LPOs per year on field personnel, including feedback sessions.	Monitor overall LPO process. Participate in conducting 1 LPO per year on field personnel, including feedback session.
	Identify deviation from work standards & assist in developing solutions.	Conduct feedback session with observee & observer and develop solutions. Forward completed LPO to ExxonMobil GR PM.	Review LPOs for quality and provide feedback; verify LPO solutions match root causes.	Review a sample of LPOs quarterly for quality; provide feedback as appropriate.	Review a sample of LPOs semi-annually for quality; provide feedback as appropriate.	Review a sample of LPOs annually for quality; provide feedback as appropriate.
	Review all LPO related communications.	Communicate LPO information including approved solutions and other ExxonMobil safety communications.	Communicate LPO information, including approved solutions, and other ExxonMobil safety communications.	Develop and distribute Safety Alerts and GR SH&E Performance Reports.	Review all Safety Alerts and GR SH&E Performance Reports.	Steward Safety Alert and GR SH&E Performance Report process; review Safety Alerts and GR SH&E Performance Reports as appropriate.
	Implement solutions. Notify Consultant/Contractor Project Manager and/or supervisor of effectiveness.	Manage implementation of solutions; field verify and validate (V&V) all solutions. Conduct V&V on at least 1 LPO per month and provide feedback. Close out LPO.	Review a sample of LPOs quarterly to verify and validate implementation of solutions; provide feedback, as appropriate.	Review a sample of LPOs quarterly to verify and validate implementation of solutions; provide feedback, as appropriate.	Review a sample of LPOs semi-annually to verify and validate implementation of solutions; provide feedback, as appropriate.	Review a sample of LPOs annually to verify and validate implementation of solutions; provide feedback, as appropriate.

TOOL: JOB SAFETY ANALYSIS (JSA)

EXPECTATION: A Job Safety Analysis should be conducted for every major work process. These JSAs will serve to help ensure that procedures exist to address potential hazards at remediation project sites. Furthermore, these procedures will be:

- Continuously updated and improved;
- Communicated to appropriate personnel;
- Understood and followed.


ExxonMobil Refining & Supply - Global Remediation
JOB SAFETY ANALYSIS

OVERVIEW: Many processes, operations, and tasks have the potential to result in injuries and other types of losses. Before hazards can be controlled, they must be identified. The Job Safety Analysis, or JSA, is a tool to reduce hazards in the workplace. It involves defining jobs and tasks, identifying the hazards associated with those jobs and tasks, and creating safe working procedures that either eliminate or minimize the hazards. A JSA is a concise review of the safety critical portions of a job and is not intended to document or replace a more descriptive Standard Operating Procedure (SOP).

EXPECTED BENEFITS

The JSA is an effective tool to identify job steps, key hazards and measures to avoid those hazards. The JSA is an effective aid to ensure personnel are properly trained to safely perform a task. Additionally, JSAs provide the opportunity for personnel to analyze the hazards of new tasks or activities that are non-routine. In essence, JSAs can be used to perform a more detailed Safe Performance Self-Assessment of these jobs or tasks.

Often, incidents occur because personnel are not aware of the proper job procedure or because the procedure is inadequate or non-existent. One way to prevent workplace incidents is to establish proper job procedures and train all personnel in safe and effective work methods. Establishing proper job procedures is one of the benefits of conducting a Job Safety Analysis -- carefully studying and recording each step of a job, identifying existing or potential job hazards (safety, health, and environmental) and determining the best way to perform the job to reduce or eliminate these hazards.

Another benefit of the JSA is its value as a point of reference for Loss Prevention Observations (LPOs). The JSA is an objective basis against which the observer can identify deviations or questionable activities. It also highlights the potential hazards of the task being observed, aiding the observer in verifying that the procedural steps adequately eliminate or reduce the potential risk.

SELECTING A JOB FOR ANALYSIS

A Job Safety Analysis can be performed for any job in the workplace. Even one-step jobs, such

as pressing a button, can have potential hazards due to surrounding work conditions. To determine which jobs should be analyzed first, review job injury, illness, and incident reports. Obviously, a Job Safety Analysis should be conducted first for jobs with the highest rates of injuries and other losses. Also, jobs where significant near losses have occurred should be given priority. JSAs should be developed before performing a new job or a job where changes have been made in processes and procedures that could affect safety or environmental conditions. Eventually, a Job Safety Analysis should be conducted for all major work processes and made available to personnel.

Self Assessment
If a worker performing a Safe Performance Self-Assessment (SPSA) finds that adequate procedures are not available to perform a task safely, a JSA will be used to develop a suitable procedure.

Loss/Near Loss Investigations and Loss Prevention Observations
Observations and incident investigations can help identify tasks requiring new or updated JSAs. If during the observation or investigation, a root cause is determined to be "a lack of or inadequate operational procedures or work standards", a JSA may need to be completed on that task.

New Equipment, Procedures, or Processes (Management of Change)
A JSA should be performed before operating any newly installed equipment or before implementing new process procedures on existing equipment. This analysis may be as simple as a formal review of the manufacturer's procedures to validate that they adequately address the safe operation of the equipment. We must ensure that the procedures allow workers to perform their jobs safely and without harm to the environment.

JSA DEVELOPMENT TEAM MEMBERS
Management is responsible for selecting JSA development team members, ensuring sure they are properly trained and that they understand how and why JSAs are conducted. Persons conducting a JSA need to be familiar with the process and understand basic hazard analysis techniques. It is most important that the people who actually perform the task participate in the JSA development process. The number of persons involved in the JSA development will vary based on the complexity of the task; however, whenever possible, a minimum of three people should be involved. Team members may be made up of field personnel, supervisors, safety personnel, trainers, and engineers.

ExxonMobil Refining & Supply - Global Remediation
JOB SAFETY ANALYSIS Revised January 2005

COMPANY/ PROJECT NAME or ID/ LOCATION (City, State)	DATE	☒ NEW ☐ REVISED	PAGE 1 of
WORK ACTIVITY (Description):			

DEVELOPMENT TEAM	POSITION / TITLE	REVIEWED BY:	POSITION / TITLE

MINIMUM REQUIRED PERSONAL PROTECTIVE EQUIPMENT (SEE CRITICAL ACTIONS FOR TASK-SPECIFIC REQUIREMENTS)

☐ REFLECTIVE VEST	☐ GOGGLES	☐ AIR PURIFYING RESPIRATOR	☐ GLOVES _____
☐ HARD HAT	☐ FACE SHIELD	☐ SUPPLIED RESPIRATOR	☐ OTHER _____
☐ LIFELINE / HARNESS	☐ HEARING PROTECTION	☐ PPE CLOTHING _____	
☐ SAFETY GLASSES	☐ SAFETY SHOES _____		

[1]JOB STEPS	[2]POTENTIAL HAZARDS	[3]CRITICAL ACTIONS TO MITIGATE HAZARDS
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		

[1] Each Job or Operation consists of a set of steps. Be sure to list all the steps in the sequence that they are performed. Specify the equipment or other details to set the basis for the associated hazards in Column 2

[2] A hazard is a potential danger. What can go wrong? How can someone get hurt? Consider, but do not limit, the analysis to: **Contact** - victim is struck by or strikes an object; **Caught** - victim is caught on, caught in or caught between objects; **Fall** - victim falls to ground or lower level (includes slips and trips); **Exertion** - excessive strain or stress / ergonomics / lifting techniques; **Exposure** - inhalation/skin hazards. Specify the hazards and do not limit the description to a single word such as "Caught"

[3] Aligning with the first two columns, describe what actions or procedures are necessary to eliminate or minimize the hazards. Be clear, concise and specific. Use objective, observable and quantified terms. Avoid subjective general statements such as, "be careful" or "use as appropriate".

Add pages as necessary

CONDUCTING THE JOB SAFETY ANALYSIS

Once a job has been selected, the JSA team should observe the job being performed as the basis for the analysis. Discuss the JSA procedure with the personnel performing the job and explain its purpose. Point out that the job itself is being studied, not the personnel's job performance. Involve the personnel performing the job in all phases of the analysis -- from reviewing the job steps to discussing potential hazards and recommended solutions. Also, observe and talk with other workers who perform or have performed the job.

Before starting the actual Job Safety Analysis, take a look at the general work environment under which the job will be performed and develop a checklist. Below are some sample questions that might be asked.

- Is a work permit required before starting the job?
- Are there materials on the floor that could trip a worker?
- Is lighting adequate?
- Are there any electrical hazards at the job site?
- Are there any explosive hazards associated with the job or can any develop?
- Are tools, including hand tools, machines and equipment in need of repair?
- Is there excessive noise in the work area, hindering worker communication?
- Is fire protection equipment readily accessible and have personnel been trained to use it?
- Are emergency exits clearly marked and accessible?
- Are trucks or motorized vehicles properly equipped with brakes, overhead guards, backup signals, horns, steering gear and identification, as necessary?
- Are all personnel who operate vehicles and equipment properly trained and authorized?
- Are personnel wearing proper personal protective equipment for the jobs they are performing?
- Have personnel complained of headaches, breathing problems, dizziness or strong odors?
- Is ventilation adequate, especially in confined spaces?
- Have tests been made for oxygen deficiency and toxic gases?
- Are chocks available to stabilize equipment?

This list is by no means complete because each work site has its own requirements and environmental conditions. Add questions to the list, if appropriate. Also take photographs of the workplace for use in making a more detailed analysis of the work environment.

Breaking Down the Job

The first step in performing the Job Safety Analysis is to list each step of the job in order of occurrence as you watch the personnel performing the job. Be sure to record enough information to describe each job action, but do not make the list too detailed. Focus on the "safety critical" steps of the job. Use the left column of the JSA form to list the job steps. Later, go over the steps with the personnel who performed the job.

Identifying Hazards

After recording the job steps, examine each step to determine potential hazards that may exist or could develop. The JSA team should look for items that answer the question "what could go wrong?" List the hazards in the center column of the JSA form, adjacent to the corresponding job step.

Items to consider when looking at potential hazards:

Environmental Conditions -- are there conditions that may be hazardous to safety or health?

- Are there any gases, vapors, mists, fumes, or dust in the area?
- Is the ventilation adequate to remove any air contaminants?
- Are there any sources of heat or cold?
- Are there any radiation sources?
- Is there adequate lighting to see the complete job?

Injurious Contact -- is there a danger of striking against, being struck by, caught between, caught on, caught in, or otherwise making harmful contact with an object?

- Can people or their clothing come in contact with, be struck by, or caught in moving parts of equipment?
- Are there any pinch points between two moving parts such as a pulley and belt?
- Is there sufficient room to work? To stay out of the line of fire? Out of traffic areas?
- Is there any material that could strike people?
- Are energy sources controlled?
- Are machines safeguarded?

Overexertion-- can a strain be caused by pushing, pulling, lifting, bending, twisting, or by repetitive activities?

- Do personnel apply good body position and placement?
- Does the job require lifting an excessive amount of weight?
- Do personnel twist while lifting?
- Does this job have repetitive motions?

Slips, Trips, and Falls-- is there a potential for this type of occurrence?

- Is it possible for ice, water, oil, or other slick material to accumulate on walking surfaces?
- Does the job require stepping up or down to other levels (stairs, ladders, elevated platforms)?
- Is the area clear of litter or debris?
- Is there any chance of a fall to another level?

Other Key Safety Behaviors

- Is the proper PPE available?
- Are the correct tools for the job available?
- Are proper equipment moving/lifting tools available?
- Is communications between personnel adequate for safe performance?
- Is communications between personnel adequate for safe performance?
- Is critical equipment included in preventative maintenance?

Control Actions

After each hazard or potential hazard has been listed and reviewed with the personnel performing the job, determine whether the job could be performed in another way to eliminate the hazards. Consider possibilities such as combining steps or changing the sequence, or whether safety equipment and precautions are needed to reduce the hazards.

If safer and better job steps can be used, list each new step in the column on the right side of the JSA form, adjacent to the original job step and related hazard. List exactly what the worker needs to know in order to perform the job using the new method. Do not make general statements about the procedure, such as "Be careful". Be as specific as you can in your recommendations. If hazards are still present, try to reduce the necessity for performing the job or the frequency of performing it. If no new job steps can be developed, determine whether any physical changes, such as redesigning equipment, changing tools, ventilation, adding machine guards, or personal protective equipment, will eliminate or reduce the danger. Use the right side of the JSA form to list any other applicable actions to control hazards.

Focus on Risk

It is the responsibility of the JSA development team to keep focused on the "safety critical" steps of a job during this process and not get buried in details. The JSA should focus on the activity itself and not on extraneous activities. For instance, if a screwdriver is to be used, do not complicate the procedure with where the screwdriver is stored and how to get it. The JSA should focus on the part of the activity where the risk exists, that is, where and how the person will be using the screwdriver!

One or Two Page Format
The initial development process may generate numerous pages of information. It is the responsibility of the JSA team to organize the information into a one or two page procedure format. Keeping the JSA to this size will facilitate personnel training and allow the JSA to be a useful tool for personnel to reference in the future. If a job is complex enough to require more than two pages for a JSA, the job should be broken down into stages and a JSA developed for each stage.

The JSA development team will route the final one or two page procedure to appropriate personnel to review the procedure for accuracy, to ensure that it addresses the potential hazards of the process and that personnel can follow the procedures.

REVIEW PROCESS
Generally the roles and responsibilities of the JSA review and approval process are as follows.

- The JSA is conducted by personnel who are familiar with the job or task. Additional team members may be included depending on the complexity of the operation.

- Consultant/Contractor management with responsibility for the remediation project reviews the JSA procedure with the JSA development team to ensure that it identifies and addresses the potential hazards.

- Consultant/Contractor management is responsible for reviewing all JSAs developed in their respective companies. Consultant/Contractor management is then responsible to approve or modify the procedure, if necessary.

A Job Safety Analysis can do much toward reducing injuries and other types of losses, but it is only effective if it is reviewed and updated periodically. Even if no changes have been made in a job, hazards that were missed in an earlier analysis could be detected. If an incident or injury occurs on a specific job, the Job Safety Analysis should be reviewed immediately to determine whether changes are needed in the job procedure. In addition, if a loss has resulted from personnel's failure to follow job procedures, the JSA should be discussed with all personnel performing the job.

PERSONNEL TRAINING
Any time a Job Safety Analysis is developed or revised, training in the new job methods or protective measures should be provided to all personnel. A Job Safety Analysis also should be used to train new personnel on job steps and job hazards. Go over the suggested recommendations with all personnel performing the job. Their ideas about the hazards and proposed recommendations may be valuable. Be sure that all personnel understand what they are required to do and the reasons for the changes in the job procedure.

Additionally, these one or two page JSA procedures can be very useful for training transferred

personnel on job tasks and activities. Before performing a job for the first time, the supervisor should review the JSA with personnel. Remember that personnel are responsible during the Safe Performance Self-Assessment for not proceeding unless they have the appropriate knowledge and procedures to perform the job safely. If a person has never performed a job before, he/she is expected to stop and notify the supervisor.

Job Safety Analysis (JSA) Process Flow Chart

	JSAs will be developed or reviewed when: • Root cause of an L/NLI or LPO identifies procedures unavailable or inadequate • Personnel performing job/task (when conducting a SPSA) identifies procedure as inadequate or unavailable • Introduction of new equipment or processes with high risk potential • Review of losses reveals high incident rate/potential

	Consultant/Contractor Project Manager coordinates selection of JSA Development Team. • Ensures team includes persons familiar with the job or task • Ensures team members are trained in JSA Development

	JSA Team reviews job and observes personnel performing tasks. • Team breaks down job into logical steps • Lists potential hazards associated with each step • Develops or modifies procedures to eliminate/minimize hazards • Summarizes JSA into 1-2 page format

	Consultant/Contractor Project Manager establishes target dates for the completion of JSA procedures. • Personnel performing job tasks review JSA and provide feedback • Supervisor routes JSA for upline management review per LPS Responsibility Summary: Job Safety Analysis • Management reviews and approves or recycles to JSA Development Team with advice

	Consultant/Contractor Project Manager sends the completed JSAs to the Consultant/Contractor Safety Advisor who distributes them locally as required. • Consultant/Contractor Project Manager communicates new JSA procedures to company personnel • EM GR Senior Safety Advisor posts JSAs on BestNet • Consultant/Contractor uses JSA procedure for "task training" new personnel or retraining as required

	Consultant/Contractor personnel and ExxonMobil managers conduct field verification and validation per LPS Responsibility Summary: Job Safety Analysis

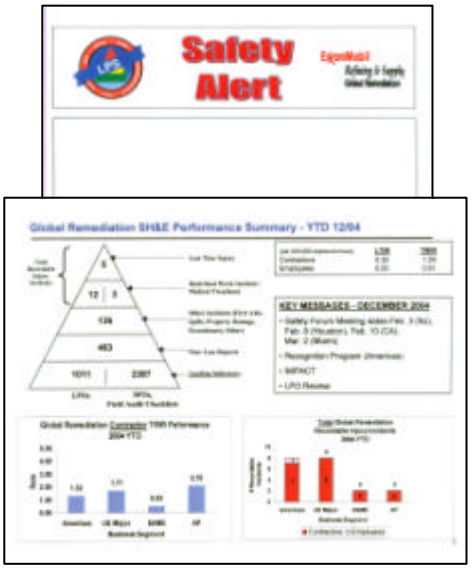
LPS Responsibility Summary: Job Safety Analysis (JSA)

	Personnel (e.g., Consultant/Contractor Field Technicians, Subcontractors and ExxonMobil Employees)	Consultant/Contractor Project Manager (with Consultant Safety Staff assistance)	ExxonMobil GR Project Manager	ExxonMobil GR Senior Safety Advisor	ExxonMobil GR Area Manager	ExxonMobil GR Manager
	Assist in JSA development.	Develop JSAs per ExxonMobil provided examples.	Reviews JSAs at site before conducting LPO.	Review JSAs at site before conducting LPO.	Review JSAs at site before conducting LPO.	Review JSAs at site before conducting LPO.
	Review JSAs prior to start of work, before each task, if conditions change or before conducting a LPO. Submit JSA recommendations to supervisor.	Develop, review, resolve deficiencies & approve JSAs, as necessary, for continuous improvement.	Review JSAs for quality and provide feedback to Consultant/Contractor Project Manager, as necessary, for continuous improvement.	Review JSAs at site before conducting LPO.	Review JSAs at site before conducting LPO.	Review JSAs at site before conducting LPO.
	Implement procedures and provide input to supervisor on effectiveness.	Field verify and validate (V&V) all JSAs to ensure JSAs are implemented by field personnel and are effective. Perform V&V when visiting site or at least one per month.	Verify and validate implementation and effectiveness of JSA use by field personnel when visiting site. Provide appropriate feedback.	Verify and validate implementation and effectiveness of JSA use by field personnel when visiting site. Provide appropriate feedback.	Verify and validate implementation and effectiveness of JSA use by field personnel when visiting site. Provide appropriate feedback.	Verify and validate implementation and effectiveness of JSA use by field personnel when visiting site. Provide appropriate feedback.
	Receive/review communication from supervisor. Provide feedback for continuous improvement.	Communicate approved JSAs to field personnel. Provide feedback for continuous improvement.	Provide feedback for continuous improvement, as appropriate.	Provide feedback for continuous improvement, as appropriate.	Provide feedback for continuous improvement, as appropriate.	Provide feedback for continuous improvement, as appropriate.

COMMUNICATION TOOLS

ExxonMobil's Operations Integrity Management System (OIMS) System 9 states that effective incident investigation, reporting and follow-up are necessary to achieve Operations integrity. Effective incident investigation, reporting and follow-up provide the opportunity to learn from reported incidents and to use the information to take corrective action and prevent recurrence.

There are three main forms of safety communications: the Safety Alert, Safety Bulletin and the Global Remediation SH&E Performance Summary Report.



The Safety Alert is the communication tool utilized to warn of severe loss incidents and near loss incidents that could have produced serious consequences. When warranted, a Safety Alert will be distributed for discussion with all appropriate personnel within 48 hours. The two questions to ask about a Safety Alert are:

- Does this Safety Alert apply to our work?
- What needs to be done now to reduce the hazard?

Following a significant loss or near loss, the Consultant/Contractor Project Manager should forward the L/NLI form to the ExxonMobil GR Project Manager containing the following information:

- A description of the work situation prior to the loss occurrence.
- An explanation of how the loss happened.

The L/NL investigation is not required to be completed before the Safety Alert is distributed. The purpose of this communication tool is to share and discuss immediate preventive actions that should be taken to avoid a repeat incident. Discussions can normally be conducted in a safety or "tailgate" meeting and should include a question-and-answer session to allow personnel input regarding recommendations to prevent a similar loss at their site.

The Safety Bulletin is the communication tool for less severe incidents, for updated information on previously distributed Safety Alerts or for sharing best practices and guidance.

The Global Remediation SH&E Performance Summary Report (formerly called Info Sharing Report) communicates LPS analytical information and monthly SH&E performance. This report is distributed by the ExxonMobil GR Senior Safety Advisor on a monthly basis. The purpose of this communication tool is to share and discuss more analytical information rather than to provide a warning.

TOOL: STEWARDSHIP

EXPECTATION: The Loss Prevention System and its tools will be stewarded according to the system's guidelines and like other aspects of the organization's business. The focus of the stewardship activities will be on tool quality and other factors over which personnel have control.

OVERVIEW: Success of Global Remediation's LPS program requires that each GR organization follow the key guidelines outlined for each LPS tool. It has been industry's experience that companies that manage safety activities instead of the numbers have directly reduced injury and incident measures. Effective organizations steward and manage activities (e.g., L/NLIs, LPOs, JSAs, SPSAs) just like they steward or manage other aspects of their operations. These companies ask questions daily, weekly, and monthly regarding quality issues for each of the LPS tools. They follow up on activities related to investigations and observations to ensure that recommendations are implemented and effective in eliminating or reducing the hazard. Last, these organizations hold individuals accountable for performance in these areas.

For most businesses "what gets measured gets done." Our Loss Prevention System is designed with several means to measure and monitor our use of the various LPS tools. Personnel throughout the organization have designated roles and responsibilities to monitor and steward all aspects of the Loss Prevention System. These key roles help to ensure that we are effectively managing the safety aspects of our business.

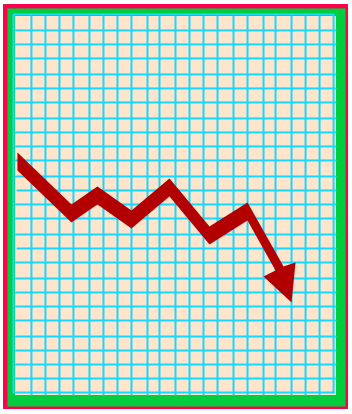
Just as personnel are held accountable for stewardable items such as productivity and costs, personnel will also be stewarded on safety responsibilities. However, unlike traditional safety programs that try to hold people accountable for safety statistics, LPS stewards safety activities over which personnel have full control. The bottom line is that safety is manageable and stewardable.

By managing our Loss Prevention System in the same way that we manage other aspects of our business, we will improve its key safety measures. Additionally, by rewarding and holding people accountable for performance in areas where they have direct control, those persons become empowered in ensuring their own safety.

EXPECTED BENEFITS

Several benefits will be realized if the proper stewardship is conducted regularly. These include:

- Identifying whether the correct process is being used for each tool.
- Assessing whether the quality of work is consistent month after month for each tool.
- Reinforcing the fact that safety needs to be stewarded and managed with the same level of curiosity and intensity as productivity, maintenance, and costs.
- Lowering incident rates as LPS tools are applied more effectively.



To monitor LPS the following stewardship activities will be performed.

QUALITY REVIEW

Our organization has committed to spot check various components of our Loss Prevention System on a regular basis. This spot check is basically a quality review to ensure the tools are being used as designed.

The reviewer will be evaluating: the root causes identified; recommendations made; timeliness of tool completion; participation in the tool process by various levels of the organization; and whether quality guidelines are being followed. Quality guidelines are available for Loss /Near Loss Investigations and Loss Prevention Observations. These guidelines explain the quality criteria that should be checked for each section of the investigation and observation forms. This review will indicate if the various tools are being managed in a given location or area.

FIELD VERIFICATION AND VALIDATION

Field verification and validation will be conducted on-site at field locations. The field verification and validation process will include interviews with supervisors, personnel and others to ensure LPS tools are functioning as designed (not just pieces of paper or information in a database).

Verification determines if the investigation or observation solution has been implemented as described on the investigation or observation form. The purpose of the verification is to ensure that written solutions become a reality in the workplace. Designated personnel must verify implementation of the solution by going to the job site and actually witnessing the change in work activity or condition.

Validation determines if the investigation or observation solution is effective in the elimination

or reduction of the hazard. If the hazard still exists, then the tool is recycled for further development until the hazard is addressed in a satisfactory fashion. The supervisor solicits input from personnel in the work area where the solution is implemented. Their assessment of the solution's effectiveness is a major determining factor in solution validation.

The field verification and validation processes provide several benefits. First, these field follow-ups reinforce the organization's full commitment to the process. Second, it recognizes and acknowledges those persons who are truly managing the safety process. Third, it manages and holds people accountable for things they can control -- quality of investigations and root causes, implementation of solutions, timeliness, communication, meeting target dates, etc.

Communications/Feedback

It is important to communicate and provide feedback on the results of the verification and validation process. Just as it is important to provide feedback to personnel performing the jobs (such as during Loss Prevention Observations), the same holds true for supervisors, managers, engineers, and safety personnel. It is important that we recognize those people who are managing safety effectively. It is also important that constructive counseling be provided in areas where safety is not being managed well.

Solutions/Follow up

If the verification and validation process identifies any discrepancies, it is important that the root cause is identified and recommendations developed to correct the deficiencies in tool quality. The process should be the same as for an investigation or observation solution. Personnel involved in the original observation or investigation must be involved in identifying the root cause and making recommendations to improve the tool quality. Personnel actually using the tools should be involved in developing changes to the system. It is important to avoid the trap of identifying problems and dictating solutions without the involvement of the people operating the system.

STEWARDSHIP QUESTIONS

In addition to the field verification and validation activities, there are questions that should be asked as part of the organization's normal daily, weekly, and monthly business affairs. These kinds of questions might be asked in person during daily contacts, in conjunction with other business questions during a phone conversation, or in formal stewardship meetings where all aspects of the business are reviewed. Next are examples of the kinds of questions that might be asked for L/NLIs, LPOs and JSAs to help determine if we are applying the LPS tools appropriately.

<u>Loss/Near Loss Investigations</u>

- How many losses/near losses has your facility had during the past day, week, month, quarter?

- How many investigations have been completed? Are any incomplete? Explain why any investigation cases have not been completed.

- Were the investigations completed on time? If any of the investigation cases were late, explain why.

- Were personnel involved in the identification of the root causes of the loss or near loss? Give some examples of the root causes that they identified.

- Were personnel involved in developing solutions to avoid the recurrence of the loss circumstances? Give some examples of the types of solutions that were made by personnel.

- Which solutions have not yet been implemented? Why not?

- What percentage (estimate) of implemented solutions occurred on time? If any were late, why?

- How did you verify the implementation of the solutions?

- How did you determine that the solutions were effective in the elimination of the root cause? Did you ask personnel if they felt the root cause was eliminated?

- Give a brief summary of those cases where the solutions did not completely resolve the root cause of the loss or near loss. What is being done to target the part of the root cause that still exists?

- Based on the cases you have reviewed, give an assessment of the quality of the solutions made for various losses.

- Have you had repetitive types of losses or near losses? Explain what they are and what's being done to stop the repetition.

- Regarding those solutions that were "well done", describe the kind of positive feedback/reinforcement that you provided for the deserving persons.

- How have you provided positive feedback for those supervisors or managers who did an excellent job in a loss investigation or near loss investigation?

- Regarding those cases where solutions were less than satisfactory, describe the kind of feedback that you have provided and explain what you are doing to help those persons do a higher quality job.

Loss Prevention Observations

- Have the observations been completed for the targeted areas? If not, why not?

- Give a few recent examples of observation solutions that have reduced workplace hazards.
- How have you provided positive reinforcement for those persons who have done an outstanding job on the observations?
- What are you doing to resolve those situations where personnel are not doing a satisfactory job on the observations?
- What percentage of observation solutions was implemented on time? If any were late, why?
- How did you verify the implementation of the observation solutions?
- How did you determine that the observation solutions were effective in the elimination of the root cause of the hazard? Did you ask personnel if they felt the root cause was eliminated?
- Do personnel feel that the observation process is beneficial? If not, why not?
- Is the observation feedback session being conducted after every observation? If not, why not?
- Describe the steps followed by the supervisor during the observation feedback session.

Job Safety Analyses

- How many JSAs has your group developed in the past month, quarter, year?
- Did any investigations or observations recommend conducting JSAs? Were they conducted in a timely manner? If not, explain why not.
- Did field personnel participate in the JSA process? Give examples.
- Did you verify the JSAs were effective? Explain how.
- Describe how you provided positive feedback for those personnel and supervisors who have done an outstanding job completing and monitoring the JSA process.

ROLES AND RESPONSIBILITIES

Every personnel has a role in stewarding the LPS process. We have seen responsibilities detailed in the Loss/Near Loss Investigation, Loss Prevention Observation and Job Safety Analysis Responsibility Summaries. These responsibilities can also be summarized by job type, so that all personnel are aware of exactly what is required of them to steward and ensure its success. The following pages are examples of these responsibilities by job type.

LPS - Roles and Responsibilities Summary - Consultant/Contractor

"LPS: Think Before You Act"

- **Safe Performance Self-Assessment - SPSA**

Task	Frequency
Ask personnel to give an example of how they last used the SPSA tool	When visiting site or at least daily
Conduct SPSAs (e.g. prior to starting task, as conditions change, before non-routine activities)	Ongoing

- **Job Safety Analysis - JSA**

Task	Frequency
Develop JSAs per ExxonMobil provided examples.	One time event
Develop, review, resolve deficiencies & approve JSAs, as necessary, for continuous improvement.	Ongoing
Field verify and validate (V&V) all JSAs to ensure JSAs are implemented by field personnel and are effective.	When visiting site or at least one per month.
Communicate approved JSAs to field personnel. Provide feedback for continuous improvement.	Ongoing

- **Loss Prevention Observation - LPO**

Task	Frequency
Facilitate selection of target areas with assistance from personnel.	Ongoing
Perform LPOs on Field Personnel and conduct feedback session	~1/Every 400 field man-hours
Select & ensure observer training; schedule time for LPO observation; ensure LPOs are conducted and meet compliance with target areas.	Ongoing
Conduct feedback session with observee & observer and develop solutions. Forward completed LPO to ExxonMobil GR PM.	Ongoing
Communicate LPO information including approved solutions and other ExxonMobil safety communications.	Ongoing
Manage implementation of solutions; field verify and validate all solutions. Conduct V&V on at least 1 LPO and provide feedback. Close out LPO.	Ongoing, with at least 1 LPO V&V, per month

- **Loss/Near Loss Investigations**

Task	Frequency
Transmit initial notification of incident to ExxonMobil GR Project Manager; evaluate risk of incident reoccurrence.	At time of Loss/Near Loss Incident
Initiate investigation process; select personnel for investigation team; participate/lead investigation team.	As Needed
Review all L/NLI reports for accuracy & approve/modify solution; forward for review and approval.	Submit initial L/NLI report within 24 hours**;** Submit final LI in 5 days. Submit final NLI in 10 days.
Communicate L/NLI information to personnel, including Safety Alerts & GR SH&E Performance Reports, as appropriate.	Monthly or as appropriate
Manage implementation; field verify and validate all solutions. Conduct V&V on at least 1 L/NLI and provide feedback.	Ongoing, with at least 1 L/NLI V&V, per month

- **LPS Training, Assessments and Meetings**

Task	Frequency
Assess competencies to ensure employees have appropriate LPS knowledge and skills - consider new assignments to ExxonMobil projects and refresher training	Ongoing
Participate in Safety Meetings with LPS on the agenda	Monthly
Ensure staff meetings include LPS stewardship on the agenda	Ongoing
Participate in LPS Field Assessments and Stewardship Workshops - review organization's LPS performance, including consultant/contractor activities.	Per GR LPS Stewardship Plan: Twice within 1st year; annually thereafter.

- **Communications**

Task	Frequency
Recognize individual and organizational LPS achievements	As appropriate
Identify LPS continuous improvement opportunities as appropriate	Ongoing
Establish and communicate initial LPS Stewardship Plan	One time event

- **Data Management**

Task	Frequency
Maintain a data management process to help collect, track, analyze and utilize LPS data	Ongoing
Establish and review LPS Metrics used by the organization to measure performance	Annually
Develop and distribute, by 15th of month, stewardship reports as described in LPS Metrics (see Stewardship Plan Attachment 4)	Monthly
Utilize stewardship reports to assess and manage LPS process	Ongoing

LPS - Roles and Responsibilities Summary - ExxonMobil GR Project Manager

"LPS: Think Before You Act"

- **Safe Performance Self-Assessment - SPSA**

Task	Frequency
Ask personnel to give an example of how they last used the SPSA tool	When visiting site
Conduct SPSAs (e.g. prior to starting task, as conditions change, before non-routine activities)	Ongoing

- **Job Safety Analysis - JSA**

Task	Frequency
Reviews JSAs at site before conducting LPO.	When visiting site
Review JSAs for quality and provide feedback to Consultant/Contractor Project Manager, as necessary, for continuous improvement.	Ongoing
Verify and validate implementation and effectiveness of JSA use by field personnel when visiting site. Provide appropriate feedback.	When visiting site
Provide feedback for continuous improvement, as appropriate.	Ongoing

- **Loss Prevention Observation - LPO**

Task	Frequency
Monitor process to ensure LPOs conducted in target areas as scheduled.	Ongoing
Perform LPOs on field personnel and participate in feedback session.	6/year
Review LPOs for quality and provide feedback; verify LPO solutions match root causes.	Ongoing
Communicate LPO information, including approved solutions, and other ExxonMobil safety communications.	Ongoing
Review a sample of LPOs to verify and validate implementation of solutions; provide feedback, as appropriate.	Quarterly

- **Loss/Near Loss Investigations**

Task	Frequency
Transmit initial notification of incident to ExxonMobil GR Area Manager. Follow up on initial notification.	As appropriate
Participate in investigations as requested, per Loss/Near Loss Investigation Responsibility Matrix.	As appropriate
Review L/NLI reports for quality and provide feedback.	As appropriate. Submit initial L/NLI report within 24 hours; final LI report in 5 days; final NLI report in 10 days.
Review all Safety Alerts & GR SH&E Performance Reports. Ensure L/NLI information is communicated to Consultant/Contractor.	Ongoing
Field verify and validate L/NLI; feedback to Consultant/Contractor Project Manager on verification and validation findings.	Ongoing

- **LPS Training, Assessments and Meetings**

Task	Frequency
Participate in Safety Meetings with LPS on the agenda	Quarterly
Participate in LPS Field Assessments and Stewardship Workshops - review organization's LPS performance, including consultant/contractor activities	Per GR LPS Stewardship Plan: Twice within 1st year; annually thereafter

- **Communications**

Task	Frequency
Ensure that each consultant and contractor is notified of its restricted use rights under ExxonMobil's contract with LPS, Inc.	One time event and with new contracts as appropriate
Recognize individual and organizational LPS achievements	As appropriate
Identify LPS continuous improvement opportunities as appropriate	Ongoing

LPS - Roles and Responsibilities Summary - ExxonMobil GR Area Manager

"LPS: Think Before You Act"

- **Safe Performance Self-Assessment - SPSA**

Task	Frequency
Ask personnel to give an example of how they last used the SPSA tool	When visiting site or at least weekly
Conduct SPSAs (e.g. prior to starting task, as conditions change, before non-routine activities)	Ongoing

- **Job Safety Analysis - JSA**

Task	Frequency
Review JSAs before conducting LPO.	When visiting site
Verify and validate implementation and effectiveness of JSA use by field personnel. Provide appropriate feedback.	When visiting site
Provide feedback for continuous improvement, as appropriate.	Ongoing

- **Loss Prevention Observation - LPO**

Task	Frequency
Monitor process to ensure LPOs conducted in target areas.	Ongoing
Participate in conducting LPOs on field personnel, including feedback sessions.	2 per year
Review a sample of LPOs for quality; provide feedback as appropriate.	Semi-annually
Review all Safety Alerts and GR SH&E Performance Reports.	Ongoing
Review a sample of LPOs to verify and validate implementation of solutions; provide feedback, as appropriate	Semi-annually

- **Loss/Near Loss Investigations**

Task	Frequency
Receive Initial Notification.	As appropriate
Participate per Loss/Near Loss Investigation Responsibility Matrix.	As needed
Review L/NLI Reports & steward L/NLI process for quality, timeliness, participation and provide feedback. Submit L/NLI reports up-line as directed.	2 per Month
Review all Safety Alerts and GR SH&E Performance Reports. . Ensure L/NLI information is communicated.	Ongoing
Field-verify and validate L/NLI; feedback to direct reports on V&V findings.	2 L/NLI per year

- **LPS Training, Assessments and Meetings**

Task	Frequency
Assess competencies to ensure ExxonMobil employees have appropriate LPS knowledge and skills. Consider new assignments and refresher training	Annually
Participate in Safety Meetings with LPS on the agenda	Monthly
Ensure staff meetings include LPS stewardship on the agenda	Ongoing
Participate in LPS Field Assessments and Stewardship Workshops - review organization's LPS performance, including consultant/contractor activities	Per GR LPS Stewardship Plan: Twice within 1st year; annually thereafter

- **Communications**

Task	Frequency
Recognize individual and organizational LPS achievements	As appropriate
Identify LPS continuous improvement opportunities as appropriate	Ongoing

- **Data Management**

Task	Frequency
Utilize stewardship reports to assess and manage LPS process	Quarterly

LPS - Roles and Responsibilities Summary - ExxonMobil GR Senior Safety Advisor

"LPS: Think Before You Act"

- **Safe Performance Self-Assessment - SPSA**

Task	Frequency
Ask personnel to give an example of how they last used the SPSA tool	When visiting site or at least weekly
Conduct SPSAs (e.g. prior to starting task, as conditions change, before non-routine activities)	Ongoing

- **Job Safety Analysis - JSA**

Task	Frequency
Review JSAs before conducting LPO	When visiting site
Verify and validate implementation and effectiveness of JSA use by field personnel when visiting site. Provide appropriate feedback.	When visiting site
Provide feedback for continuous improvement, as appropriate.	Ongoing

- **Loss Prevention Observation - LPO**

Task	Frequency
Assist monitoring process to ensure LPOs conducted in target area.	Ongoing
Review a sample of LPOs for quality; provide feedback as appropriate.	Quarterly
Develop and distribute Safety Alerts and GR SH&E Performance Reports.	Monthly or more frequently, as appropriate
Review a sample of LPOs to verify and validate implementation of solutions; provide feedback, as appropriate	Quarterly

- **Loss/Near Loss Investigations**

Task	Frequency
Receive initial notification, confirm classification & forward as required.	Ongoing
Participate per Loss/Near Loss Investigation Responsibility Matrix.	As needed
Conduct Quality Review and provide feedback.	Ongoing
Develop and distribute all Safety Alerts & GR SH&E Performance Reports.	Monthly or more frequently, as appropriate
Issue Monthly Summary Report & Ad-hoc Reports, as needed.	Monthly or more frequently, as appropriate

- **LPS Training, Assessments and Meetings**

Task	Frequency
Participate in Safety Meetings with LPS on the agenda	Monthly
Participate in LPS Field Assessments and Stewardship Workshops - review organization's LPS performance, including consultant/contractor activities	Per GR LPS Stewardship Plan: Twice within 1st year; annually thereafter (Lead role)

- **Communications**

Task	Frequency
Recognize individual and organizational LPS achievements	As appropriate
Identify LPS continuous improvement opportunities as appropriate	Ongoing

- **Data Management**

Task	Frequency
Maintain a data management process to help collect, track, analyze and utilize LPS data	Ongoing
Establish and review LPS Metrics used by the organization to measure performance	Annually
Utilize stewardship reports to assess and manage LPS process	Quarterly

LPS - Roles and Responsibilities Summary - ExxonMobil Global Remediation Manager

"LPS: Think Before You Act"

- **Safe Performance Self-Assessment - SPSA**

Task	Frequency
Ask personnel to give an example of how they last used the SPSA tool	When visiting site or at least weekly
Conduct SPSAs (e.g. prior to starting task, as conditions change, before non-routine activities)	Ongoing

- **Job Safety Analysis - JSA**

Task	Frequency
Review JSAs before conducting LPO.	When visiting site
Verify and validate implementation and effectiveness of JSA use by field personnel. Provide appropriate feedback.	When visiting site
Provide feedback for continuous improvement, as appropriate	Ongoing

- **Loss Prevention Observation - LPO**

Task	Frequency
Monitor process to ensure LPOs conducted in target areas.	Ongoing
Participate in conducting LPO on field personnel, including feedback session.	1 per year
Review a sample of LPOs annually for quality; provide feedback as appropriate.	Annually
Steward Safety Alert and GR SH&E Performance Report process; review Safety Alerts and GR SH&E Performance Reports as appropriate.	Ongoing
Review a sample of LPOs to verify and validate implementation of solutions; provide feedback, as appropriate.	Annually

- **Loss/Near Loss Investigations**

Task	Frequency
Receive Initial Notification.	Ongoing
Participate per Loss/Near Loss Investigation Responsibility Matrix.	As needed
Review L/NLI Report & steward L/NLI process for quality, timeliness, and participation and provide feedback.	1 per month
Steward Safety Alert and GR SH&E Performance Report process; review Safety Alerts and GR SH&E Performance Reports as appropriate.	Ongoing
Field-verify and validate L/NLI; feedback to direct reports on V&V findings.	1 per year

- **LPS Training, Assessments and Meetings**

Task	Frequency
Assess competencies to ensure employees have appropriate LPS knowledge and skills	Annually
Participate in Safety Meetings with LPS on the agenda	Monthly
Ensure staff meetings include PS stewardship on the agenda	Ongoing
Participate in LPS Field Assessments and Stewardship Workshops - review organization's LPS performance, including consultant/contractor activities	Per GR LPS Stewardship Plan: Twice within 1st year; annually thereafter

- **Communications**

Task	Frequency
Recognize individual and organizational LPS achievements	As appropriate
Identify LPS continuous improvement opportunities as appropriate	Ongoing

- **Data Management**

Task	Frequency
Utilize stewardship reports to assess and manage LPS process	Quarterly

Notes

THINK BEFORE YOU ACT

NOBODY GETS HURT

ExxonMobil
Refining & Supply
Global Remediation

ATTACHMENT B

INJURED WORKER INFORMATION PACKET

PARSONS

INJURED WORKER INFORMATION PACKET

*PROVIDE DOCTOR'S FIRST REPORT TO YOUR SUPERVISOR & WC ANALYST IMMEDIATELY AFTER DOCTOR'S VISIT

*IMMEDIATELY AFTER *EVERY* DOCTOR'S VISIT PROVIDE WORK RELEASE TO YOUR SUPERVISOR & CORPORATE WC ANALYST

Dear ,

We are concerned about your recent reported on-the-job injury.

To assist you in obtaining the best treatment and a smooth return to work, the attached packet has been put together to help you understand the procedures for obtaining treatment and any benefits due to you related to your injury.

Expenses found to be related to your on-the-job injury are processed through the workers compensation system in your state. However, as your employer, we are directly responsible for these costs. We will make every effort to assist you in getting your claim processed promptly to ease your recovery and allow your return to work as soon as possible. A Claims Manager from the workers compensation carrier or state-run workers' compensation program in the monopolistic states will be assigned to answer your questions and process your claim. If you have any questions or concerns they do not answer to your satisfaction, please contact Donna Miller at (661) 904-0978.

We will be working with you and your doctor to allow you to return to work as part of your recovery. This may involve temporary modified job duties assigned in compliance with your physical limits as defined by your doctor. In this packet there is a letter and sample form to take with you when you see your doctor.

PLEASE BE SURE TO CONTACT DONNA MILLER IF YOU HAVE ANY QUESTIONS OR CONCERNS.

Sincerely,

Donna P. Miller
Corporate WC Analyst
PARSONS
100 W. Walnut Street
Pasadena, CA 91124
(661) 904-0978
Fax: (866) 293-0114
E-mail: Donna.Miller@parsons.com

ENCLOSURES: **INJURED WORKER RESPONSIBILITIES LIST**
LETTER TO DOCTOR: RE: RETURN TO WORK PROGRAM
DOCTOR'S RELEASE FOR WORK FORM

PARSONS

INJURED WORKER RESPONSIBILITIES

READ THE FOLLOWING RESPONSIBILITIES CAREFULLY. FAILURE TO COMPLY WITH THE RESPONSIBILITIES OUTLINED BELOW MAY RESULT IN DISCIPLINARY ACTION AND MAY AFFECT YOUR BENEFITS UNDER WORKERS COMPENSATION. IF YOU HAVE ANY QUESTIONS OR CONCERNS ABOUT YOUR RESPONSIBILITIES FOLLOWING AN ON-THE-JOB INJURY, PLEASE CONTACT DONNA MILLER (661) 904-0978. ALL FORMS ARE AVAILABLE THROUGH YOUR SUPERVISOR and PARSHARE>CORPORATE HEALTH & SAFETY>WORKERS COMPENSATION.

1. **RETURN TO GAINFUL EMPLOYMENT AS QUICKLY AS POSSIBLE.**

2. **REPORT** all incidents and injuries to your SUPERVISOR immediately. In event problems arise after leaving the worksite, know your after-hours contact protocol.

3. **PRIOR TO** receiving non-emergency medical treatment:
   a) FILL OUT, SIGN AND GIVE TO YOUR SUPERVISOR **EMPLOYEE ACCIDENT REPORT** or equivalent form, and
   b) Get your **INJURED WORKER INFORMATION PACKET** and review its contents.
   c) Identify the supervisor who will accompany you to your physician visit.

4. COMPLETE THE APPROPRIATE **INDUSTRIAL INSURANCE ACCIDENT REPORT FORM (if required in your state)**.

5. KEEP THE CORPORATE WC ANALYST DONNA MILLER AND YOUR SUPERVISOR INFORMED AT ALL TIMES ABOUT YOUR INJURY STATUS.

6. COOPERATE with your Supervisor and Corporate WC Analyst and your medical providers in exploring transitional (light) duty assignments. If at all possible, employees will work in a transitional position within their physical limitations identified by the attending medical provider.

7. Coordinate all pre-arranged physician visits with your Supervisor. An injured employee will make every effort to schedule follow-up care before or after normal work hours. Unless statutorily indicated otherwise if an employee loses time from work for follow-up medical evaluations or physical therapy related to the work injury, the time will be charged to paid absence time unless the employee can provide documentation from the Parsons designated medical practitioner that indicates that after hours or weekend appointments are unavailable. In these situations, employee may charge to time worked.

8. KEEP YOUR SUPERVISOR AND THE CORPORATE WC ANALYST DONNA MILLER INFORMED at all times of your current address and phone number, and the name, address and phone number of your doctor.

PARSONS

Return to Work Program

Re:

Dear :

PARSONS has an Early Return-to-Work Program available for our employees who have sustained industrial injuries/illnesses.

We request your assistance on our employee's behalf by completing the attached DOCTOR'S RELEASE FOR WORK FORM. Please make any additional comments regarding physical limitations as needed.

Our goal is to return our employees to work as soon as physically possible within the limitations you prescribe. Our intention is that the employee can advance through levels of modified work over a period of time, resulting in the return to their regular job at full capacity. We need your medical expertise to accomplish this goal. To achieve success in this type of program, WE EXPECT THE INJURED WORKER TO PROVIDE US WITH A WRITTEN RELEASE EACH TIME HE/SHE VISITS THE DOCTOR. This will help us maintain accurate payroll records and ease our communication process during the recovery period.

If you have any questions or comments, please do not hesitate to contact me.

Thank you for your time in responding to this request.

Sincerely,

Donna P. Miller
PARSONS
Corporate Workers' Compensation Analyst
100 W. Walnut Street
Pasadena, CA 91124
661-904-0978 Office and Cell
Fax 866-293-0114

PARSONS Corporation
100 Walnut Street
Pasadena, CA 91124

DOCTOR's RELEASE FOR WORK FORM
JOB DUTIES ASSIGNED TO THIS EMPLOYEE WILL MATCH THE CAPABILITIES YOU DEFINE

EMPLOYEE NAME:	**CLAIM NUMBER:**
Diagnosis:	Date of Injury:

RETURN TO WORK STATUS	
☐ May return to regular work (*date*):	☐ Released to full duty with intention given not to aggravate injury (*date*):
☐ May return to modified work (*date*):	Estimated Duration of Modified Work:
☐ May not return to work until (*estimated date*):	

PHYSICAL LIMITATIONS: **I certify the employee can perform duties within the capabilities defined as follows**.

☐ **Without any restrictions.**

IN AN 8 HOUR WORKDAY, WORKER CAN: (CHECK FULL CAPACITY FOR EACH ACTIVITY)

TOTAL AT ONE TIME (hours)	TOTAL DURING ENTIRE 8-HOUR DAY (hours)
Sit ☐ No restriction ☐ 0-2 Hours ☐ 3-5 Hours ☐ 6-8 Hours	Sit ☐ No restriction ☐ 0-2 Hours ☐ 3-5 Hours ☐ 6-8 Hours
Stand ☐ No restriction ☐ 0-2 Hours ☐ 3-5 Hours ☐ 6-8 Hours	Stand ☐ No restriction ☐ 0-2 Hours ☐ 3-5 Hours ☐ 6-8 Hours
Walk ☐ No restriction ☐ 0-2 Hours ☐ 3-5 Hours ☐ 6-8 Hours	Walk ☐ No restriction ☐ 0-2 Hours ☐ 3-5 Hours ☐ 6-8 Hours

☐ Job duties were explained to me by (*name/title*): On (*date*):

☐ I have received a written list of job tasks.

☐ I have **NOT** received a written list of job tasks, **BUT I AGREE THAT DUTIES MAY BE ASSIGNED AND/OR CHANGED, SO LONG AS THEY MATCH THE LIMITS DEFINED BY ME ABOVE**. ☐ No ☐ Yes

PHYSICIAN INFO:	
Physician Name (PRINT):	Phone:
Clinic Name:	Address:
Signature:	Date:

Please complete this form and give a copy to our employee.
Please fax this form to us at (866) 293-0114, Attn: Donna Miller at your earliest convenience.

STATE OF NEW YORK
WORKERS' COMPENSATION BOARD
BUREAU OF COMPLIANCE
20 PARK STREET
ALBANY, NY 12207
(866) 546-9322

THIS AGENCY EMPLOYS AND SERVES PEOPLE WITH DISABILITIES WITHOUT DISCRIMINATION.

PARSONS ADVANCED TECHNOLOGOES INC
100 W WALNUT ST
PASADENA CA 91124-0001

WCB EMPLOYER #: 1085546
UIER #: 4647833
FEIN #: 954777502

DATE: 01/23/2006

ADVISORY FOR EMPLOYERS

Effective September 23, 2003, Section 51 of the New York State Workers' Compensation Law was amended to require the assessment of a new $250 penalty on any employer that fails to conspicuously post a C-105 or C-105.1 form. The C-105 is posted in a business's buildings and the C-105.1 is posted in automotive and horse-drawn vehicles, including every vehicle used to move household goods or furniture. The posting of this notice is critical as it advises an injured worker how to apply for workers' compensation benefits.

Based on this change to the Workers' Compensation Law, it is imperative that you verify your company is in complete compliance with the Law. If you determine that you require additional C-105 or C-105.1 forms to be in compliance, please contact your workers' compensation insurance carrier or group self-insurance administrator immediately. Workers' compensation insurance carriers and group self-insurance administrators must provide you with enough of these forms so that you may comply with the law's requirements.

If you are authorized as self-insured and not part of a group self-insurance plan for NYS workers' compensation, you should have already received information on how to obtain copies of the C-105 and C-105.1 forms.

It is your responsibility as an employer to post the proof of workers' compensation coverage forms prominently in every place that you do business. Investigators may periodically check to ensure such forms are posted.

A copy of Section 51 of the NYS Workers' Compensation Law is printed on the back of this letter. The new amendment is in **bold font**.

Please note that this mailing was only sent to you to advise you of the new law. You do not have to contact the Workers' Compensation Board for any reason related to this letter. If you do have questions, please contact 1-866-546-9322. Thank you for your continued cooperation.

Section 51 of the NYS Workers' Compensation Law

Every employer who has complied with section fifty of this article shall post and maintain in a conspicuous place or places in and about his place or places of business typewritten or printed notices in form prescribed by the chairman, stating the fact that he has complied with all the rules and regulations of the chairman and the Board and that he has secured the payment of compensation to his employees and their dependents in accordance with the provisions of this chapter, but failure to post such notice as herein provided shall not in any way affect the exclusiveness of the remedy provided for by section eleven of this chapter. Every employer who owns or operates automotive or horse-drawn vehicles and has no minimum staff of regular employees required to report for work at an established place of business maintained by such employer and every employer who is engaged in the business of moving household goods or furniture shall post such notices in each and every vehicle owned or operated by him. Failure to post or maintain such notice in any of said vehicles shall constitute presumptive evidence that such employer has failed to secure the payment of compensation.

The chairman may require any employer to furnish a written statement at any time showing the stock corporation, mutual corporation or reciprocal insurer in which such employer is insured or the manner in which such employer has complied with any provision of this chapter. Failure for a period of ten days to furnish such written statement shall constitute presumptive evidence that such employer has neglected or failed in respect of any of the matters so required. **Any employer who fails to comply with the provisions of this section shall be required to pay to the Board a fine of up to two hundred fifty dollars for each violation, in addition to any other penalties imposed by law to be deposited into the uninsured employers' fund.**

STATE OF NEW YORK
George E. Pataki, Governor

WORKERS' COMPENSATION BOARD

STATEMENT OF RIGHTS

TO ALL WORKERS WHO ARE INJURED WHILE WORKING OR WHO SUFFER FROM AN OCCUPATIONAL DISEASE

YOU MAY BE ENTITLED TO WORKERS' COMPENSATION BENEFITS

1. You should file a claim for benefits within two years of the date you are injured, unless your injury is very minor, requiring no medical treatment and causing no lost time from work. If you do not file within two years your right to benefits may be lost. Obtain and file a claim form (Form C-3, or VF-3 for volunteer firefighters, or VAW-3 for volunteer ambulance workers) with the nearest Workers' Compensation Board office (see addresses below).

2. You may be entitled to lost time benefits if your work-related injury keeps you from work for more than seven days, compels you to work at lower wages or results in permanent disability to any part of your body. You may be entitled to rehabilitation services if you need help returning to work. (In volunteer firefighters' and volunteer ambulance workers' cases, compensation for lost time or loss of earning capacity may be payable from date of injury.)

3. You are entitled to obtain any necessary medical treatment related to your injury and you should do so immediately.

4. For the treatment of your work-related injury or illness, you may choose any physician, podiatrist, chiropractor, or psychologist (upon referral from an authorized physician) who is Board authorized and who is accepting workers' compensation patients. If, however, your employer is involved in a certified preferred provider organization (PPO) arrangement, you must obtain initial treatment for any workers' compensation injury or illness from the preferred provider organization. Employers participating in this statutory program are required to provide their employees with written notification describing their employees' rights and obligations under the program.

5. You should inform your doctor to file copies of medical reports concerning your claim with the Workers' Compensation Board and your employer's insurance company, which is indicated at the bottom of this form.

6. You should not pay any medical providers directly for treatment of your work-related injury or illness. They should send their bills to your employer's insurance carrier. If there is a dispute, the provider must wait until the Board makes a decision before it attempts to collect payment from you. If you do not pursue your claim or the Board rules that your injury is not work-related, you may be responsible for the payment of the bills.

7. The employer is liable for the replacement or repair of an employee's prosthesis (e.g., artificial members, false teeth, eyeglasses), which has been lost or damaged in the course of employment, whether or not there was bodily injury to the employee. You are also entitled to be reimbursed for drugs, crutches or any apparatus properly prescribed by your doctor, and transportation and other necessary expenses going to and from your doctor's office or hospital. (You should get receipts for all such expenses.)

8. You are entitled to be represented by an attorney or licensed representative, but it is not required. If you do hire an attorney or licensed representative, you should not pay him/her directly. Any fee will be set by the Board and will be deducted from your award.

9. Lost time and medical benefits are payable directly without a formal direction from the Board, unless your claim is disputed. If your claim is disputed on the grounds that your injury is not work-related or did not arise in the line of volunteer firefighter or ambulance worker duties, then you may qualify for disability benefits for non-work injuries. For more information on entitlement to disability benefits, contact the Workers' Compensation Board office nearest you.

10. You should go back to work as soon as you are able; compensation is never as high as your wage. If you need help returning to work, or with family or financial problems because of your injury, you should contact the nearest Board office and ask for a rehabilitation counselor or social worker.

11. Your employer may not ask you to waive your right to compensation nor may your employer deduct any money from your pay to contribute to the payment of workers' compensation insurance premiums. Further, you cannot be discharged or discriminated against because you filed a claim for workers' compensation benefits.

IF YOU HAVE DIFFICULTY IN OBTAINING A CLAIM FORM OR NEED HELP IN FILLING IT OUT, OR IF YOU HAVE ANY OTHER QUESTIONS OR PROBLEMS ABOUT A JOB-RELATED INJURY OR DISEASE, CONTACT ANY OFFICE OF THE WORKERS' COMPENSATION BOARD.

This information is a simplified presentation of your rights under the Workers' Compensation Law. It is provided, as required by Section 110 of the Workers' Compensation Law, by your employer's insurance carrier:

(Insert Name and Address of Insurance Carrier)

DOWNSTATE CENTRALIZED MAILING
(for New York City, Hempstead, Hauppauge & Peekskill Districts)
PO Box 5205 Binghamton, NY 13902-5205
NYC (800)877-1373 / Hemp. (866)805-3630 / Haup. (866)681-5354 / Peek. (866)746-0552

100 Broadway Menands
ALBANY 12241
(866) 750-5157

State Office Building
44 Hawley Street
BINGHAMTON 13901
(866) 802-3604

Statler Towers
107 Delaware Ave.
BUFFALO 14202
(866) 211-0645

130 Main Street W.
ROCHESTER 14614
(866) 211-0644

935 James St.
SYRACUSE 13203
(866) 802-3730

THE WORKERS' COMPENSATION BOARD EMPLOYS AND SERVES PEOPLE WITH DISABILITIES WITHOUT DISCRIMINATION.

C-430S (5-06) ESTE RESUMEN ESTÁ ESCRITO EN ESPAÑOL AL DORSO

www.wcb.state.ny.us

Injury Reporting Guidelines

All doctor cases, no matter how minor, are to be called to the Corporate WC Analyst, with the paperwork faxed within 24 hours. Decisions regarding OSHA/MSHA reporting will be made by the Safety Department. The WC Analyst is available to help manage injuries.

The following are generally considered FIRST AID treatment and are not recordable to OSHA/MSHA if the work-related injury does not involve loss of consciousness, restriction of work or motion within the job description, or transfer to another job due to the nature of the injury.

- Visits to a physician or other licensed health care professional for OBSERVATION OR COUNSELING;
- The conduct of DIAGNOSTIC PROCEDURES, such as x-rays and blood tests, including the administration of prescription medications used ***solely for diagnostic purposes*** (***e.g.***, eye drops to dilate pupils);
- Using a NON-PRESCRIPTION MEDICATION at nonprescription strength (for medications available in both prescription and non-prescription form, a recommendation by a physician or other licensed health care professional to use a non-prescription medication at prescription strength is considered medical treatment for recordkeeping purposes);
- Administering TETANUS IMMUNIZATIONS (other immunizations, such as Hepatitis B vaccine or rabies vaccine, are considered medical treatment);
- CLEANING, FLUSHING OR SOAKING WOUNDS on the surface of the skin;
- Using wound coverings such as BANDAGES, Band-Aids™, gauze pads, etc.; or using BUTTERFLY BANDAGES OR STERI-STRIPS™ (other wound closing devices such as sutures, staples, etc., are considered medical treatment);
- Using HOT OR COLD THERAPY;
- Using any NON-RIGID MEANS OF SUPPORT, such as elastic bandages, wraps, non-rigid back belts, etc. (devices with rigid stays or other systems designed to immobilize parts of the body are considered medical treatment for recordkeeping purposes);
- Using TEMPORARY IMMOBILIZATION DEVICES while TRANSPORTING an accident victim (***e.g.***, splints, slings, neck collars, back boards, etc.).
- DRILLING OF A FINGERNAIL OR TOENAIL TO RELIEVE PRESSURE, or draining fluid from a blister;
- Using EYE PATCHES;
- Removing FOREIGN BODIES FROM THE EYE USING ONLY IRRIGATION or a cotton swab;
- Removing SPLINTERS OR FOREIGN MATERIAL from areas other than the eye BY SIMPLE MEANS (irrigation, tweezers, cotton swabs, etc.);
- Using FINGER GUARDS;
- Using ONLY MASSAGE THERAPY (physical therapy or chiropractic treatment are considered medical treatment for recordkeeping purposes); or
- Drinking FLUIDS for relief of heat stress.

The following are generally considered MEDICAL TREATMENT and are always recordable:

- Treatment of INFECTION;
- Application of ANTISEPTICS during second or subsequent visits to the doctor or clinic;
- Treatment of SECOND AND THIRD DEGREE burns;
- Application of SUTURES (stitches);
- Removal of SPLINTERS OR FOREIGN BODIES FROM WOUND other than by simple means (irrigation, tweezers, cotton swabs);
- Use of hot or cold SOAKING TREATMENT during second or subsequent visits to the doctor or clinic;
- Application of hot or cold COMPRESSES during second or subsequent visits to the doctor or clinic;
- CUTTING AWAY DEAD SKIN (surgical debridement);
- Application of HEAT THERAPY during second or subsequent visits to the doctor or clinic;
- Use of WHIRLPOOL BATH THERAPY during second or subsequent visits to the doctor or clinic;
- POSITIVE X-RAY DIAGNOSIS (fractures, broken bones, etc);
- ADMISSION TO THE HOSPITAL or equivalent medical facility for TREATMENT (admission for observation only is generally not recordable);
- IMMOBILIZATION OF BODY PARTS (application of a cast or rigid splint);
- PRESCRIPTION MEDICATION (whether used or not) prescribed by doctor or clinic;
    - OSHA guidelines state prescription medication for any injury is recordable, except for a single dose administered on the initial visit
    - MSHA guidelines state prescription medication is recordable for eye injuries only
- TEETH, chipped or broken (damage to permanent teeth resulting in dental repair);
- CHIROPRACTOR AND PHYSICAL THERAPY when required to treat work-related injuries;
- RESTRICTIONS OF WORK (light duty) when outside the written job analysis of that job/craft; or TRANSFER to another job/craft due to the nature of the injury;
- Loss of consciousness.

PARSONS

ORDER FOR TREATMENT

_____ _____ of **PARSONS**
(Employee Name) (Occupation)

is authorized to go to _____ for the following service(s):
(Name of Medical Provider)

Treatment for a Job Related Injury/Illness for Date of Injury: _____.

In the event the above medical provider determines this injury or condition NOT TO BE WORK RELATED, the employee and **PARSONS** understand that this employee may then be referred by the above medical provider to his/her personal medical doctor.

Employer Information:

PARSONS
100 W. Walnut Street
Pasadena, CA 91124

Workers' compensation carrier:	AIG
Policy #:	7180725
Adjusting Office and and Phone:	

COMMENTS TO PROVIDER: **PARSONS** will provide any modified, alternate, light duty recommended. _____

_____

_____ _____ _____
Authorized Employer Signature Print Name Date

661-904-0978 866-293-0114
Phone Number Fax Number

Disability slips/return to work notifications: Immediately fax to **PARSONS** ***AND*** provide copy to employee at conclusion of every evaluation/treatment.

***** ATTENTION EMERGENCY DEPARTMENT**: After acute care, please refer patient back to _____ for follow-up treatment.
(Medical provider – to be completed by **PARSONS** – where permitted by law)

PARSONS Clinic Protocol Guidelines:

>> PARSONS has strong emphasis on return to work. We can accommodate any/all modified/restricted duty. We request that restrictions be provided vs. temporary total disability status.

>> IMMEDIATELY upon conclusion of EVERY medical evaluation(initially & all follow-ups), place phone call and/or email to Donna Miller to provide diagnosis and return to work restrictions.

>> When medically indicated and without jeopardizing injured worker's condition, PARSONS requests that injuries be kept non-recordable/first aid only. For example, please consider:

- Giving o-t-c medication in an o-t-c dose instead of prescription medication if medically appropriate
- For small cuts, using butterfly bandages, rather than sutures or dermal adhesive
- For sore arms, providing non-rigid means of support such as elastic bandages, wraps, non-rigid back belts rather than immobilize the arm
- Providing fluids for heat stress, rather than IV hydration

>> Avoid prescribing physical therapy at initial evaluation, when medically prudent. If physical therapy is indicated at initial evaluation, please contact Donna Miller.

>> Contact Donna Miller for authorization for referral for diagnostic testing beyond X-rays.

>> At conclusion of all evaluations/treatment/follow-ups, immediately fax return to work slip to Donna Miller and provide copy to injured worker.

>> Contact Donna Miller for authorization for referral to specialists.

PARSONS Workers Compensation Contact:

Donna Miller, Corporate WC Analyst
Office: 661-904-0978
Email: Donna.Miller@parsons.com
Fax: 866-293-0114
100 W. Walnut Street
Pasadena, CA 91124

PARSONS

Return to Work Program
Physician Explanation

Re:

Dear Doctor:

PARSONS has an Early Return-to-Work Program available for our employees who have sustained industrial injuries/illnesses.

Our goal is to return our employees to work as soon as physically possible within the limitations you prescribe. Our intention is that the employee can advance through levels of modified work over a period of time, resulting in the return to their regular job at full capacity. We need your medical expertise to accomplish this goal. We request your assistance on our employee's behalf by completing the attached DOCTOR'S RELEASE FOR WORK FORM. Please make any additional comments regarding physical limitations as needed.

To achieve success in this type of program, WE EXPECT THE INJURED WORKER TO PROVIDE US WITH A WRITTEN RELEASE EACH TIME HE/SHE VISITS THE DOCTOR. This will help us maintain accurate payroll records and eases our communication process during the recovery period.

If you have any questions or comments, please do not hesitate to contact me.

Thank you for your time in responding to this request.

Sincerely,

Donna P. Miller
Corporate Workers' Compensation Analyst
100 W. Walnut Street
Pasadena, CA 91124
661-904-0978 Office and Cell
Fax 866-293-0114

PARSONS Corporation
100 Walnut Street
Pasadena, CA 91124

DOCTOR's RELEASE FOR WORK FORM
JOB DUTIES ASSIGNED TO THIS EMPLOYEE WILL MATCH THE CAPABILITIES YOU DEFINE

EMPLOYEE NAME:	**CLAIM NUMBER:**
Diagnosis:	Date of Injury:

RETURN TO WORK STATUS	
☐ May return to regular work (*date*):	☐ Released to full duty with intention given not to aggravate injury (*date*):
☐ May return to modified work (*date*):	Estimated Duration of Modified Work:
☐ May not return to work until (*estimated date*):	

PHYSICAL LIMITATIONS: **I certify the employee can perform duties within the capabilities defined as follows**.
☐ **Without any restrictions.**

IN AN 8 HOUR WORKDAY, WORKER CAN: (CHECK FULL CAPACITY FOR EACH ACTIVITY)	
TOTAL AT ONE TIME (hours)	TOTAL DURING ENTIRE 8-HOUR DAY (hours)
Sit ☐ No restriction ☐ 0-2 Hours ☐ 3-5 Hours ☐ 6-8 Hours	Sit ☐ No restriction ☐ 0-2 Hours ☐ 3-5 Hours ☐ 6-8 Hours
Stand ☐ No restriction ☐ 0-2 Hours ☐ 3-5 Hours ☐ 6-8 Hours	Stand ☐ No restriction ☐ 0-2 Hours ☐ 3-5 Hours ☐ 6-8 Hours
Walk ☐ No restriction ☐ 0-2 Hours ☐ 3-5 Hours ☐ 6-8 Hours	Walk ☐ No restriction ☐ 0-2 Hours ☐ 3-5 Hours ☐ 6-8 Hours

☐ Job duties were explained to me by (*name/title*): On (*date*):
☒ I have received a written list of job tasks.
☐ I have **NOT** received a written list of job tasks, **BUT I AGREE THAT DUTIES MAY BE ASSIGNED AND/OR CHANGED, SO LONG AS THEY MATCH THE LIMITS DEFINED BY ME ABOVE**. ☐ No ☐ Yes

PHYSICIAN INFO:	
Physician Name (PRINT):	Phone:
Clinic Name:	Address:
Signature:	Date:

Please complete this form and give a copy to our employee.
Please fax this form to us at (866) 293-0114, Attn: Donna Miller at your earliest convenience.

Safety – Make It Personal

Guidelines for Establishing a Jobsite/Office Medical Clinic

Every **PARSONS**' jobsite and office is to have an effective working relationship with a medical care provider. This document is a checklist to be used as a guideline for selecting and setting up a medical clinic.

How to choose a clinic:

- Ask the Safety Department for a referral to a clinic used previously
- Ask the Corp WC Analyst for a referral from our workers comp insurer
- Ask the Client for a reference
- Look in the yellow pages for walk-in clinics or occupational physicians
- Ask what percentage of the clinic's business is workers comp (at least 25%)

- ❒ Make an appointment with the:
  - o Clinic Office Manager
  - o Lead Physician
- ❒ Discuss the scope of the work to be performed, **PARSONS**' claims management needs, and the clinic's capabilities:
  - o Removal of particles from eyes
  - o X-ray capabilities
  - o Physical therapy
  - o Treatment on-site v. referral to ER
- ❒ Explain **PARSONS**' priorities:
  - o Care of our employees and their welfare comes first
  - o Accommodation of any light duty restrictions (advantage to the employee financially, promotes healing, reduces mental anguish)
  - o **PARSONS**' safety program
- ❒ Discuss the clinic's philosophy of injury management and patient care:
  - o Back-to-work policy
  - o Suspected workers comp fraud
- ❒ Discuss the importance of OSHA/MSHA reporting:
  - o Criteria for recordability
  - o Methods to avoid a recordable or lost time claim
- ❒ Explain **PARSONS** work release policy:
  - o Release to full duty with intention not to aggravate
  - o Work available within job description
- ❒ Where applicable, discuss project drug policy and testing protocols. Provide COC's for **PARSONS** preferred lab.
- ❒ Discuss after hours policy and provide names and telephone numbers of emergency supervision contacts.
- ❒ Provide documents:
  - o Physician Return to Work Form
  - o Workers Comp policy and billing information
  - o Rules for recordability/clinic protocol
  - o Injury Management file
- ❒ Meet with all physicians our employees may be referred to by the medical clinic. Once a referral is made, the initial treating physician loses contact and control of the care provided.

ATTACHMENT C

PRE-DRILLING PROTOCOL

LIMITATIONS

The Subsurface Clearance Procedures set forth in this document are the suggested procedures but may not be applicable to particular sites based on the site-specific considerations. The Consultant is responsible for making a site-specific evaluation of each site to determine whether the Subsurface Clearance Procedures should be utilized or require modification. If safety or other site-specific considerations require a modified or different procedure, the Consultant should review the modified / different procedure with the GR Field manager (Global Remediation) in advance.

PURPOSE

To prevent injury to workers and damage to subsurface structures (including tanks, pipe lines, water lines, gas lines, electrical service, etc.) during ground disturbance activities (including drilling, augering, sampling, use of direct-push technologies, excavation, trenching, concrete coring or removal, fence post installation, grading or other similar operations).

SCOPE

This procedure provides minimum guidance for subsurface clearance activities, which must be followed prior to and during ground disturbance activities at any and all ExxonMobil Global Remediation project sites. However, even after completing the subsurface clearance activities required in this procedure, all ground disturbance activities should proceed with due caution.

Deviations from this procedure may be provided on an exception basis for specific situations, such as underground storage tank system removals, verified above ground/overhead services / lines, undeveloped land / idle facilities, shallow ground water conditions, soil stability, or well construction QA/QC concerns, etc.

The consultant/contractor must review deviations with the ExxonMobil Global Remediation Field manager (PM) before proceeding. In these instances the review must be documented in the case file.

The consultant/contractor is responsible for, and shall ensure that all ground disturbance activities are completed safely, without incident and in accordance with applicable federal, state and local regulations.

This **procedure** shall not override any site specific or consultant/contractor procedures that are more stringent or provide a greater degree of safety or protection of health or the environment.

APPLICABLE DOCUMENTS

- Frequently Asked Questions: Subsurface Clearance Procedure, Subsurface Surveys, Technologies, and Markout Companies (Best Net)
- Key Points on Underground Location Industry and Technologies (Best Net)
- Technical Report: Techniques and Technologies for Subsurface Line Location (Best Net)

APPLICABLE APPENDICES

- Subsurface Clearance Checklist
- Subsurface Mark-Out Technology Application Chart

RESPONSIBLE RESOURCES

CONSULTANT/CONTRACTOR

- The consultant/contractor will be responsible for fulfilling the objectives of this procedure by ensuring that the identified procedures are carried out by all of the consultant's/contractor's employees, sub-contractors, and any other person involved in this activity.
- The consultant/contractor will ensure that all individuals working on ExxonMobil Global Remediation projects are adequately trained and supervised.
- The consultant/contractor will practice safe and environmentally compliant investigation and drilling practices and employ all necessary measures to avoid damage to subsurface structures.
- The consultant/contractor is responsible for reviewing with PM all selected ground disturbance locations/areas, as well as the equipment/methods to complete the work.
- The consultant/contractor will ensure this subsurface procedure has been reviewed and is understood by all involved site personnel.

GLOBAL REMEDIATION PROJECT MANAGER

- The PM, or other ExxonMobil person designated by the PM (designated person), will be the point of contact for the consultant/contractor in the event an exception to this procedure is requested.
- The PM, or designated person, will be responsible for reviewing all selected ground disturbance locations/areas, including any relocations, as well as all equipment necessary for those activities.

PROCEDURES

Consultant/contractor must complete the Subsurface Clearance Checklist in conjunction with the following procedures. The checklist must be completed before initiating any ground disturbance activities. The completed checklist must be submitted to the PM and included in the project files.

1. Safety

A Health and Safety Plan (HASP) must be available onsite and followed by all contractors and subcontractors. ExxonMobil Global Remediation's Contractual Safety Requirements must always be followed.

All work areas shall be defined and secured with safety cones, safety tape, construction fence, other barriers, or signs as appropriate.

Site work permits must be obtained as required by site procedures. Based on site conditions or classification, the use of intrinsically-safe equipment may be required.

If applicable, the emergency shutoff switch, or other emergency equipment, shall be located and the consultant/contractor, employees, sub-contractors, and any other person involved in this activity must be familiar with its use.

To ensure the safety of all on-site personnel and subsurface structure integrity, consideration should be given to de-energizing and locking out selected site utilities or temporarily shutting down a portion of or the entire facility.

Most of devices used for subsurface cable / equipment / tank detection are not intrinsically safe / designed for use in explosive / flammable atmospheres**. Therefore, ensure proper monitoring / gas free testing is performed before use. For additional help, contact business line or regional safety or industrial hygiene staff.**

2. Preparation Tasks

Objective: To gather all relevant information about potential subsurface structures prior to the actual site visit.

a. Obtain Permits and Site Access

The consultant/contractor is responsible for following all applicable laws, guidance and approved codes of practice; obtaining all necessary permits and utility clearances; and securing site access permission.

b. Obtain Historic Site Information

Obtain most recent as-built drawings and/or site plans (including underground storage tank (UST), product and vent lines) as available. NOTE: As-built drawings may not accurately depict the locations and depths of improvements and subsurface structures and should, therefore, not be **solely** relied upon.

The consultant/contractor should obtain any other site information such as easements, right-of-ways, historical plot plans, fire insurance plans, tank (dip) charts, previous site investigations, soil surveys, boring logs and aerial photographs, etc. as relevant to the planned ground disturbance activities.

Where applicable, the consultant/contractor should also contact personnel who may have historic site knowledge.

3. Mark-outs

Objective: To identify location of subsurface structures on surface.

The consultant/contractor must ensure that a thorough subsurface structure mark-out at the site is completed to locate electrical, gas, telephone, water, sewer, low voltage electric lines, product delivery pipelines and all other subsurface utilities/services.

- Where available public utility companies must be contacted to identify underground utilities.
- In addition, where available and warranted by site conditions, a private utility/pipeline mark-out company should be contracted to perform an electronic subsurface survey to identify the presence of suspected hazardous or critical underground utilities and subsurface structures. In some cases to also confirm public utility mark-outs in the vicinity of planned ground disturbance activities. (See Subsurface Mark-Out Technology Application Chart)

Consultant/contractor should review all available site plan subsurface information with private mark-out company to assist in locating utilities and other subsurface structures.

NOTE: Mark-outs may not accurately depict the exact locations of improvements and subsurface structures and should, therefore, not be **solely** relied upon.

Where possible, the consultant/contractor is encouraged to be on site at time of subsurface mark-outs. This is to ensure accuracy and understanding of subsurface structures identified and provides an opportunity to exchange information with mark-out company personnel regarding planned work activities.

Subsurface structures should be marked throughout the entire work area(s) with adequate materials (e.g. site conditions may require paint and tape/flags). Ground disturbance activities must be started within 30 days of mark-out, unless local ordinances specify a shorter time period. If activities are not started within required time period or markings have faded, mark-outs must be redone.

Consultant/contractor should record time and date of mark-out request and list all companies contacted by the service and confirmation number. This should be available for review on site and checked off after visual confirmation of markings.

4. Initial Site Visit

Objective: To compare the site plan to actual conditions based on information gathered in Procedures 2 and 3 above, to obtain additional site information needed and to prepare a vicinity map.

The consultant/contractor shall document all findings and update the site plan with this information and provide updates to PM. On third party sites, close coordination with the site owner's representatives for mark-outs, review of as-builts, and other information reviews should be conducted prior to work. PMs are encouraged to provide updated as-built information to the respective Business Units.

In some regions it may be more effective and efficient to conduct the site visit at the same time the contractor and drill rig are mobilized to the site. The inspection should include the following activities and may include others as determined by the consultant/contractor and the PM:

a. Utilities

The consultant/contractor shall perform a detailed site walkthrough for the purpose of identifying all aboveground indicators of subsurface utilities/services that may be leading to or from buildings within the planned work area. The inspection shall include, but not be limited to, the following:

- Utility mark-outs
- Aboveground utilities
- Area lights/signs
- Phones
- Drains
- Junction boxes
- Natural gas meters or connections
- Other utilities including: fire hydrants, on/below grade electrical transformers, splice cages, sewer lines, pipeline markers, cable markers, valve box covers, clean-outs/traps, sprinkler systems, steam lines (including insulated tanks that may indicate steam lines), cathodic protection on lines/tanks
- Observe paving scars (i.e. fresh asphalt/concrete patches, scored asphalt/concrete)

NOTE: In many cases, the on-site location of low-voltage electrical lines and individual property water and sewer line branches may be approximated by using the following technique:

- Locate the entry/connection location at the facility building
- Attempt to identify utility connections for the mains (water, sewer, etc.) by locating clean-outs, valve manways, etc. The location/path of the utility is likely within the area between the main connection and the facility building connection. Subsurface electrical line locations from the facility building to signs, lamps, etc. can be estimated with the same process.

b. Product Systems

The consultant/contractor shall perform a detailed site walkthrough for the purpose of identifying all aboveground indicators of product systems within the planned work area.

- Speak with someone (e.g. retailer, field supervisor, person responsible for issuing permit, etc.) with historical site knowledge to gain information about the site (location of former tanks, lines, etc.).

For UST systems:

- Inspect for the presence of a dispenser pan and determine piping materials and whether piping is rigid or flexible, as flexible-piping runs may not be straight between connection points.
- Visually inspect the location of the tankfield, observation wells, dispensers, vent stack(s), and UST fill points. Note the location of the emergency shutoff switch and become familiar with its use.
- Note the orientation, arrangement, location, and the size/capacity of the tanks and submerged turbine pump (STP) covers (associated with product lines) and extractor covers (associated with stage I/II vapor recovery). Determine the burial depth of the tank field to also estimate burial depth of product lines, etc.
- Observe paving scars that may indicate location of product piping or other subsurface structures.

For other sites (e.g., Refineries/Chemical Plants, Terminals, Bulk Plants, Exploration & Production Facilities):

- Inspect for the presence of underground pipelines associated with pumps and pump galleries, manifolds, tank fields, compressors, production wells, loading racks, underground valves and other process equipment types.
- Inspect for underground instrumentation cable runs, as well as process/storm sewers. Note location of all instrumentation, analyzers, and lines leading from/to motor operated valves etc.

c. Existing Remediation Systems

Visually inspect the location of aboveground components.

Note the locations of well covers, sparge points, etc.

Observe new pavement/asphalt that may give indications of subsurface piping that is connected to recovery/injection wells and the aboveground components.

Other Pertinent Features:

Note any other pertinent features that may be of relevance to the planned subsurface ground disturbance activities (e.g. underground private pipelines marked by aboveground designators, covers not associated with known lines that may be associated with historical underground tanks, hydraulic lifts etc.).

5. Selection of Ground Disturbance Locations

Objective: To document, communicate and review the selected ground disturbance area locations.

a. Define 'Critical Zones'

The following minimum criteria should be applied to determine critical zones:

- 10 feet (3 meters) distance from the furthest edge of any tank, pump(s) and pump galleries, manifolds on/below grade transformers, compressors, production wells, loading racks, and other process equipment types.
- 10 feet (3 meters) distance surrounding dispenser islands.
- The entire area between the tank field and dispenser island(s) at retail sites.
- 10 feet (3 meters) distance from suspected hazardous or critical underground utilities and other subsurface structures.
- The size of the critical zone may increase based on site conditions such as soil type, slope stability factors, and depth of subsurface ground disturbance activities to ensure that subsurface structure integrity is maintained. Final critical zone determination shall be reviewed with the PM.
  - Note: Lines that can be verified as de-energized via a formal lock-out / tag-out program, and/or if impacted do not present a safety, environmental, community, or operational concern (either onsite of offsite), may at the discretion of the PM be excluded from the critical zone determination.
- Regional / country / site specific modifications to the critical zone applicability can be requested by the PM/Area Manager through the management of change process.
- More restrictive measures shall supersede if required by regulation / business units.

b. Select Ground Disturbance Locations

The consultant/contractor should utilize the information collected to this point in combination with regulatory requirements and project objectives to select ground disturbance locations. Ground disturbance locations should also consider the location of overhead obstructions (e.g. power lines, etc.).

If possible, the consultant/contractor should avoid selecting locations within the critical zone.

c. Review Selected Locations with the PM

The consultant/contractor must review the selected ground disturbance locations with the PM.

THE CONSULTANT/CONTRACTOR MUST NOT PROCEED WITH THE SUBSURFACE ACTIVITIES UNTIL THE PLAN HAS BEEN DISCUSSED WITH THE PM. IF RELOCATION OF PLANNED SUB-SURFACE ACTIVITIES IS NECESSARY OUTSIDE OF PREVIOUSLY REVIEWED AND APPROVED LIMITS/AREAS, THE CONSULTANT/CONTRACTOR MUST CONTACT THE PM PRIOR TO PROCEEDING.

6. Subsurface Structure Delineation Activities

Objective: To delineate subsurface structures prior to ground disturbance activities in order to prevent potential worker injuries, product release and/or damage to those structures.

a. Supervision:

The consultant/contractor's on-site representative will be responsible for all ground disturbance activities and must have a copy of this procedure on-site.

ALL GROUND DISTURBANCE ACTIVITIES INCLUDING SURFACE REMOVAL WILL BE PERFORMED, OBSERVED OR SUPERVISED BY THE CONSULTANT/CONTRACTOR'S REPRESENTATIVE AT ALL TIMES. This representative will ensure that the work is performed with due caution and will be alert for warning signs that could indicate the presence of underground tanks, utilities, product lines, or other subsurface structures. If any such indications arise, **THE WORK SHOULD IMMEDIATELY STOP IN THIS AREA AND THE PM SHALL BE CONTACTED IMMEDIATELY.** The consultant/contractor may proceed with other pre-assigned work at other locations on the site.

The consultant/contractor will ensure that all workers involved with subsurface ground disturbance activities have undergone appropriate training prior to working at an ExxonMobil Global Remediation site. At retail sites, ExxonMobil UST system training must also be completed.

b. Ground Disturbance Activities Sequence

If possible, ground disturbance activities should be planned such that the activities furthest from any suspected underground improvements are carried out first. This is done to determine the natural subsurface conditions and to allow the consultant/contractor to recognize fill conditions.

c. Warning Signs

The following warning signs may indicate the presence of a subsurface structure:

- Warning Tape (typically indicative of underground services)
- Pea Gravel/Sand/Non-indigenous Material (typically indicative of tanks or lines)
- Red Concrete (typically indicative of electrical duct banks)
- The abrupt absence of soil recovery in the hand auger. This could indicate pea gravel or sand that has spilled out of the auger. Except in areas where native soil conditions typically result in poor hand auger recoveries.
- Any unexpected departure from the native soil or backfill conditions as established in other onsite digging.

IF ANY OF THE ABOVE WARNING SIGNS OR A SUSPICIOUS CONDITION IS ENCOUNTERED, WORK IN THIS AREA SHOULD IMMEDIATELY STOP AND THE PM SHOULD BE CONTACTED.

d. Surface Removal for Paved Areas

Paving Removal
Sufficient paving or surface improvement should be removed to allow clear visibility of the subsurface conditions during clearance activities. Ground disturbance activities in an area of known subsurface structures may warrant a larger pavement opening.

- Monitoring Well Installations: 2 feet x 2 feet (60 cm x 60 cm) or 2-foot diameter minimum removal is suggested.
- Soil Borings/Push Type Samplers: 8 inches x 8 inches (20 cm x 20 cm) or 8-inch diameter minimum removal is suggested.

- NOTE: Coring and jack hammering should not take place directly over the location of known utility or subsurface structures / lines.

Surface Removal Technique
The technique used should not pose a threat to subsurface structures. Avoid use of heavy equipment if possible. In situations where heavy equipment must be used, additional precautions should be taken because subsurface structures could be located immediately below surface pavement.

e. Subsurface Delineation

The method used to delineate the subsurface should be compatible with the inherent associated risk given the type of facility/property, soil stratigraphy, and the location of the ground disturbance activity, such that the required delineation is obtained.

Subsurface Clearance Methods

The consultant/contractor should discuss clearance methods with the PM prior to start of field activities.

- Vacuum Digging - Soil should be broken up with an air lance and simultaneously vacuumed to remove loose soils. Alternatively a low volume/high pressure water lance may be used to break-up cohesive/dense soils while to vacuuming. Current test/experience indicates that water lances operating at pressures below 5,000 psi and at rates below 12 gpm are unlikely to damage typical fiberglass / metal lines/tanks and utilities. Using systems above these ranges should be tested prior to use.
- Probing - The probe should have a blunt or rounded tip and should be advanced by hand without excessive force. It is important to inspect the probe to ensure the tip is rounded and does not present a point/jagged cutting edge that could damage underground structures.
- Hand Digging - Should be performed with a small shovel.
- Hand Augering - The auger is to be turned slowly and not forced through the soil. It is recommended that an auger without sharp points (some augers have rounded edges) be used.
- Post-Hole Digging - A post-hole digger can be used for soil removal only in soil that has been probed by the 4 methods noted above, and cannot be used to advance the hole depth or width.
- An evaluation of sample collection requirements needs to be integrated into the selection of subsurface clearance methods to ensure sample integrity is maintained. For vacuum digging, with or without air lances the following guidance is provided:
- Loose sand soil - Vacuum lift only
- Tight dense sandy soils - Vacuum and air lance
- Dense cohesive soils - Vacuum and water lance

- Note: For retail sites, probing is required prior to hand augering or digging can be advanced only to the depth that has been probed.

- An evaluation of potential electrical or fire / explosion risks should be part of the overall sub-surface clearance job safety analysis to evaluate whether the use of non-conductive materials and/or non-sparking materials is warranted (for example, glass fiber handle on shovels or thick electrically insulating rubber grips on hand-auger or probe). The use of non-conductive materials, electrical safety insulated gloves and footwear should also be evaluated. It is beyond the scope of this document to cover electrical / fire safety or protective equipment evaluation, selection, training and/or inspection methods. This should be part of the site safety program.

Subsurface Clearance Procedures Based on Planned Subsurface Ground Disturbance Activities:

Selected subsurface clearance methods that will achieve the highest level of precautionary investigation and/or safety based on site conditions should be reviewed with the PM prior to implementation.

(1) Drilling, Direct-Push Technologies, Augering, Fence Post Installation or Other Borehole Installation Activities:

- IN CRITICAL ZONES, A MINIMUM DELINEATION TO A DEPTH OF 8 FEET (2.5 METERS) IS REQUIRED.
-
- IN NON-CRITICAL ZONES, A MINIMUM DELINEATION TO A DEPTH OF 4 FEET (1.2 METERS) IS REQUIRED. IN AREAS WHERE EXPECTED FROST LEVELS ARE GREATER THAN 4 FEET, A GREATER DELINEATION DEPTH WILL BE REQUIRED.

The First 4 feet (1.2 meters)

The area to be delineated shall exceed the diameter of the largest tool (drill auger, push type sampler, ream, or similar mechanical equipment) to be advanced and sufficiently large to allow for visual inspection of any obstructions encountered.

The first 1 foot - 2 feet (0.3 meters - 0.6 meters) can be delineated by hand digging to remove the soil.

Next, delineate the area to ensure that no obstructions exist anywhere near the potential path of the mechanical equipment by probing / augering / vacuum digging or hand digging. Delineation shall extend as far laterally as possible and to a depth of 4-feet.

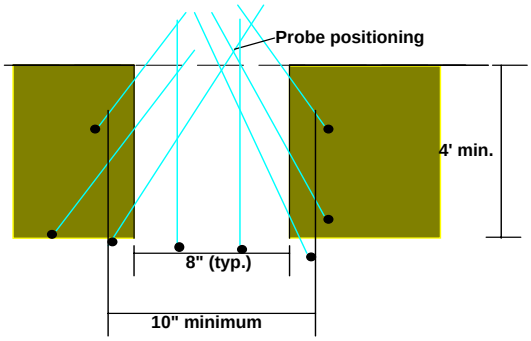
The Second 4 feet (1.2 meters)

Critical Zones
For boring locations inside the critical zone, delineation, utilizing one of the four methods described above, to an additional 4 feet (1.2 meters) is required.

Non-critical Zones

For sub-surface work outside the critical zone, delineation of an additional 4 feet (1.2 meters) may be prudent due to site conditions / climate (deep frost-line), etc., but is not required.

Probing Example



NOTE: Not drawn to scale.

(2) Trenching/Excavation Activities:

- IN CRITICAL ZONES, A MINIMUM DELINEATION TO A DEPTH OF 4 FEET (1.2 METERS) IS REQUIRED. IN AREAS WHERE EXPECTED FROST LEVELS ARE GREATER THAN 4 FEET, A GREATER DELINEATION DEPTH WILL BE REQUIRED.

- The first 4 feet (1.2 meters) should be delineated by hand digging to remove the soil unless an alternative delineation method has been reviewed with the PM.

- Outside the critical zone, site-specific conditions will determine the appropriate course of action and delineation requirements must be reviewed with the PM prior to start of ground disturbance activities.

Appropriate subsurface clearance methods should be conducted along the length and width of the excavation at a frequency sufficient to ensure adequate precautions have been applied to the entire work area. The frequency and density of investigations shall be based on site knowledge, potential hazards and risks of the site / work area and surrounding locations (e.g. proximity to residential areas, public, etc.).

Whenever subsurface structures are exposed, work in area must cease until precautions (e.g. flags, cross bracing, stakes, etc.) are taken to ensure that the integrity of those structures is maintained during the trenching/excavation and subsequent backfilling activities.

A minimum 2-foot buffer zone must be maintained around exposed lines. No mechanical equipment may enter the buffer zone.

f. Alternative Subsurface Clearance Methods

In all cases the consultant/contractor must employ all means necessary to prevent damaging subsurface structures. Where natural subsurface conditions (e.g. cobbles/rocks, fill material, and/or bedrock) prevent adequate delineation utilizing methods identified above, the consultant/contractor must employ an effective and innovative alternative method of delineation following review with the PM.

Additionally, the depth of utility clearances may require modification based on regional / site construction details. Less restrictive methods should follow management of change procedure to ensure proper documentation and approvals are provided.

g. Incident Notification

IF ANY PORTION OF A TANK, LINE, UTILITY OR OTHER SUBSURFACE STRUCTURE IS ENCOUNTERED AND THERE IS REASON TO BELIEVE THAT IT HAS BEEN DAMAGED, THE WORK IS TO CEASE IN THAT AREA AND THE PM MUST BE NOTIFIED IMMEDIATELY. IF APPLICABLE, THE EMERGENCY SHUTOFF SWITCH SHOULD BE ACTIVATED. THE PM WILL DECIDE IF ADDITIONAL UNCOVERING BY HAND IS REQUIRED. IF IT IS CONFIRMED THAT AN ACTIVE UST SYSTEM HAS BEEN DAMAGED, A TIGHTNESS TEST(S) WILL BE PERFORMED. UNDER NO CIRCUMSTANCES IS THE AREA TO BE BACKFILLED WITHOUT NOTIFYING THE PM AND RECEIVING AN APPROVAL TO PROCEED.

h. Scheduling

As subsurface delineation may be time consuming, it may be appropriate to perform the surface removal and subsurface delineation in advance of planned subsurface ground disturbance activities. If these activities are conducted in advance, the clearance holes must be adequately covered with plates and/or backfilled. Care must be taken to prevent settlement of the material used to cover/backfill the holes.

For remote, idled, or access controlled sites, clearance holes can be left open; however, hazard cones, fencing or other methods shall be used to identify the hazard.

i. Waste Disposal

The consultant/contractor is responsible for coordinating the final disposition, including transportation of generated soil and water wastes per prevailing regulatory requirements and ExxonMobil Global Remediation guidelines.

Subsurface Mark-out Technology Application Chart

Technology ⇒ **Object ⇓**	Electro-Magnetic Detector	Ground Penetrating Radar (GPR)⊙	Acoustic Plastic Pipe Locator	Probe, Beacon, Sonde, or Trace Wire	Cesium MagnetometerΞ
Power/Instrument Line (Energized/Signaled□)	❁ G	Y	R	R	Y
Power Line (Non-energized)	Y	❁ Y	R	R	Y
Sewer/Water Line (Metallic)	❁ G	>12" diameter G <12" diameter Y	Y	G	Y
Sewer/Water Line (Non-metallic)	R	>12" diameter G <12" diameter Y	G	❁ G	Y
Instrument/Telecomm Lines (Non-energized)	R	R	R	R	R
Natural Gas Line (Pipeline)◆	❁ G	>12" diameter G <12" diameter Y	R	R	G
Metallic/Non-Metallic Line (w/Tracer Wire)	❁ G	>12" diameter G <12" diameter Y	Y	Y	Y
Metallic/Non-Metallic Line (w/o Tracer Wire)	R	>12" ❁diameter G <12" ❁ diameter Y	Y	Y	R
Metal UST	❁ G	❁ G	R	R	G
Fiberglass UST	R	❁ G	R	R	Y

Additional Considerations

Technology ➡ **Variable** ⬇	Electro-Magnetic Detector	Ground Penetrating Radar (GPR)⊙	Acoustic Pipe Locator	Probe, Beacon, Sonde, or Trace Wire	Cesium MagnetometerΞ
Moist Soil	G	Y	G	G	Y
Dry Soil	Y	G	Y	G	G
Clay	Y	R	G	G	Y
Concrete w/Rebar	R	Y	G	G	R
Long Horizontal Profile	G	G	G	G	G
Short Horizontal but Deep Vertical Profile	Y	G	R	R	G
Access to Line✚	G	N/A	G	G	N/A
No Access to Line✚	Y	G	R	R	G
Ferrous Metal	G	G	G	G	G
Non-ferrous Metal	Y	G	G	G	Y

Each remediation site / project may have unique conditions, therefore do not use this chart as the sole decision criteria for technology selection. Use the chart as a starting point to assess <u>available</u> technology(s) applicable.

❁ **Indicates Best Technology for Given Object. <u>Site structures, rebar in concrete, etc. can significantly affect performance and reliability of any electro / magnetic method.</u>**

□ **Metallic lines that have power running through them or can be connected to a tracer signal generator.**

◆ **Natural gas pipeline locating technicians must be trained/certified in the US requires DOT, Office of Pipeline Safety standards, other regions may have similar certification or requirements.**

⊙ **Most sensitive to interpretation; the skill, training, and experience of operator are critical.**

Ξ Emerging technology with limited availability.
✚ Access: induce unique electronic signature, apply acoustical impulse, or insert probe/beacon/sonde.

Green: - Generally, an applicable technology,
Yellow: - May or may not be applicable,
Red: - Not generally applicable.

ATTACHMENT D

JOB SAFETY ANALYSES (JSAS)

ExxonMobil Refining & Supply - Global Remediation
JOB SAFETY ANALYSIS September 2007

COMPANY/ PROJECT NAME or ID/ LOCATION (City, State)	DATE REVISED:	☒ NEW ☐ REVISED	PAGE 1 of 2
ExxonMobil, Long Island City, NY	September 14, 2007		

WORK ACTIVITY (Description):
General Field Activities

DEVELOPMENT TEAM	POSITION / TITLE	REVIEWED BY:	POSITION / TITLE
Heather Budzich	Environmental Engineer		

MINIMUM REQUIRED PERSONAL PROTECTIVE EQUIPMENT (SEE CRITICAL ACTIONS FOR TASK-SPECIFIC REQUIREMENTS)

☒ REFLECTIVE VEST	☐ GOGGLES	☐ AIR PURIFYING RESPIRATOR	☒ GLOVES _____
☒ HARD HAT	☐ FACE SHIELD	☐ SUPPLIED RESPIRATOR	☐ OTHER: PFD if excavating within 25 feet of river.
☐ LIFELINE / HARNESS	☒ HEARING PROTECTION	☒ PPE CLOTHING:	
☒ SAFETY GLASSES	☒ SAFETY SHOES		

[1]JOB STEPS	[2]POTENTIAL HAZARDS	[3]CRITICAL ACTIONS TO MITIGATE HAZARDS
1. Outdoor, physical activity	<u>Heat Stress</u> Prickly heat (heat rash) Heat cramps Heat exhaustion Heat fatigue Heat collapse Heat stroke	Adjust work schedules and mandate work slowdowns as needed. Perform work during cooler hours of the day if possible or at night if adequate lighting can be provided. Provide shelter (air-conditioned, if possible) or shaded areas to protect personnel during rest periods. Maintain worker's body fluids at normal levels. Train workers to recognize the symptoms of heat related illness. Monitor workers physical conditions. Monitor outside temperature versus worker activity.
	<u>Cold Related Injuries</u> Frostbite Hypothermia	Educate workers to recognize the symptoms of frostbite and hypothermia. Identify and limit known risk factors. Assure the availability of enclosed, heated environment on or adjacent to the Site. Assure the availability of dry changes of clothing. Assure the availability of warm drinks. Start (oral) temperature recording at the job site using the following guidance: • At the Field Team Leader's discretion when suspicion is based on changes in a worker's performance or mental status. • At a worker's request. • As a screening measure, two times per shift, under unusually hazardous conditions (e.g., wind-chill less than 20°F, or wind-chill less than 30°F with precipitation). • As a screening measure whenever any one worker on the Site develops hypothermia.
	Rain	Have proper PPE (i.e. rain gear, footwear, etc) available. Be aware of slip hazards, puddles, etc.
	Sunshine	Have sunscreen available for ultraviolet protection. Have water for dehydration.
	Snow	Have warm clothes available for cold temperatures.
	Lightning	Do not begin or continue work until lightning and/or thunder have been absent for 20 minutes.

	High winds, dust storm	Wear goggles if dust/debris is visible.
	Pollen	Workers should consider taking anti-histamine to minimize allergic reaction to pollen, but must consider side effects such as drowsiness. Wear dust mask, if necessary.
	Walking on uneven or wet terrain (i.e. slopes, leaves, covered objects, holes, etc)	Wear steel toe rubber boots versus over-the-shoe rubber boots. Use walking stick or other object for additional support/balance and to check for animal burrows/holes.
	Biological: insects, wildlife, vegetation	Inspect work areas after arrival at the Site to identify presence of biological hazards and maintain safe distance if observed. Apply bug repellant spray or lotion to exposed skin if mosquitoes or gnats are observed. Wear appropriate PPE including long sleeves and pants.
	Vegetation	Create a clear path or route with mechanical equipment, whenever possible. Wear appropriate PPE for the vegetation (i.e. leather gloves, Carhart coveralls and face shield for vegetation that could cause cuts/punctures and/or is higher than waist level).

[1] Each Job or Operation consists of a set of steps. Be sure to list all the steps in the sequence that they are performed. Specify the equipment or other details to set the basis for the associated hazards in Column 2

[2] A hazard is a potential danger. What can go wrong? How can someone get hurt? Consider, but do not limit, the analysis to: **Contact** - victim is struck by or strikes an object; **Caught** - victim is caught on, caught in or caught between objects; **Fall** - victim falls to ground or lower level (includes slips and trips); **Exertion** - excessive strain or stress / ergonomics / lifting techniques; **Exposure** - inhalation/skin hazards. Specify the hazards and do not limit the description to a single word such as "Caught"

[3] Aligning with the first two columns, describe what actions or procedures are necessary to eliminate or minimize the hazards. Be clear, concise and specific. Use objective, observable and quantified terms. Avoid subjective general statements such as, "be careful" or "use as appropriate".

ExxonMobil Refining & Supply - Global Remediation
JOB SAFETY ANALYSIS September 2007

COMPANY/ PROJECT NAME or ID/ LOCATION (City, State)	DATE	☒ NEW ☐ REVISED	PAGE 1 of 1
SERVICE Engineering Group/ExxonMobil	9/14/07		

WORK ACTIVITY (Description):
Driving to the Site

DEVELOPMENT TEAM	POSITION / TITLE	REVIEWED BY:	POSITION / TITLE
Heather Budzich	Environmental Engineer		

MINIMUM REQUIRED PERSONAL PROTECTIVE EQUIPMENT (SEE CRITICAL ACTIONS FOR TASK-SPECIFIC REQUIREMENTS)

☐ REFLECTIVE VEST	☐ GOGGLES	☐ AIR PURIFYING RESPIRATOR	☐ GLOVES _____
☐ HARD HAT	☐ FACE SHIELD	☐ SUPPLIED RESPIRATOR	☒ OTHER Seat belt
☐ LIFELINE / HARNESS	☐ HEARING PROTECTION	☐ PPE CLOTHING _____	
☐ SAFETY GLASSES	☐ SAFETY SHOES _____		

[1]JOB STEPS	[2]POTENTIAL HAZARDS	[3]CRITICAL ACTIONS TO MITIGATE HAZARDS
1. Check out the vehicle fluids	Break down	Check the critical fluids prior to leaving garage (gasoline, oil, coolant, washer fluid, transmission fluid, brake fluid) If necessary top off the fluid levels. Look under the vehicle to see if there are any leaks.
2. Check the tires	Flat tire, vehicle could crash	Check the tires for proper inflation. Check for uneven wear. Check the sidewalls for cracks or bulges. If it is determined that the tires need maintenance or repair it must be done before going to the site.
3. Check the lights	Accident, repair ticket	Check the vehicle lights (brake lights, turn signals, head lights, tail lights, marker lights) If any lights are not working properly have them repaired
4. Back out of the garage	Accident	Make sure the garage door is fully open. Make sure no one is behind the vehicle (have them move). Back out slowly incase there are pedestrians in the parking area.
5. Leave for the site	Fatal Accident, Injury Accident, Property Accident	Wear safety belt. (Everyone in the vehicle). Drive defensively (keep I vehicle length per 10 miles per hour of speed). Use caution when approaching other vehicles and traffic signals (stop signs, traffic lights, etc). Drive according to weather conditions (slow down if rain, snow or icy conditions).
	Fatigue/falling asleep	Get adequate rest prior to driving. Pull over and rest if experiencing drowsiness. Change seat position, stretch, open the window, adjust radio if experiencing drowsiness until a safe stop location can be reached.
	Weather/road conditions	Check road and weather conditions prior to driving. Be prepared to adjust driving if conditions change. Travel in daylight hours if possible. Give yourself plenty of time to allow for slow downs due to construction, accidents, or other unforeseen circumstances. Use lights at all times and wipers during inclement weather.
6. Arrive at site	Transients	Ensure that the site is still secure. Always have two people. If transients are encountered do not confront them call the Long Island City police to have them removed.
	Theft/crime of parked vehicle	Lock the vehicle when leaving the area. Use anti-theft deterrents (e.g., The Club®, visible alarm indicators, etc.). Park in well lit areas. Hide valuables.
7. Return to office	Same as above	Same as above. If any new problems are noticed on the way check them out. As always drive cautiously.

ExxonMobil Refining & Supply - Global Remediation

JOB SAFETY ANALYSIS September 2007

8.		

[1] Each Job or Operation consists of a set of steps. Be sure to list all the steps in the sequence that they are performed. Specify the equipment or other details to set the basis for the associated hazards in Column 2

[2] A hazard is a potential danger. What can go wrong? How can someone get hurt? Consider, but do not limit, the analysis to: **Contact** - victim is struck by or strikes an object; **Caught** - victim is caught on, caught in or caught between objects; **Fall** - victim falls to ground or lower level (includes slips and trips); **Exertion** - excessive strain or stress / ergonomics / lifting techniques; **Exposure** - inhalation/skin hazards. Specify the hazards and do not limit the description to a single word such as "Caught"

[3] Aligning with the first two columns, describe what actions or procedures are necessary to eliminate or minimize the hazards. Be clear, concise and specific. Use objective, observable and quantified terms. Avoid subjective general statements such as, "be careful" or "use as appropriate".

ExxonMobil Refining & Supply - Global Remediation
JOB SAFETY ANALYSIS September 2007

COMPANY/ PROJECT NAME or ID/ LOCATION (City, State)	DATE	☒ NEW ☐ REVISED	PAGE 1 of 1
SERVICE Engineering Group/ExxonMobil	9/14/07		

WORK ACTIVITY (Description):
Site Walk

DEVELOPMENT TEAM	POSITION / TITLE	REVIEWED BY:	POSITION / TITLE
Heather Budzich	Environmental Engineer		

MINIMUM REQUIRED PERSONAL PROTECTIVE EQUIPMENT (SEE CRITICAL ACTIONS FOR TASK-SPECIFIC REQUIREMENTS)

☐ REFLECTIVE VEST	☐ GOGGLES	☐ AIR PURIFYING RESPIRATOR	☐ GLOVES _____
☐ HARD HAT	☐ FACE SHIELD	☐ SUPPLIED RESPIRATOR	☒ OTHER Seat belt
☐ LIFELINE / HARNESS	☐ HEARING PROTECTION	☐ PPE CLOTHING _____	
☐ SAFETY GLASSES	☐ SAFETY SHOES _____		

[1]JOB STEPS	[2]POTENTIAL HAZARDS	[3]CRITICAL ACTIONS TO MITIGATE HAZARDS
1. Preliminary Organization	Weather Hazards	Before departing, check site weather forecast and consider additional PPE such as rain gear, extra water and sunscreen that may be necessary to address specific weather conditions.
2. Site specific orientation	Lack of familiarity	Review site history and on-going work processes. Review JSA Risk Control Measures for all General Field Activities. Review appropriate levels of protection in terms of PPE requirements at the Site. Personnel will be made aware of potentially slippery surfaces, tripping hazards, operation of heavy equipment, and potential exposure to Site contaminants. Review the Work Near Water Policy if walking near the Site shoreline. Walk slowly during the Site walk. Jumping, running, and horseplay will be prohibited. Workers will keep all areas clean and free of debris to deter any unnecessary trips and falls. If any unsafe conditions are identified during the Site walk, personnel will notify the Site Health and Safety Officer immediately. On-site visitors will be escorted by a 40-hour trained individual unless otherwise cleared with the Site Health and Safety Officer .
3. Site visit/walk	External and facility emergency	Check in with site facility and notify them of planned activities for the day. Understand site specific emergency procedures and hazards. Complete facility specific training as required.
4.	Slips, trips, and falls	Upon arrival at Site, visually survey area and identify potential slip, trip, and fall hazards and verbally discuss with the team. Scan area while walking to avoid tripping hazards such as unven ground, objects or holes that may be in the walkway. Do not walk with hands in pockets. Walk cautiously and slowly. Notify team members of any unsafe conditions. If walking near Newtown Creek, shoreline may be slippery. Wear slip resistant shoes.
	Chemical Inhalation	Be aware of active work areas and remain at least 20 feet upwind from these areas. Understand the bundaries and stay outside of the exclusion zone. If it is necessary to enter the work area/exclusion zone, coordinate with workers in that area and evaluate the need to upgrade PPE.
	Sun and heat stress	Apply sunscreen for ultraviolet protection. Drink 4 to 8 ounces of water every hour to prevent dehydration. Take regular breaks.
	Biolological hazards (e.g., ticks, bees, mosquitoes, snakes)	Wear long sleeve shirts. Periodically check each other for ticks and upon completion of visit. Apply insect repellant as necessary.

	Struck by lightning	Upon first occurence of thunder or lightening find shelter at facility or in car. Do not begin or continue work until lightning subsides for at least 20 minutes.
	Struck by heavy equipment	Use hand signals to get the attention of equipment operators. Never walk behind a moving piece of equipment. Stay out of the swing radius of equipment.

[1] Each Job or Operation consists of a set of steps. Be sure to list all the steps in the sequence that they are performed. Specify the equipment or other details to set the basis for the associated hazards in Column 2

[2] A hazard is a potential danger. What can go wrong? How can someone get hurt? Consider, but do not limit, the analysis to: **Contact** - victim is struck by or strikes an object; **Caught** - victim is caught on, caught in or caught between objects; **Fall** - victim falls to ground or lower level (includes slips and trips); **Exertion** - excessive strain or stress / ergonomics / lifting techniques; **Exposure** - inhalation/skin hazards. Specify the hazards and do not limit the description to a single word such as "Caught"

[3] Aligning with the first two columns, describe what actions or procedures are necessary to eliminate or minimize the hazards. Be clear, concise and specific. Use objective, observable and quantified terms. Avoid subjective general statements such as, "be careful" or "use as appropriate".

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COMPANY/ PROJECT NAME or ID/ LOCATION (City, State)	DATE	☒ NEW ☐ REVISED	PAGE 1 of 1
SERVICE Engineering Group/ExxonMobil	9/14/07		

WORK ACTIVITY (Description):
Set-up Decontamination Area

DEVELOPMENT TEAM	POSITION / TITLE	REVIEWED BY:	POSITION / TITLE
Heather Budzich	Environmental Engineer		

MINIMUM REQUIRED PERSONAL PROTECTIVE EQUIPMENT (SEE CRITICAL ACTIONS FOR TASK-SPECIFIC REQUIREMENTS)

☒ REFLECTIVE VEST	☐ GOGGLES	☐ AIR PURIFYING RESPIRATOR	☒ GLOVES
☒ HARD HAT	☐ FACE SHIELD	☐ SUPPLIED RESPIRATOR	☐ OTHER
☐ LIFELINE / HARNESS	☐ HEARING PROTECTION	☐ PPE CLOTHING	
☒ SAFETY GLASSES	☒ SAFETY SHOES		

[1]JOB STEPS	[2]POTENTIAL HAZARDS	[3]CRITICAL ACTIONS TO MITIGATE HAZARDS
1. Set-up Decontamination Area	Vehicle and heavy equipment traffic in work area	Follow operations manual maintenance and inspection procedures for each piece of equipment used on-site. Be alert when working around heavy equipment. Barriers, warning signs, designated walkways or other safeguards must be provided where pedestrians are exposed to the risk of collision.
	Muscle strain/injuries from improper lifting	Use at least two people to lift and carry sections. Use mechanical lift devices whenever possible. Bend and lift with legs and arms, not back. Review appropriate lifting procedures, and identify a planned route for moving equipment. Maintain communication and awareness while unloading equipment.
	Injury from hand tool operation	Personnel awareness of potential hazards from hand tool operation. Site Health and Safety Officer will ensure that all tools used on-site are in proper working order and are in good condition. Follow operations and maintenance procedures for each piece of equipment used on-site. Personnel to inform Site Health and Safety Officer or Project Manger if tools require repair or replacement.
	Injury from power tool operation	All tools will be in good working order. No damaged equipment will be issued until repaired or replaced. When power operated tools are designed to accommodate guards, the guard must be in place on the tool. Fuel powered tools may be refueled, serviced, or maintained only while the tools are stopped and not operating.
2.		
3.		

[1] Each Job or Operation consists of a set of steps. Be sure to list all the steps in the sequence that they are performed. Specify the equipment or other details to set the basis for the associated hazards in Column 2

[2] A hazard is a potential danger. What can go wrong? How can someone get hurt? Consider, but do not limit, the analysis to: **Contact** - victim is struck by or strikes an object; **Caught** - victim is caught on, caught in or caught between objects; **Fall** - victim falls to ground or lower level (includes slips and trips); **Exertion** - excessive strain or stress / ergonomics / lifting techniques; **Exposure** - inhalation/skin hazards. Specify the hazards and do not limit the description to a single word such as "Caught"

[3] Aligning with the first two columns, describe what actions or procedures are necessary to eliminate or minimize the hazards. Be clear, concise and specific. Use objective, observable and quantified terms. Avoid subjective general statements such as, "be careful" or "use as appropriate".

ExxonMobil Refining & Supply - Global Remediation
JOB SAFETY ANALYSIS September 2007

COMPANY/ PROJECT NAME or ID/ LOCATION (City, State)	DATE	☒ NEW ☐ REVISED	PAGE 1 of 2
SERVICE Engineering Group/ExxonMobil	9/14/07		

WORK ACTIVITY (Description):
Decontaminate Heavy Equipment

DEVELOPMENT TEAM	POSITION / TITLE	REVIEWED BY:	POSITION / TITLE
Heather Budzich	Environmental Engineer		

MINIMUM REQUIRED PERSONAL PROTECTIVE EQUIPMENT (SEE CRITICAL ACTIONS FOR TASK-SPECIFIC REQUIREMENTS)

☒ REFLECTIVE VEST	☐ GOGGLES	☐ AIR PURIFYING RESPIRATOR	☒ GLOVES _____
☒ HARD HAT	☐ FACE SHIELD	☐ SUPPLIED RESPIRATOR	☐ OTHER _____
☐ LIFELINE / HARNESS	☐ HEARING PROTECTION	☐ PPE CLOTHING _____	
☒ SAFETY GLASSES	☒ SAFETY SHOES _____		

[1]JOB STEPS	[2]POTENTIAL HAZARDS	[3]CRITICAL ACTIONS TO MITIGATE HAZARDS
1. Set-up area of site for decontamination processes.	Heavy lifting / muscle strain	Exercise proper body mechanics and lifting techniques. Keep loads close to body. Use at least two people to carry loads greater than 50 lbs. Communicate during lifts.
	Pinch points	Use leather gloves to protect hands from sharp edges and dir contact when appropriate.
	Traffic	Wear reflective clothing if working in traffic route. Employ traf cones or barriers to identify work zone.
	Slip, Trip, Fall	Maintain good housekeeping. Pick up tools no longer in use. Be aware of where you are walking.
2. Process items through decontamination including augers, split spoons, drill rigs, and excavators	Potential exposure to contaminated water, and soil/mud from previous operation	Training and safety awareness of potential exposure to Site contaminants. Utilize proper PPE for decontamination operations (rain gear or coated Tyvek, face shield, gloves). Avoid over spray. Do not spray self or anyone else, even at a distance. Wear proper gloves for dermal protection against contaminated soils as well as abrasions. Utilize proper decontamination pad and containerize all decontamination fluids.
	Slips/trips/falls	Workers will be aware of potentially slippery surfaces and tripping hazards. Workers will keep all areas clean and free of debris eliminating unnecessary trips and falls. Personnel will clean up all spills immediately. Personnel will notify the Site Health and Safety Officer of any unsafe conditions.
	Eye injury	Workers will wear full face shield.
	Muscle strains from heavy lifting, hand injuries	Use at least two people to lift and carry sections. Use mechanical lift devices whenever possible. Bend and lift with legs and arms, not back. Establish communication system between workers involved in moving or attaching sections.
3. Hot Water High Pressure Spray/Steam Clean	High water pressure and temperature from steam cleaner	Prior to decontamination of large equipment, personnel will ensure that all other workers are outside of the decontamination areas. Personnel will wear appropriate PPE for decontamination operations (rain gear, face shield, gloves, nitrile inner gloves, leather outer gloves, hearing protection). Avoid over spray. Do not spray self or anyone else, even at a distance.

	Spill/leak of contaminated water	Decontamination area will be designed to collect all contaminated wash/rinse water and to prevent the spread of run off. Berms and absorbent pads will be available for use in controlling spills.
	Icing of equiment	Visually inspect equipment following decontamination to identify ice building that may be present in joints/moving parts of the equipment.
	Icy Conditions	Salt/sand icy surfaces that may be created in and around the decontamination areas as appropriate.
4. Clean-up decon area	Heavy lifting, muscle strain, pinch points, traffic, slip, trip, fall	See above.

[1] Each Job or Operation consists of a set of steps. Be sure to list all the steps in the sequence that they are performed. Specify the equipment or other details to set the basis for the associated hazards in Column 2

[2] A hazard is a potential danger. What can go wrong? How can someone get hurt? Consider, but do not limit, the analysis to: **Contact** - victim is struck by or strikes an object; **Caught** - victim is caught on, caught in or caught between objects; **Fall** - victim falls to ground or lower level (includes slips and trips); **Exertion** - excessive strain or stress / ergonomics / lifting techniques; **Exposure** - inhalation/skin hazards. Specify the hazards and do not limit the description to a single word such as "Caught"

[3] Aligning with the first two columns, describe what actions or procedures are necessary to eliminate or minimize the hazards. Be clear, concise and specific. Use objective, observable and quantified terms. Avoid subjective general statements such as, "be careful" or "use as appropriate".

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WORK ACTIVITY (Description):
Decontaminate Personnel

DEVELOPMENT TEAM	POSITION / TITLE	REVIEWED BY:	POSITION / TITLE
Heather Budzich	Environmental Engineer		

MINIMUM REQUIRED PERSONAL PROTECTIVE EQUIPMENT (SEE CRITICAL ACTIONS FOR TASK-SPECIFIC REQUIREMENTS)

☒ REFLECTIVE VEST	☐ GOGGLES	☐ AIR PURIFYING RESPIRATOR	☒ GLOVES
☒ HARD HAT	☐ FACE SHIELD	☐ SUPPLIED RESPIRATOR	☐ OTHER
☐ LIFELINE / HARNESS	☐ HEARING PROTECTION	☐ PPE CLOTHING	
☒ SAFETY GLASSES	☒ SAFETY SHOES		

[1]JOB STEPS	[2]POTENTIAL HAZARDS	[3]CRITICAL ACTIONS TO MITIGATE HAZARDS
1. Decontaminate personnel exiting from the Exclusion Zone	Site hazardous material exposure	Training and safety awareness of potential exposure to chemicals of concern at the Site and decontamination procedures. Review chemicals of concern. Appropriate PPE will be worn (e.g., Tyvek®, nitrile gloves, safety glasses, etc.). Personnel should dress in suitable safety equipment to reduce exposure. Personnel will follow decontamination procedure. Collect rinse water and dispose of per appropriate standard operating procedures.
	Slips, trips, falls	Be aware of potentially slippery surfaces and tripping hazards. Keep all areas clean and free of debris to deter any unnecessary trips and falls. Clean up spills immediately. Notify the Site Health and Safety Officer of any unsafe conditions. Ask for assistance or use a chair to provide additional balance when moving in and out of the decontamination zone.
	Eye injury and splash hazard	PPE (safety glasses, splash goggles) will be worn. Work using controlled motions. Don't swing the decon brush around which could potentially splash contaminated water onto a clean surface or unprotected person.
	Icy conditions	Salt/sand icy surfaces that may be created in and around the decontamination areas as appropriate.

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WORK ACTIVITY (Description):
Decontaminate Personal Tools

DEVELOPMENT TEAM	POSITION / TITLE	REVIEWED BY:	POSITION / TITLE
Heather Budzich	Environmental Engineer		

MINIMUM REQUIRED PERSONAL PROTECTIVE EQUIPMENT (SEE CRITICAL ACTIONS FOR TASK-SPECIFIC REQUIREMENTS)

☒ REFLECTIVE VEST	☐ GOGGLES	☐ AIR PURIFYING RESPIRATOR	☒ GLOVES
☒ HARD HAT	☐ FACE SHIELD	☐ SUPPLIED RESPIRATOR	☐ OTHER
☐ LIFELINE / HARNESS	☐ HEARING PROTECTION	☐ PPE CLOTHING	
☒ SAFETY GLASSES	☒ SAFETY SHOES		

[1]JOB STEPS	[2]POTENTIAL HAZARDS	[3]CRITICAL ACTIONS TO MITIGATE HAZARDS
1. Remove gross contamination with brush	Site hazardous material exposure	Training and safety awareness of potential exposure to chemicals of concern at the Site and decontamination procedures. Review chemicals of concern. Appropriate PPE will be worn (e.g., Tyvek®, nitrile gloves, safety glasses, etc.).
	Slips, trips, falls	Be aware of potentially slippery surfaces and tripping hazards. Keep all areas clean and free of debris to deter any unnecessary trips and falls. Clean up spills immediately. Notify the Site Health and Safety Officer of any unsafe conditions. As for assistance or use a chair to provide additional balance when moving in and out of the decontamination zone.
	Eye injury and splash hazard	PPE (safety glasses, splash goggles) will be worn. Work using controlled motions. Don't swing the decon brush around which could potentially splash contaminated water onto a clean surface or unprotected person.
	Shock Hazard	If tools are electric, make sure they are unplugged before deconning.
	Damaging equipment or tools	Follow manufacturer's instructions.
2. Place tool in decontamination bucket or rinse with decontamination solution and Rinse with water.	Spill/leakage, Splash hazards	Decontamination area will be designed to minimize exposure and maintain spill containment to prevent the formation of slippery working surfaces. Use berms or spill absorbent pads to prevent the spread of contaminated water. Movements will be slow and deliberate to minimize splashing. Portable tools will be placed into the decontamination solution by slowly lowering the tool. It will not be dropped from some height above the decontamination solution.
	Chemical reaction with decon chemicals, splash hazard.	A fire extinguisher will be located in the decon area Review MSDSs for the chemicals of concern and use chemicals that are compatible.
3. Clean with wash solution	Chemical reaction with wash solution	A fire extinguisher will be located in an accessible location on site. Review the chemicals of concern and use appropriate wash solution.

4. Rinse with water	Contamination Remains	Personnel will repeat proper decontamination procedure.
	Icy Condtions	Salt/sand icy surfaces that may be created in and around the decontamination areas as appropriate.
	Icing of equipment	Visually inspect equipment following decontamination to identify ice building that may be present in joints/moving parts of the equipment.

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[2] A hazard is a potential danger. What can go wrong? How can someone get hurt? Consider, but do not limit, the analysis to: **Contact** - victim is struck by or strikes an object; **Caught** - victim is caught on, caught in or caught between objects; **Fall** - victim falls to ground or lower level (includes slips and trips); **Exertion** - excessive strain or stress / ergonomics / lifting techniques; **Exposure** - inhalation/skin hazards. Specify the hazards and do not limit the description to a single word such as "Caught"

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WORK ACTIVITY (Description):
Drum Management

DEVELOPMENT TEAM	POSITION / TITLE	REVIEWED BY:	POSITION / TITLE
Heather Budzich	Environmental Engineer		

MINIMUM REQUIRED PERSONAL PROTECTIVE EQUIPMENT (SEE CRITICAL ACTIONS FOR TASK-SPECIFIC REQUIREMENTS)

☒ REFLECTIVE VEST	☐ GOGGLES	☐ AIR PURIFYING RESPIRATOR	☒ GLOVES leather
☒ HARD HAT	☐ FACE SHIELD	☐ SUPPLIED RESPIRATOR	☐ OTHER
☐ LIFELINE / HARNESS	☐ HEARING PROTECTION	☒ PPE CLOTHING ~~Tyvek,~~ nitrile gloves	
☒ SAFETY GLASSES	☒ SAFETY SHOES		

[1]JOB STEPS	[2]POTENTIAL HAZARDS	[3]CRITICAL ACTIONS TO MITIGATE HAZARDS
1. Inspect Drum	Exposure to contaminants	When handling drum, wear proper PPE including Tyvek coveralls, nitrile gloves, and safety glasses.
	Spills	Ensure drum is not damaged or rusted to an extent that it will not adequately and safely contain the contents
2. Remove drum lid	Pinching	Personnel should wear work gloves. Be aware of hand placement. When unscrewing bolt be aware of hand/finger proximity to drum wall to preclude pinching. When removing drum lid, grasp drum lid firmly with both hands and pull firmly and with steady force.
3. Handle drum contents (solids)	Chemical Exposure including: ▪ Skin/eye contact with contaminated materials ▪ Ingestion of contaminants ▪ Inhalation of contaminated dust	Wear appropriate safety equipment (i.e., Tyvek suit, gloves, and safety glasses) for reducing risk of contamination by minimizing exposure to eyes and skin. Do not eat, drink, or smoke while handling drum contents (in the work area). Remove PPE, wash hands, and move to the support zone before commencing these activities. If exposure to contaminated materials occurs, promptly wash contaminated skin using soap or mild detergent and water. Wash eyes with large amounts of water. Do not allow worker's head to cross below the plane of the drum opening. To reach debris at the bottom of the drum use equipment capable of reaching the bottom while the worker's head stays above the plane opening.
3. Pumping liquid drum contents (Water)	Setting up power supply for pump	Place the pump on a stable surface in close proximity to the drum being emptied. If the pump battery is charged, follow equipment instructions for connecting the battery to the pump. If the pump battery is not charged, use the power cables to connect to an alternative energy source (i.e., car battery). Prior to connecting the cables to the car battery, wipe off any battery acid that may have leaked using an old rag. Connect one end of the positive (+) cable to the positive (+) post of the pump. Connect the other end of the positive (+) cable to the positive (+) post of the car battery. Connect one end of the negative (-) cable to the negative (-) post of the car battery. Connect the other end of the negative cable (-) to the negative (-) post of the pump. Turn the car power on. Turn the pump power on. To disconnect the power supply reverse these procedures.

	Chemical Exposure including: ▪ Skin/eye contact with contaminated materials ▪ Ingestion of contaminants ▪ Splash and spill hazards	Same as above. To preclude splashes, lower the pump tubing into the drum slowly. If drums are not located close together, use a 5-gallon pail to collect the pump water. Only fill the pail half-way. This will ensure pump water does not over fill the pail. It will also minimize water spillage during transport of the water to the "storage" drum. When pouring water from the pail into the drum, lift the pail slowly to the height of the drum. Pour the contents of the pail into the drum allowing the side of the pail to pivot on the edge of the drum. This will help control the speed of the pour and prevent unnecessary splashes or spills. If some water is spilled, use adsorbent pads to soak up the water. Dispose adsorbent pads with other PPE staged for disposal.
4. Replace drum lid	Pinching	Personnel should wear leather work gloves. Be aware of hand placement. Keep fingers on outside of lid ring. Don't put fingers between inside of lid ring and drum.
	Spills	Ensure drum is sitting flat, with no tipping, on floor or ground. Ground must be firm so that drum cannot tip over. Inspect the rim and lid gasket to ensure rim is not dented and gasket is not cracked, nicked, or cut; replace if necessary. Tighten lid to DOT specifications
5. Load drum onto drum cart and transport to drum staging area	Chemical exposure	Same as above.
	Spills	Inspect the cart wheels and axles before using. Ensure cart lip is fully under drum and tilt drum cart back slowly to determine that cart and drum are fully engaged.
	Back strain	Lift with your legs. Keep back straight and keep load close to your body.
	Personnel hit by cart or damage to property	Use a spotter/helper when moving drum cart.
	Pinch points	Wear leather work gloves.
6. Place drum in staging area.	Chemical exposure	Same as above.
	Spills	Use two people to unload drum cart. Ensure drum is sitting flat on even ground and is not tipping.
	Back strain	Same as above.
	Pinch Points	Wear leather work gloves. Keep hands and feet out from under drum and away from drum/cart contact area.

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WORK ACTIVITY (Description):
Inspect Vehicle and Drive to Work

DEVELOPMENT TEAM	POSITION / TITLE	REVIEWED BY:	POSITION / TITLE
Heather Budzich	Environmental Engineer		

MINIMUM REQUIRED PERSONAL PROTECTIVE EQUIPMENT (SEE CRITICAL ACTIONS FOR TASK-SPECIFIC REQUIREMENTS)

☐ REFLECTIVE VEST	☐ GOGGLES	☐ AIR PURIFYING RESPIRATOR	☐ GLOVES
☐ HARD HAT	☐ FACE SHIELD	☐ SUPPLIED RESPIRATOR	☐ OTHER
☐ LIFELINE / HARNESS	☐ HEARING PROTECTION	☐ PPE CLOTHING	
☐ SAFETY GLASSES	☐ SAFETY SHOES		

[1]JOB STEPS	[2]POTENTIAL HAZARDS	[3]CRITICAL ACTIONS TO MITIGATE HAZARDS
1. Visually inspect vehicle for problems	Slip/Trip	Maintain good housekeeping, plan your inspection route and check pathway for hazards or obstructions. Avoid or (if possible) remove source. Perform inspection at location outside of designated traffic route.
	Problem with or damage to vehicle	Evaluate problem. Do Not drive vehicle if problem prevents safe operation. (i.e. flat tire or fluid leaking). Follow vehicle maintenance schedule to reduce possibilities of breakdown while driving.
2. Load and unload vehicle upon returning from site	Traffic	Set out traffic cones to mark loading area. Wear safety vest while unloading vehicle if working within 10 feet of a designated traffic route.
	Vehicle security	Do not leave vehicle running while unattended.
	Pinch points, cuts, abrasions and muscle strain	Use work gloves to handle equipment. Move equipment or other heavy materials using cart or hand truck, where appropriate to reduce fatigue and eliminate need to stretch or twist. Use proper lifting techniques.
3. Drive to work area	Weather	Check road and weather conditions prior to driving. Do Not drive vehicle during extreme weather conditions (i.e. high winds, heavy rain, & lightning). Wait for severe weather to pass. Operate vehicle with headlights "ON" to increase visibility. If its necessary to drive in inclement weather reduce speed to compensate for poor driving conditions. Travel during daylight hours if possible. Give yourself plenty of time to allow for slow downs due to construction, accidents, or other unforeseen circumstances.
	Road Conditions	Do Not drive vehicle over the posted speed limit. Avoid traveling on roads in poor condition or under repair.
	Vehicle or Pedestrian Traffic	Wear seat belts for personal protection. Obey all motor vehicle laws, yield "right–of-way", & stop before proceeding over railroad tracks. Do not follow vehicles too closely. Maintain both hands on steering wheel when driving.

	Accidents	All Parsons' employees shall complete the ParsonsU safety module on Defensive Driving. Plan your travel route and check maps for directions or discuss with colleagues. Have sun glasses available to reduce sun glare and wear as needed. Clean windows and mirrors as needed throughout trip.
	Distractions while Driving	Stop driving a vehicle, regardless of the speed (i.e. even 5 mph) or location (i.e. private road), when the potential of being distracted by conversation exists. Drivers are prohibited from using communication devices (e.g., cell phones) while operating any motor vehicle.
	Fatigue/Falling Asleep	Get adequate rest prior to driving. Pull over and rest if experiencing drowsiness. Change seat position, stretch, open the window, adjust radio if experiencing drowsiness.
3. Park Vehicle	Vehicle Rolls unexpectedly	Park vehicle on level ground. Use parking brake or, place transmission in "PARK" after arrival.
	Weather	Do Not leave vehicle during extreme weather conditions (i.e. high winds, heavy rain, & lightning). Wait for severe weather to pass.
	Vehicle or Pedestrian Traffic	Park vehicle on level ground. Use parking brake or, place transmission in "PARK" after arrival.
	Theft/crime of parked vehicle	Lock the vehicle when driving and when parked. Use ant-theft deterrents (e.g., the club, visible alarm indicators, etc.). Park in well lit areas. Hide valuables

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WORK ACTIVITY (Description):
Fueling (with Diesel) vehicles and equipment

DEVELOPMENT TEAM	POSITION / TITLE	REVIEWED BY:	POSITION / TITLE
Heather Budzich	Environmental Engineer		

MINIMUM REQUIRED PERSONAL PROTECTIVE EQUIPMENT (SEE CRITICAL ACTIONS FOR TASK-SPECIFIC REQUIREMENTS)

☐ REFLECTIVE VEST ☒ HARD HAT ☐ LIFELINE / HARNESS ☒ SAFETY GLASSES	☐ GOGGLES ☐ FACE SHIELD ☐ HEARING PROTECTION ☒ SAFETY SHOES	☐ AIR PURIFYING RESPIRATOR ☐ SUPPLIED RESPIRATOR ☐ PPE CLOTHING	☒ GLOVES ☐ OTHER Reflective gear to be worn if working near roadway or traffic

[1]JOB STEPS	[2]POTENTIAL HAZARDS	[3]CRITICAL ACTIONS TO MITIGATE HAZARDS
1. Inspect and secure are of activity	Slip/Trip	Check pathway for hazards or obstructions. Avoid or (if possible) remove slip / trip source from work area.
	Traffic	Have any vehicles or equipment "IN-THE-WAY" moved prior to refueling.
2. Drive vehicle or position equipment within containment area.	Fuel Spill	Do not attempt fueling unless within containment area. Ensure that fuel pumps have a UL listed automatic closing valve. Be aware of capacity of fuel tank. Do not "squeeze in" extra fuel to fill up tank. Have berms or absorbent pads available. All fluid containing vehicles and equipment involved on the project site (except for properly parked personal vehicles) spotted on non-impervious surfaces (e.g., soil, bluestone, etc) will be parked over full length/width of vehicle equipment polyethylene sheeting.
	Fire/Explosion	Do not attempt fueling unless all vehicles & equipment nearby are "OFF". Attach ground clip before attempting to fuel. Ensure that all fuel is in approved safety containers. No smoking or open flame with in 50 feet. Turn cell phones off during refueling vehicle. Ensure that all heavy equipment has a fire extinguisher and that the fire extinguisher is readily accessible.
	Vehicle collision with objects or people.	Use spotter when backing up.
	Vehicle Rolling	ALL parked vehicles & trailers must be secured. The preferred choice is, two chocks on either side of a tire. *Other acceptable methods are to include two (2) of the following:* → Engaging the parking brake → Engaging the emergency brake → Lowered hydraulic rams → Connecting trailer to a vehicle that is already "secured". **NOTE:** Vehicles are not to be left unattended.
3. Start pump	Fuel spill	Turn power "ON" after placing fuel nozzle into tank. Do Not over fill. Stay with vehicle and nozzle while fueling.
	Spill on Clothing	Workers should be aware of capacity of fuel tank. Wear gloves while fueling. Change clothing if saturated with fuel.

	Site contamination	Decontaminate equipment/machinery prior to refueling and remove from exclusion zone. Decontaminate refueling truck if contact with potential contaminated material. Provide training/awareness to driver, escort on site if need be.
	Slips and trips	Take notice of ground cable & fueling hose in walkway.
4. Stop pump	Fuel spill	Stop pumping prior to removing nozzle. Invert nozzle to prevent "dripping". Place cap on fuel tank. Turn power "OFF".
	Slips and trips	Remove ground and coil up cable.

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WORK ACTIVITY (Description):
Fueling motor vehicles

DEVELOPMENT TEAM	POSITION / TITLE	REVIEWED BY:	POSITION / TITLE
Heather Budzich	Environmental Engineer		

MINIMUM REQUIRED PERSONAL PROTECTIVE EQUIPMENT (SEE CRITICAL ACTIONS FOR TASK-SPECIFIC REQUIREMENTS)

☐ REFLECTIVE VEST	☐ GOGGLES	☐ AIR PURIFYING RESPIRATOR	☐ GLOVES
☐ HARD HAT	☐ FACE SHIELD	☐ SUPPLIED RESPIRATOR	☐ OTHER
☐ LIFELINE / HARNESS	☐ HEARING PROTECTION	☐ PPE CLOTHING	
☐ SAFETY GLASSES	☐ SAFETY SHOES		

[1]JOB STEPS	[2]POTENTIAL HAZARDS	[3]CRITICAL ACTIONS TO MITIGATE HAZARDS
1. Inspect and secure are of activity	Slip/Trip	Check pathway for hazards or obstructions. Avoid or (if possible) remove slip / trip source from work area.
	Traffic	Have any vehicles or equipment "IN-THE-WAY" moved prior to refueling.
2. Fuel motor vehicle	Overflow/spills of fuel onto pavement.	Do not use fuel pumps that don't have a UL listed automatic closing valve. Use approved safety containers. Workers will be aware of fuel tank/container capacity. Do not "squeeze in" extra gasoline to fill up tank. Inform gas station attendant of fuel spill.
	Explosion	Ensure that all fuel is in approved safety containers. No smoking or open flame within 50 feet. Equipment/motors that use flammable fuel shall be shut down during fueling, servicing, or maintenance. Turn cell phones off during fueling of vehicle. Follow distributors instructions on pump.
	Spill on clothing	Workers should be aware of capacity of fuel tank. Change clothing if saturated with fuel. Wear gloves while refueling.

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WORK ACTIVITY (Description):
Load and Unload Equipment

DEVELOPMENT TEAM	POSITION / TITLE	REVIEWED BY:	POSITION / TITLE
Heather Budzich	Environmental Engineer		

MINIMUM REQUIRED PERSONAL PROTECTIVE EQUIPMENT (SEE CRITICAL ACTIONS FOR TASK-SPECIFIC REQUIREMENTS)

☒ REFLECTIVE VEST	☐ GOGGLES	☐ AIR PURIFYING RESPIRATOR	☐ GLOVES
☒ HARD HAT	☐ FACE SHIELD	☐ SUPPLIED RESPIRATOR	☐ OTHER
☐ LIFELINE / HARNESS	☐ HEARING PROTECTION	☐ PPE CLOTHING	
☒ SAFETY GLASSES	☒ SAFETY SHOES		

[1]JOB STEPS	[2]POTENTIAL HAZARDS	[3]CRITICAL ACTIONS TO MITIGATE HAZARDS
1. Put vehicle in park and enable parking brake.	Vehicle damage / personnel injury	Enable parking brake to prevent movement of parked vehicle
2. Place traffic cones to mark loading/ unloading area.	Personnel being hit by traffic	Do not step into traffic. Use traffic cones if loading or unloading in an active traffic area.
3. Carefully load or unloac the vehicle with the equipment and personnel needed to complete the task.	Back injury	Move equipment or other heavy materials using cart or hand Truck. Get help when load is too heavy or awkward for one person to move or lift. Use proper body mechanics when liftir and position tools and materials to avoid twisting or stretching
	Slips, trips, and falls	Make sure equipment is not placed in walkways.
	Vehicle Damage	When loading vehicle make sure load is balanced and stabilized to prevent movement during vehicle operation
	Pinch Points	Use leather gloves to handle materials, tools and equipment

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[3] Aligning with the first two columns, describe what actions or procedures are necessary to eliminate or minimize the hazards. Be clear, concise and specific. Use objective, observable and quantified terms. Avoid subjective general statements such as, "be careful" or "use as appropriate".

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SERVICE Engineering Group/ExxonMobil	9/14/07		

WORK ACTIVITY (Description):
Mark-out Stakes for Boring locations and Set Stakes with Hammer

DEVELOPMENT TEAM	POSITION / TITLE	REVIEWED BY:	POSITION / TITLE
Heather Budzich	Environmental Engineer		

MINIMUM REQUIRED PERSONAL PROTECTIVE EQUIPMENT (SEE CRITICAL ACTIONS FOR TASK-SPECIFIC REQUIREMENTS)

☒ REFLECTIVE VEST	☐ GOGGLES	☐ AIR PURIFYING RESPIRATOR	☒ GLOVES leather, nitrile
☒ HARD HAT	☐ FACE SHIELD	☐ SUPPLIED RESPIRATOR	☒ OTHER Traffic cones, Bug spray
☐ LIFELINE / HARNESS	☐ HEARING PROTECTION	☐ PPE CLOTHING	
☒ SAFETY GLASSES	☒ SAFETY SHOES Steel-Toed		

[1]JOB STEPS	[2]POTENTIAL HAZARDS	[3]CRITICAL ACTIONS TO MITIGATE HAZARDS
1. Inspect site and recover survey control	Slip, trip, fall	Personnel will be made aware of potentially slippery surfaces, and tripping hazards. Known site hazards will be marked with an orange traffic cone, safety fencing, caution tape, etc. Stay alert at all times and be aware of the conditions of the walking path.
	Traffic	Set up traffic control cones/barriers if working in an active traffic route.
	Exposure to Site's Contaminants	Exposures to contaminants are not expected since no subsurface activities are planned.
	Biological Hazards (Poison Ivy, Brown Recluse, Bees, Insects)	Inspect work areas after arrival at the Site to identify presence of biological hazards and maintain safe distance if observed. Apply bug repellant spray or lotion to exposed skin if mosquitoes or gnats are observed. Wear appropriate PPE including long sleeves and pants. Avoid contact with Poison Ivy if observed and notify the Site Health and Safety Officer of its location. Personnel will don work gloves and cover exposed skin, if it is necessary to handle the poison ivy. Avoid putting your hands on ledges or other "out of site" places to minimize the potential for a spider bite. Don work gloves if it is necessary to put hands in cool dark, or "out of site" places. Bees may also be encountered. Verify if any field team member is allergic to bees before the site walk and survey activities commences and whether they carry an Epi-kit with them. If bees or a bee nest is observed, take care not to agitate the bees and do not touch the bee hive.
2. Carry survey equipment between survey locations	Back/muscle strain	Transport equipment by truck when possible to limit the duration personnel have to physically carry the equipment. Use proper lifting techniques.

3. Set up survey equipment at survey locations	Back/muscle strain	Use proper lifting techniques. Keep torso centered over hips and legs. Don't reach or twist to move something. Keep loads close to your body.
4. Open well covers for survey	a. Pinch, cuts	a. Use leather gloves for confined well covers to protect from cuts and scratches.
	b. Contact with product	b. Use Nitrile gloves when touching wells. Wash hands at break time.
5. Survey traverse	a. Slip, trip	a. Same as above.
	b. Traffic	b. Use safety vests and cones if set up in road areas. Avoid set up in traffic areas. Communication with crew to watch each other.

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SERVICE Engineering Group/ExxonMobil	9/14/07		

WORK ACTIVITY (Description):
Pre-drilling on-site activities.

DEVELOPMENT TEAM	POSITION / TITLE	REVIEWED BY:	POSITION / TITLE
Heather Budzich	Environmental Engineer		

MINIMUM REQUIRED PERSONAL PROTECTIVE EQUIPMENT (SEE CRITICAL ACTIONS FOR TASK-SPECIFIC REQUIREMENTS)

☒ REFLECTIVE VEST	☐ GOGGLES	☐ AIR PURIFYING RESPIRATOR	☐ GLOVES
☒ HARD HAT	☐ FACE SHIELD	☐ SUPPLIED RESPIRATOR	☐ OTHER
☐ LIFELINE / HARNESS	☐ HEARING PROTECTION	☐ PPE CLOTHING	
☐ SAFETY GLASSES	☒ SAFETY SHOES		

[1]JOB STEPS	[2]POTENTIAL HAZARDS	[3]CRITICAL ACTIONS TO MITIGATE HAZARDS
1. All drilling and boring activities	Site emergency situation	All workers in agreement on procedures to be implemented in event of incident i.e. knowing most local muster/rally/safe haven. Review Site Emergency Response Plan and local route to hospital.
	Slips, Trips, falls	Keep work area free of excess material and debris. Keep work surfaces dry when possible. Wear non-slip rubber boots if working on slippery surface. Install rough work surface covers where possible. Stay aware of footing and do not run.
	Traffic including pedestrian	Notify Site Health and Safety Officer of work location. Set up exclusion zone surrounding work area using cones, signs, flags and/or other traffic control devices. Wear high visibility clothing such as reflective vest. Inspect area behind vehicle prior to backing and use a spotter.
	Fire/Explosion	Post no smoking signs around work area. Establish designated smoking zones away from work area. Ensure type ABC, 20-lb, fully charged fire extinguisher on-site and within inspection period. As site conditions/activities warrant, establish Hot Work Permit including air monitoring using direct-reading, real-time instruments such as LEL/O2 meter. Stop work if hazardous conditions (i.e. explosive atmosphere) are identified.
2. Ambient Air Monitoring	Vapors	Approach area where vapors are suspected from upwind direction and stay upwind/crosswind of from potential sources of vapors (use flagging or simliar device to indicate wind direction).
	Ineffective Air Monitoring	Ensure personnel using have been trained on instrument use. Calibrate instrument prior to use
3. Drill Rig Set-up	Rig roll over	Do not move rig with mast raised. Cross all hills and obstructions head on. Set riggers prior to raising mast. If soil appears unstable, the soil should be assessed by a qualified professional engineer to ensure safe conditions with implementation of design control measures prior to start of work.
	Contact with Electric Lines and Other Overhead Obstacles	Position rig to avoid overhead utility lines by distance defined by voltage and local regulations. Use a spotter when raising mast to confirm clearance of overhead lines and other obstructions.
	Rig Movement	Heavy equipment should be equipped with back-up alarm or use horn when backing - use spotter when available. Stay clear of operating equipment and rig when moving
	Heavy Equipment Lifting/Carrying	Use at least 2 people to lift and carry sections; use mechanical lift devices whenever possible; bend and lift with legs and arms, not back.

	Sharp and/or Elevated Equipment	Wear appropriate PPE including steel-toed safety boots, leather gloves and hard hat. Establish communication system between workers involved in moving/attaching sections.
Ground Intrusion: Split Spoon	Faulty Equipment	Inspect rope/cable/rod for wear, fraying, oils and moisture prior to use, do not use if faulty until repaired or replaced. Inspect cathead for rust and rope grooves prior to use; do not use if faulty until repaired or replaced. Ensure kill switch on drilling rig/Geoprobe rig is operational and that all personnel are familiar with location and operation of switch.
	Moving Equipment	Only qualified drilling personnel (driller and helper) should operate rig. Other site personnel must remain minimum of 20 ft from rig while in operation. Do not wrap rope around any part of the hand or body. Maintain distance of at least 18-inches from rotating/reciprocating equipment. Eliminate excess rope. Do not wear loose clothing.
	High Noise levels	Use hearing protection if within 20 feet of active drill rig.
	Vapors and Airborne Particulates	Monitor air concentrations using direct-reading, real-time instruments such as PID and draeger tubes. Stop work if hazardous conditions (i.e. explosive atmosphere, O2 deficient atmosphere) identified until precautions are taken. Wear appropriate PPE including face shield or safety glasses with side shields, dust masks or respirators, long sleeves and pants. Stay upwind (use flagging or simliar device to indicate wind direction).
	Impact to subsurface lines or tanks	Only drill in areas where underground features have been identified and cleared per Subsurface Clearance Protocol (SCP) if hole has to be moved, clear new location first. Wear appropriate PPE including insulating gloves and/or stand on an insulating mat when in contact with drill rig. Ensure first aid responders are trained to deal with electric shock and flash burns.
Soil/Liquid Sampling	Contaminated Materials	Wear appropriate PPE including leather and/or nitrile gloves and Tyvek.
	Cuts from sharp sampling tools	Use correct tool for opening sleeves. When opening sleeve, cut away from body. Be aware of hand and finger placement. Keep fingers out of cutting path. Place core on sturdy surface prior to cutting.
	Vapors	Wear respirator if conditions warrant. Monitor air concentrations using direct-reading, real-time instruments such as PID and draeger tubes. Stop work if hazardous conditions (i.e. explosive atmosphere, O2 deficient atmosphere) identified until precautions are taken. Stay upwind (use flagging or simliar device to indicate wind direction).

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SERVICE Engineering Group/ExxonMobil	9/14/07		

WORK ACTIVITY (Description):
Removal of asphalt and pavement using saw and backhoe

DEVELOPMENT TEAM	POSITION / TITLE	REVIEWED BY:	POSITION / TITLE
Heather Budzich	Environmental Engineer		

MINIMUM REQUIRED PERSONAL PROTECTIVE EQUIPMENT (SEE CRITICAL ACTIONS FOR TASK-SPECIFIC REQUIREMENTS)

☒ REFLECTIVE VEST	☐ GOGGLES	☐ AIR PURIFYING RESPIRATOR	☒ GLOVES Leather
☒ HARD HAT	☒ FACE SHIELD	☐ SUPPLIED RESPIRATOR	☐ OTHER ____
☐ LIFELINE / HARNESS	☒ HEARING PROTECTION	☒ PPE CLOTHING Tyvek	
☒ SAFETY GLASSES	☒ SAFETY SHOES ____		

[1]JOB STEPS	[2]POTENTIAL HAZARDS	[3]CRITICAL ACTIONS TO MITIGATE HAZARDS
1. Mark and secure area	a. Hit by vehicular traffic	a. Wear safety vest.
	b. Pedestrians in the way of work	b. Use barricades to keep pedestrians away
2. Cut Asphalt	a. Cut by saw blade	a. Keep hands away from blade
	b. Inhalation of dust	b. Wear dust mask (if necessary) or wet cutting surface.
	c. Dust particles in eyes	c. Wear face shield and glasses
	d. Loud noise from asphalt saw	d. Wear hearing protection
3. Remove asphalt with backhoe and rought subbase with backhoe bucket	a. Hit overhead electric line	a. Have spotter while working
	b. Personnel hit by backhoe	b. Personnel stay out of baracaded backhoe work area
4. Place gravel in area where asphalt was excavated	a. Hit overhead electric line	a. Have spotter while working
	b. Personnel hit by backhoe	b. Personnel stay out of baracaded backhoe work area
5. Transport removed asphalt to storage area	a. Asphalt falling out of bucket	a. Do not overload bucket
	b. Hit pedestrian	b. Backhoe operator must have clean windows and drive at slow speed
6. Debmobilization from work area	a. Pedestrians hit by material	a. Don't leave material unattended while cleaning up the work site. Keep barracades up until done

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SERVICE Engineering Group/ExxonMobil	9/14/07		

WORK ACTIVITY (Description):
Hollow Stem Auger Drilling

DEVELOPMENT TEAM	POSITION / TITLE	REVIEWED BY:	POSITION / TITLE
Heather Budzich	Environmental Engineer		

MINIMUM REQUIRED PERSONAL PROTECTIVE EQUIPMENT (SEE CRITICAL ACTIONS FOR TASK-SPECIFIC REQUIREMENTS)

☐ REFLECTIVE VEST ☒ HARD HAT ☐ LIFELINE / HARNESS ☒ SAFETY GLASSES	☐ GOGGLES ☐ FACE SHIELD ☒ HEARING PROTECTION ☒ SAFETY SHOES	☐ AIR PURIFYING RESPIRATOR ☐ SUPPLIED RESPIRATOR ☒ PPE CLOTHING	☒ GLOVES ☒ OTHER: PFD if working within 25 feet of river.

[1]JOB STEPS	[2]POTENTIAL HAZARDS	[3]CRITICAL ACTIONS TO MITIGATE HAZARDS
1. Perform daily pre-operation safety inspection on drill rig and associated equipment	Bodily Injury resulting from worn or damaged equipment	Inspect all equipment, power tools and hand tools before use. If faulty or inappropriate, do not continue until fixed or replaced. Inspect cable for frayed/broken strands or kinks. Practice good housekeeping keep materials/objects out of work area. Don't wear loose clothing that could become entangled in the auger. Wear proper PPE (hard hat, safety glasses, safety shoes, high visibility vest). Ensure safety "kill" switches and boom locks are operational, well marked, and all persons involved with drilling operations are aware of their purpose and location. Inspect cathead and hammer apparatus for proper and safe operation. Review maintenance history of drilling equipment . Visually inspect integrity of fittings, hoses, cables and connections.
	Slip/trip/fall from steps, ladders, elevated areas on drill rig and heavy equipment	Check for and clean up any grease or oil from upper structure, especially foot holds. Limit climbing on equipment to essential persons performing essential tasks. Use 3 points of contact when entering and leaving vehicle.
	Struck by falling load or equipment	Secure loads on support trucks against shifting through use of tie downs, closed tailgates, and slow travel. Check for loose hand tools on trucks.
2. Establish work and support zones around rig and set up drill rig	Slip/trip/fall	Clear obstructions from the area around the proposed soil boring and rig location. Keep work surfaces dry when possible or wear non-slip rubber boots if working on wet surfaces. Stay aware of footing and do not run. If icy conditions exist use sand for grit.
	Underground utilities and obstructions	Verify the proposed boring location has been cleared of utilities and other hazards (trees and boulders) by advancing a hand probe to a depth of 5 feet below ground surface. Do not use excessive force when advancing the hand probe. Maintain safe distances to observed obstructions.
	Overhead utilities,	Check for overhead utilities before raising the mast. Visually confirm that no overhead lines or other hazards (trees, etc.) exist, or that a safe distance is maintained if present based on voltage of the lines.
	Vapor and Dust Exposure	Set up drill rig and support vehicles upwind of the proposed boring location.
	Traffic and pedestrians	Set safety cones out at a distance equal to mast height (at a minimum) or use caution tape to delineate exclusion zone. Utilize vehicle hazard lights.
	Moving or unstable equipment	Check that the rig is properly stabilized using blocking if necessary. Riggers should be set prior to raising the mast. Do not move drill rig while mast is raised. Restrict people in the work zone to necessary individuals. Cross uneven surfaces and obstructions head on.

	Fire	A 20 pound, fully charged, A-B-C fire extinguisher must be maintained on the drilling rig and associated motorized equipment. Fuel containers will not be stored within 10' of the drilling rig motor.
3. Advance augers, operate hammer and collect split spoon samples	Lifting heavy equipment	Don't lift augers by yourself; always get help, and wear heavy duty work gloves. Lift augers using slings rather than by hand. Review appropriate lifting procedures. Maintain communication and awareness while moving equipment. Plan your routes when carrying augers.
	Energized/Moving equipment (spinning auger and shaft), pinch points between auger sections	Do not exceed manufacturer's recommended speed, force, torque, or other specifications. Only rig operators can approach rotating augers or operate rig controls. Maintain safe distance away from heavy equipment during operation. Don't wear loose clothing or jewelry near rotating equipment. Advance borings slowly with hands on the controls for at least the first foot of soil to minimize chance of auger kick-out. Use long-handled shovel to clear away cuttings when auger has stopped. Wear proper gloves for dermal protection against abrasions. Place hands as far from pinch points as possible. Use proper hand signals to start and stop blow counts.
	Exposure to airborne contaminants	Use PID to monitor VOCs in breathing zone; if PID reading > 1ppm, cease operations and refer to Health and Safety Plan. Use Mini Ram to monitor dust; if dust reading is greater than or equal to 1 mg/m^3 cease operations and refer to Health and Safety Plan. Use a multi-gas meter to monitor for an explosive atmosphere (LEL = 0.8%) and oxygen deficient (<19.5%) or enriched conditions (>20.5%). Stop work if action levels are approached or exceeded and refer to the Health and Safety Plan.
	Skin contact with contaminated soils (e.g. when cleaning augers or drilling rods) or groundwater	Wear nitrile gloves and Tyvek suits for dermal protection against contaminated soils and/or leather gloves as work conditions dictate.
	Noise	Utilize hearing protection if within 20 feet of active drill rig.
4. Pulling the Auger and Grouting	Sharp objects, lifting heavy equipment, cable safety, moving equipment, overhead equipment, contamination, pressurized grout lines. High noise level	Wear protective gloves when working with sharp tools. Use two people when lifting heavy equipment. Inspect cable for frayed or broken strands and for proper cable ends. Do not wear loose clothing near moving equipment. Wear proper PPE (safety glasses, hard hat, safety shoes, chemical resistant gloves, high visibility vest, hearing protection) Inspect grout lines for holes or kinks. Restrict people in the work zone to necessary individuals.
5. Steam Cleaning	High Pressure, High Temperature, contamination, moving equipment, heavy objects	Inspect steam-cleaning system for broken hoses. Wear gloves capable of protecting skin from high temperatures; Wear a face shield in addition to safety glasses. If contamination requires wear protective chemical resistant coveralls. Don't wear loose clothing near spinning equipment. Use two people to move heavy objects. Wear proper PPE (safety glasses, face shield, hard hat, safety shoes, chemical resistant gloves, chemical resistant coveralls) Restrict people in the work zone to necessary individuals.

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WORK ACTIVITY (Description):
Well Drilling

DEVELOPMENT TEAM	POSITION / TITLE	REVIEWED BY:	POSITION / TITLE
Heather Budzich	Environmental Engineer		

MINIMUM REQUIRED PERSONAL PROTECTIVE EQUIPMENT (SEE CRITICAL ACTIONS FOR TASK-SPECIFIC REQUIREMENTS)

☒ REFLECTIVE VEST	☒ GOGGLES	☐ AIR PURIFYING RESPIRATOR	☒ GLOVES
☒ HARD HAT	☐ FACE SHIELD	☐ SUPPLIED RESPIRATOR	☒ OTHER: PFD if working within 25 feet of river.
☐ LIFELINE / HARNESS	☒ HEARING PROTECTION	☐ PPE CLOTHING	
☒ SAFETY GLASSES	☒ SAFETY SHOES	☒ NOMEX COVERALLS	

[1]JOB STEPS	[2]POTENTIAL HAZARDS	[3]CRITICAL ACTIONS TO MITIGATE HAZARDS
1. Perform daily pre-operation safety inspection on drill rig and associated equipment	See 19 Hollow Stem Auger Drilling.	
2. Prepare proposed well locations	Slip/trip/fall hazards	Scan area for possible hazards and remove any object of concern and/or to avoid any slip hazards, such as ice
	Electrocution from overhead electrical lines or damage to overhead piping/equipment	Walk over area and note potential overhead hazards within 30 feet in area of proposed wells
	Electrocution, environmental release, or damage to underground utilities	Review and complete ExxonMobil Ground Disturbance and Parsons' Pre-Drill Protocol
		Confirm that all underground utilities are located and marked
3. Move rig to drilling location	Traffic, Personnel hit by drill rig an damage to property	Review pathway to drilling location with driver and clear the pathway and the proposed boring location of obstacles before moving rig into position. Ensure that rig can traverse terrain safely, and that soils/terrain will support drilling rig
		Use spotters and maintain sight contact with other spotters and/or driver for hand or verbal signals
		Establish work and support zones around drill rig using traffic control devices if necessary. Wear reflective equipment if working in area near traffic.
		Review pre-drill checklist . Ensure presence of marked underground utility locations
	Contact with overhead or buried utilities	Cross all hills and obstructions head on with masts lowered Position rig according to minimum distances from overhead electrical lines in OSHA 29CFR 1926.550. Use spotter for overhead lines and other obstructions. Follow One-Call notification procedures and ExxonMobil pre-drilling protoco
4. Raise drill rig mast	Electrocution	Use a spotter and visually confirm that a safe distance is maintained from overhead wires and that wires are insulated

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ExxonMobil, Long Island City, NY	September 14, 2007		

WORK ACTIVITY (Description):
Excavating Test Pits

DEVELOPMENT TEAM	POSITION / TITLE	REVIEWED BY:	POSITION / TITLE
Heather Budzich	Environmental Engineer		

MINIMUM REQUIRED PERSONAL PROTECTIVE EQUIPMENT (SEE CRITICAL ACTIONS FOR TASK-SPECIFIC REQUIREMENTS)

☒ REFLECTIVE VEST ☒ HARD HAT ☐ LIFELINE / HARNESS ☒ SAFETY GLASSES	☐ GOGGLES ☐ FACE SHIELD ☒ HEARING PROTECTION ☒ SAFETY SHOES	☐ AIR PURIFYING RESPIRATOR ☐ SUPPLIED RESPIRATOR ☒ PPE CLOTHING:	☒ GLOVES _____ ☐ OTHER: PFD if excavating within 25 feet of river.

[1]JOB STEPS	[2]POTENTIAL HAZARDS	[3]CRITICAL ACTIONS TO MITIGATE HAZARDS
1. Mobilize backhoe and equipment to excavation location	Off-road terrain, other on-site traffic, overhead hazards	Perform daily Heavy Equipment Inspections and Vehicle Inspections. Be aware of your surroundings at all times. Be aware of overhead structures and utilities, and maintain a safe distance. Secure loads on support trucks against shifting through use of tie downs, closed tailgates, and slow travel. Check for loose hand tools on trucks. Make sure contractors use spotters when backing up and 3 point contacts when entering and exiting equipment and vehicles.
2. Mark & secure area.	Vehicle & pedestrian traffic.	Secure area with barricades, traffic cones, caution tape. Clear obstructions from the area around the proposed excavation. Verify utilities and other hazards (trees and boulders) both above and below ground have been cleared. Maintain safe distances to observed obstructions and mark the exclusion zone with caution tape. Set up backhoe and support vehicles upwind of the excavation area. Contact UFPO to clear underground utilities. No heavy equipment will be operated without a ground guide (someone on the ground guiding the equipment operator). Barriers, warning signs, designated walkways or other safeguards must be provided where pedestrians are exposed to the risk of collision.
3. Cut asphalt	Cut by saw blade, dust inhalation, dust in eyes, loud noise by saw.	Keep hands away from saw blade. Wear dust mask (if necessary). Wear face shield or glasses. Wear hearing protection.
4. Remove asphalt with backhoe.	Underground structures hit with backhoe. Personnel hit by backhoe.	Have spotter while working. Spotter to stay out of swing zone of backhoe. Only a qualified operator may operate the backhoe. Sit in a comfortable manner. Maintain safe distance away from heavy equipment. No one (except operator) should be in close proximity to operating machinery. Maintain eye contact with operator. Do not walk behind equipment while equipment is in operation. Personnel should be trained to recognize a change in conditions related to weather, activity, or personnel. Wear proper gloves for dermal protection against contaminated soils as well as abrasions. Keep area around rig free of debris, excavated soil, extraneous equipment and supplies. Review Work Near Water Policy and wear life vests when in close proximity to water.
5. Excavate test pit with backhoe.	Noise, pinch points, contact with contaminated soils, unstable soils, overhead hazard from elevated bucket, slips/trips/falls, water hazard from close proximity to Newtown Creek	Follow OSHA 29CFR 1926.650, 651, 652, 653. Personnel operating heavy equipment and nearby observers will wear hearing protection when noise level from equipment exceeds 90 decibels (dBA) averaged over an eight-hour day.

	Contact with underground or overhead utilities	Verify utilities and other hazards above and below ground have been cleared. Contact the UFPO to clear underground utilities. The excavation equipment cannot be operated within 10 feet of power lines up to 50kV. Additional distances for excavations in the vicinity if higher voltage power lines are required
	Excavation Collapse	Verify proper engineering controls are implemented (sloping, benching or protective devices) are being initiated. Keep stockpiled material at least 2 feet from the edge of the trench. Have appropriate stairs, ladders or ramps every 25 feet if trench is deeper than 4 feet and personnel are entering trench. Competent person to verify stability of soil on each day, after change in weather. Backfill trench as soon as possible after work is complete to prevent potential safety issues. Trenches will not remain open overnight.
	Slips, Trips, Falls	Have appropriate signs and barriers with in the excavation area. Keep observers away from excavation. Place a fence or barricade around trench if leaving it open after work hours.
	Pinch Points	Maintain awareness of procedures underway and be attentive of work operations. Wear hard hats when around machinery and equipment. Keep observers back from active operations. Get operators attention before approaching.
6. Demobilize from area.	Pedestrians hit by material.	Don't leave material unattended while cleaning up the work site. Keep barricades up until done.

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[3] Aligning with the first two columns, describe what actions or procedures are necessary to eliminate or minimize the hazards. Be clear, concise and specific. Use objective, observable and quantified terms. Avoid subjective general statements such as, "be careful" or "use as appropriate".

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ExxonMobil, Long Island City, NY	September 14, 2007		

WORK ACTIVITY (Description):
Well Surface Completion

DEVELOPMENT TEAM	POSITION / TITLE	REVIEWED BY:	POSITION / TITLE
Heather Budzich	Environmental Engineer		

MINIMUM REQUIRED PERSONAL PROTECTIVE EQUIPMENT (SEE CRITICAL ACTIONS FOR TASK-SPECIFIC REQUIREMENTS)

☒ REFLECTIVE VEST	☐ GOGGLES	☐ AIR PURIFYING RESPIRATOR	☒ GLOVES
☒ HARD HAT	☐ FACE SHIELD	☐ SUPPLIED RESPIRATOR	☒ OTHER: PFD if working within 25 feet of river.
☐ LIFELINE / HARNESS	☒ HEARING PROTECTION	☒ PPE CLOTHING:	
☒ SAFETY GLASSES	☒ SAFETY SHOES		

[1]JOB STEPS	[2]POTENTIAL HAZARDS	[3]CRITICAL ACTIONS TO MITIGATE HAZARDS
1. Set up at well location	**a. Insect sting due to nest in wellhead.**	**a. Do not open cap if insects are swarming around / near well head. Open cap in early morning when insects are sluggish. Remove nest with spray.**
	b. Injury due to lifting equipment and supplies from support truck.	**b. Use proper lifting techniques. Bend at the knees. Do not lift more than 50 lbs. without help.**
	c. Hit by passing vehicles.	**c. Wear reflective clothing and place traffic barriers if in high traffic area.**
2. Install / repair surface completion	**a. Injuries with cutting metal.**	**a. Wear face shield during any cutting operations. Wear leather gloves when handling metal.**
	b. When mixing cement or handling silica sand, potential inhalation of dust	**b. Use dust mask when handling cement or silica sand.**
	c. Injuries associated with welding.	**c. Follow JSA for welding and hot work operations. Use dry ice if needed to prevent igniting vapors from well.**

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WORK ACTIVITY (Description):
Well Development

DEVELOPMENT TEAM	POSITION / TITLE	REVIEWED BY:	POSITION / TITLE
Heather Budzich	Environmental Engineer		

MINIMUM REQUIRED PERSONAL PROTECTIVE EQUIPMENT (SEE CRITICAL ACTIONS FOR TASK-SPECIFIC REQUIREMENTS)

☒ REFLECTIVE VEST	☐ GOGGLES	☐ AIR PURIFYING RESPIRATOR	☒ GLOVES nitrile
☒ HARD HAT	☐ FACE SHIELD	☐ SUPPLIED RESPIRATOR	☒ OTHER: PFD if working within 25 feet of river.
☐ LIFELINE / HARNESS	☒ HEARING PROTECTION	☒ PPE CLOTHING:	
☒ SAFETY GLASSES	☒ SAFETY SHOES		

[1]JOB STEPS	[2]POTENTIAL HAZARDS	[3]CRITICAL ACTIONS TO MITIGATE HAZARDS
1. Set up work area and field equipment for gauging monitoring wells	Pinching, cuts, scrapes when unloading support truck	Wear leather or other cut resistant gloves. Wear long sleeved shirt and pants. Keep vehicle neat and orderly.
	Injury due to lifting equipment and supplies from support truck.	Use proper lifting techniques. Bend at the knees. Do not lift more than 50 lbs. without help. Communicate lifting techniques to helper.
	Traffic	Wear reflective clothing and place traffic barriers if in high traffic area. Establish work zones to keep unauthorized vehicles or personnel from entering.
	Slips, Trips, Falls	Keep work area clear and free of debris and equipment not in use. If ground surface is slippery, wear slip resistant boots, throw sand to surface, or if icy, throw salt.
2. Open and gauge well with interface probe	Insects	Watch for hornets and bees as you approach wells in remote areas. Carry bee spray.
	Pinch Points	Be cognizant of finger placement while removing well cover and lock.
	Contact with potentially contaminated groundwater	Wear nitrile gloves and Tyvek suit. Lower probe and reel in probe after measurement slowly and with deliberate movements to minimize splashing.
3. Install pump, tubing and surge block into well	Contact with potentially contaminated groundwater and spills	See above. Use a wide mouth container to store purge water. Purge water container must have a lid that can seal the container so if it were to tip over in transport the water won't spill.
	Hand injuries when connecting tubing and installing pump	Use proper tools, screw driver or nut driver to tighten tubing clamp on pump discharge.

	Back injury	Lift all equipment by bending knees to lift with legs. Do not lift equipment with back. Use arms to move equipment up and down to flush well screen.
4. Connect pump to power source	Electrical Hazards	Make certain that no flammable liquids are in the area of the battery contacts, connect positive wire to battery terminal and ground wire to bumper or other grounding area of vehicle – DO NOT connect ground wire to negative battery terminal as stated in manufacturers' literature provided with pump. Do not operate pump in standing water, if rainy, or in excessively moist conditions.
5. Water Jetting	Hose connections to jetting tool may disconnect, be kinked, or become blocked – leading to break of pressurized hose or uncontrolled spray	Make sure connections are secure. Stop work if any kinks or blockages in hose are noticed
	If jet tool is lifted too high, liquids may spray into workers face	Use umbrella like cover over well head to redirect any liquids (groundwater, NAPL) from spraying directly up from the well; wear face shield when jet spraying.
6. Pump liquids from well	Splash/spill	Wear safety glasses, nitrile gloves and Tyvek. Direct flow of liquid to a staging drum. Inspect drums for integrity. Apply lids if drums will be left out overnight. Label drums if left overnight.
7. Close well	Pinching	Be aware of hand placement to prevent fingers from being pinched between well riser and well cap.
8. Decontaminate Pump	Splash and exposure potential	Wear PVC/rubber gloves, safety glasses and Tyvek. Decon station should be set-up over polysheeting to contain any spills.

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WORK ACTIVITY (Description):
Groundwater Sample Collection

DEVELOPMENT TEAM	POSITION / TITLE	REVIEWED BY:	POSITION / TITLE
Heather Budzich	Environmental Engineer		

MINIMUM REQUIRED PERSONAL PROTECTIVE EQUIPMENT (SEE CRITICAL ACTIONS FOR TASK-SPECIFIC REQUIREMENTS)

☐ REFLECTIVE VEST	☐ GOGGLES	☐ AIR PURIFYING RESPIRATOR	☒ GLOVES nitrile
☒ HARD HAT	☐ FACE SHIELD	☐ SUPPLIED RESPIRATOR	☒ OTHER PFD if working within 10 feet of river.
☐ LIFELINE / HARNESS	☐ HEARING PROTECTION	☒ PPE CLOTHING Tyvek	
☒ SAFETY GLASSES	☒ SAFETY SHOES		

[1]JOB STEPS	[2]POTENTIAL HAZARDS	[3]CRITICAL ACTIONS TO MITIGATE HAZARDS
1. Locate monitoring wells	Traffic concerns Slip, trip, and fall	Wear high visibility vest, set up cones & barricades Walk over work area and remove potential trip hazards
2. Open (and close) monitoring well lids	Pinch points, sharp edges knee pressure Slip, trip, fall	Use leather/cotton gloves while opening lids. Use foam padding or knee pads while kneeling. Remove debris from work area.
3. Gauge wells Collect samples Bail/purge groundwater	Splash and spill hazards back strain	Maintain supply of sorbent material for splash clean-up. Place sorbent pad under bucket to reduce splash hazard. Use proper lifting techniques when bailing water.
	Chemical exposure and Contact with contaminated water	Wear safety glasses, nitrile inner and outer gloves. If expos to contaminated materials occurs, promptly wash contaminated skin using soap or mild detergent and water. Wash eyes with large amounts of water. If a person breath in a large amount of organic vapor, move the exposed pers to fresh air, rinse mouth. Perform CPR if needed. Keep the affected person warm and at rest. Obtain medical treatme for all of these situations as required. Wear appropriate sa equipment (i.e., goggles, gloves, boots) as appropriate for reducing risk of contamination.
4. Take sample from bailer	Splash and/or contact with contaminated water	See above. Fill sample bottles over bucket. Work slow and deliberate movements.
	Acid Burns	Sample containers must be on a flat stable surface or supported someone. Never handle sample containers with out chemical resistant gloves because many containers have acid preservative in them and if the tops are loose it may have leaked onto the outside of the container.
	Broken glass	Keep firm grip on sample bottles. Work over soft kneeling to minimize breakage if sample jar is dropped.
5. Carry fluids to storage drums, pour fluid into drums	Vehicle traffic Slips, trips, and falls splash and spill hazards back strain	Wear high visibility vest, be aware of vehicular traffic Review pathway to ensure all trip hazards are removed Maintain supply of sorbent pads for clean-up of splashes. Cover purge water container with a lid during transport to Drum storage area. Do not overfill buckets, use correct body positioning, lift with legs to prevent back strain
6. Clean up work area and load truck.	Pinch points Sharp edges Occasional vehicular traffic Back strain	Use leather/cotton gloves to protect hands from sharp edges and direct contact when appropriate. Wear a brightly colored traffic vest when appropriate, be aware of vehicle traffic at all times. Prepare and think through each lift

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WORK ACTIVITY (Description):
Prep Sample Jars Before Sampling

DEVELOPMENT TEAM	POSITION / TITLE	REVIEWED BY:	POSITION / TITLE
Heather Budzich	Environmental Engineer		

MINIMUM REQUIRED PERSONAL PROTECTIVE EQUIPMENT (SEE CRITICAL ACTIONS FOR TASK-SPECIFIC REQUIREMENTS)

☐ REFLECTIVE VEST	☐ GOGGLES	☐ AIR PURIFYING RESPIRATOR	☒ GLOVES nitrile
☒ HARD HAT	☐ FACE SHIELD	☐ SUPPLIED RESPIRATOR	☒ OTHER PFD if working within 10 feet of river.
☐ LIFELINE / HARNESS	☐ HEARING PROTECTION	☒ PPE CLOTHING Tyvek	
☒ SAFETY GLASSES	☒ SAFETY SHOES		

[1]JOB STEPS	[2]POTENTIAL HAZARDS	[3]CRITICAL ACTIONS TO MITIGATE HAZARDS
1. Bring coolers into field office for organization	Back strain	Use proper lifting techniques. Keep loads close to body. Ask for help if load is greater than 50 lbs.
	Slips, trips, falls	Be sure walking path is free of obstacles before relocating sample coolers. Use a spotter to relocate coolers or use a buddy to relocate coolers.
2. Separate/hande sample jars for sample event	Broken glass in cooler Chemical burns from preservatives	Lift jars out of cooler slowly and wear leather or Kevlar cut resistant gloves. Keep firm grip on sample bottles. Work over soft kneeling pad to minimize breakage if sample jar is dropped. Sample containers must be on a flat stable surface or supported someone. Never handle sample containers with out chemical resistant gloves (nitrile) because many containers have acid preservative in them and if the tops are loose or if glass is broken the preservative may have leaked onto the outside of the container and may get onto your hands and cause burns.
3. Package sample jars	Broken jars and glass shards	Lay bubble wrap on bottom of coolers and around sample jars.
4. Bring coolers to work truck or vehicle.	Back strain	See above.
	Slips, trips, falls	See above.

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WORK ACTIVITY (Description):
Soil Sample Collection

DEVELOPMENT TEAM	POSITION / TITLE	REVIEWED BY:	POSITION / TITLE
Heather Budzich	Environmental Engineer		

MINIMUM REQUIRED PERSONAL PROTECTIVE EQUIPMENT (SEE CRITICAL ACTIONS FOR TASK-SPECIFIC REQUIREMENTS)

☐ REFLECTIVE VEST	☐ GOGGLES	☐ AIR PURIFYING RESPIRATOR	☒ GLOVES nitrile
☒ HARD HAT	☐ FACE SHIELD	☐ SUPPLIED RESPIRATOR	☒ OTHER PFD if working within 10 feet of river.
☐ LIFELINE / HARNESS	☐ HEARING PROTECTION		
☒ SAFETY GLASSES	☒ SAFETY SHOES	☒ PPE CLOTHING Tyvek	

[1]JOB STEPS	[2]POTENTIAL HAZARDS	[3]CRITICAL ACTIONS TO MITIGATE HAZARDS
1. Collect soil sample	Chemical Exposure including: ▪ Inhalation of contaminated dust ▪ Inhalation of volatile contaminants ▪ Ingestion of contaminants ▪ Skin/eye contact with contaminated materials	If exposure to contaminated materials occurs, promptly wash contaminated skin using soap or mild detergent and water. Wash eyes with large amounts of water. If a person breathes in a large amount of organic vapor, move the exposed person to fresh air. Use CPR if needed. Keep the affected person warm and at rest. Obtain medical treatment for all of these situations as required. Wear appropriate safety equipment (i.e., goggles, nitrile inner and outer gloves, Tyvek, booties) as appropriate for reducing risk of contamination. Follow proper decontamination procedures when leaving work zone. Practice good personal hygiene; wash up before eating, eat or drink in designated clean areas. Eyewash bottle or station to treat eye irritation. Training.
	Pinch Points/Overhead equipment	All personnel will be aware of moving machinery and parts and wear appropriate PPE when near machinery (e.g., hard hat, safety glasses, gloves etc.). Keep observers back from active operations. Get operator's attention before approaching.
	Slips, trips and falls	Worker visual inspection (attention) to walking/working surface. Wearing appropriate safety footwear properly (such as boots with ankle support, laces ties, proper soles, etc.).
	Noise exposure	Hearing protection will be worn in hazardous noise areas or working around heavy machinery or equipment. Wear earplugs when noise level from equipment exceeds 8 decibels (dBA) averaged over an eight-hour day.
2. Perform air monitoring	Hazardous atmosphere	Use PID to monitor VOCs in breathing zone; if PID reading > 1pp cease operations and refer to Health and Safety Plan. Use Mini Ram to monitor dust; if dust reading is greater than or equal to 1 mg/m^3 cease operations and refer to Health and Safety Plan. Us multi-gas meter to monitor for an explosive atmosphere (LEL = 0.8%) and oxygen deficient (<19.5%) or enriched conditions (>20.5%). Stop work if action levels are approached or exceede and refer to the Health and Safety Plan. Implement dust control measures such as wetting down of soil.
3. Procuring sample from excavator bucket and placi in sample container	Struck by overhead hazards	Wear hard hat. Pay attention to equipment operator (equipment operator must pay attention to you too). Do no position your body between a fixed point and equipment. B communication with each other (radio, hand signals, or ver communication.

	Overhead power lines or structures	Visual inspection of access route.
4. Packing samples for off-s shipment to lab	Broken glass.	Handle bottles carefully while transporting to cooler, wrap in bubble wrap and place in plastic bag. Pack at ground or truck bed level, not in open space. Wear cut resistant glov while packing.
5. Gather equipment and move to next sample station.	Damage to equipment because of overloading.	Do not try to carry more than you can handle safely.

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WORK ACTIVITY (Description):
Operate Heavy Equipment

DEVELOPMENT TEAM	POSITION / TITLE	REVIEWED BY:	POSITION / TITLE
Heather Budzich	Environmental Engineer		

MINIMUM REQUIRED PERSONAL PROTECTIVE EQUIPMENT (SEE CRITICAL ACTIONS FOR TASK-SPECIFIC REQUIREMENTS)

☒ REFLECTIVE VEST	☐ GOGGLES	☐ AIR PURIFYING RESPIRATOR	☒ GLOVES
☒ HARD HAT	☐ FACE SHIELD	☐ SUPPLIED RESPIRATOR	☐ OTHER
☐ LIFELINE / HARNESS	☐ HEARING PROTECTION	☐ PPE CLOTHING	
☒ SAFETY GLASSES	☒ SAFETY SHOES		

[1]JOB STEPS	[2]POTENTIAL HAZARDS	[3]CRITICAL ACTIONS TO MITIGATE HAZARDS
1. Motorized Equipment operation	Equipment Maintenance	The equipment must be maintained in a proper functioning condition. All motors must be shut off and electrical, mechanical and hydraulic components locked when making repairs. Safety shut off system must be tested daily and not disabled. Bleed off pressure on hydraulic lines before undoing fittings. Do not leave tools or parts loose on the equipment after maintenance has been performed.
	General Use	All equipment must be inspected daily prior to use. Equipment must be operated and maintained in accordance to manufacturer's guidelines. Any equipment that is unattended must be immobilized and secured against accidental movement. All heavy equipment will have a back up alarm. Drill rigs and other machinery with exposed moving parts must be equipped with an operational emergency stop device. Drillers and geologists must be aware of the location of this device. This device must be tested prior to job initiation and periodically thereafter. The driller and helper shall not simultaneously handle augers unless there is a standby person to activate the emergency stop. The driller must never leave the controls while the tools are rotating unless all personnel are kept clear of rotating equipment. A remote sampling device must be used to sample drill cuttings if the tools are rotating or if the tools are readily capable of rotating. Samplers must not reach into or near the rotating equipment. Drillers, helpers and geologists must secure all loose clothing when in the vicinity of drilling operations. Only equipment that has been approved by the manufacturer may be used in conjunction with site equipment and specifically to attach sections of drilling tools together. Pins that protrude excessively from augers shall not be allowed. No person shall climb the drill mast while tools are rotating. No person shall climb the drill mast without the use of ANSI-approved fall protection (approved belts, lanyards and a fall protection slide rail) or portable ladder that meets the requirements of OSHA standards.
	Fire Hazard	All motors must be shut off during refueling. Smoking in vicinity of the drilling rig is not permitted. An A-B-C fire extinguisher must be maintained on the drilling rig and associated motorized equipment. Fuel containers will n be stored within 10' of the drilling rig motor. Fuel will be stored in UL approved safety containers with contents

	Operation of Motorized Equipment	Operators of motorized equipment will be trained in the proper operation of that apparatus.
	Tip/Roll Over	Equipment will be shut off and stabilized accordingly. Visual inspection of access route to sampling areas for soft spots, holes, rocks, etc. Operator Training Rollover protection (cab or equivalent).
	Struck By, Pinch Points	All personnel will be aware of moving machinery and parts and wear appropriate PPE when near machinery (e.g., hard hat, safety glasses, gloves etc.). Keep observers back from active operations. Get operator's attention before approaching.
	Noise exposure	Hearing protection will be worn in hazardous noise areas or working around heavy machinery or equipment. Wear earplugs when noise level from equipment exceeds 90 decibels (dBA) averaged over an eight-hour day.

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ATTACHMENT E

ADDITIONAL POLICIES AND ADDENDUMS

ATTACHMENT F

MATERIAL SAFETY DATA SHEETS (MSDSs)

ATTACHMENT G

ON-SHORE WORK NEAR WATER AND MARINE OPERATIONS SAFETY GUIDELINE

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LIST OF ATTACHMENTS

ON-SHORE WORK NEAR WATER AND MARINE OPERATIONS – SAFETY GUIDELINE

G1 PURPOSE AND SCOPE

The purpose of this guideline is to ensure that an incident or injury does **NOT** occur to any personnel working near or around the Site shoreline. This guideline should be used by employees and contractors to set up specific minimum policy requirements and is mandatory. Contractors and employees will be required to develop task specific emergency action and communication plans prior to performing work near water.

Additional safety measures maybe required such as described in OSHA 29 CFR 1926.106 (a-e) which can be obtained from the OSHA website: http://www.osha.gov. It is the responsibility of the personnel conducting the work to understand and follow all applicable safety rules, regulations, and procedures. Where working conditions arise that require more stringent procedures than those stated herein, the more stringent procedures will be applied.

G2 SEQUENCE AND SAFE METHOD OF WORK

As part of the daily toolbox meeting, the Site Health and Safety Officer (SHSO) and the designated Skiff Operator(s) will review local weather conditions, tidal fluctuations, and other environmental factors that may interfere with near-shore work or emergency rescue. Personnel will utilize the following steps through the duration of near-shore field tasks to minimize the risk of adverse conditions occurring:

- The SHSO will stop work if he or she becomes aware of impending hazardous conditions or notices any unsafe condition such as high winds, choppy water, or snow that could make the near-shore surface slippery.
- The Skiff Operator or the SHSO will monitor local marine radio broadcasts at least once at the start of work in the morning, and once during early afternoon. The Skiff Operator or the SHSO will monitor local marine radio broadcasts at least every 2 hours during changeable or inclement conditions or more frequently if conditions warrant.
- If marine radio broadcasts any warning for the vicinity, the Skiff Operator or the SHSO will signal all personnel to leave the water and seek appropriate shelter.
- If marine radio broadcasts a small craft advisory for the vicinity, the Skiff Operator or the SHSO will monitor the situation, and take appropriate action.
- If workers hear thunder or see lightening, near-shore work will cease, and all workers will seek appropriate shelter. They will stay in the shelter until 20 minutes elapse since workers last observed thunder or lightening.

A site walk will be conducted within 10 feet of the shoreline prior to starting work in this areas and whenever Site conditions or weather changes to ensure that all hazards are identified

and necessary precautions have been taken within the limits of the work zone. Areas near the water which create a hazard (e.g. holes, cracks, protruding rocks, etc.), shall be identified and indicated with fluorescent spray paint or some other bright identifying color indicating a slip, trip, or fall hazard.

U.S. Coast Guard (USCG) approved personal flotation devices (PFDs) including life vests, float coats, or floatation suits (Mustang floaters or equivalent) must be worn by employees working near or around the Site shoreline, where the danger of drowning exists, and in the absence of a guardrail (42 inches high) or safety belt. Unless a guardrail is installed along the Site shoreline, all personnel within 10 feet of the River shoreline for site walks and 25 feet of the shoreline for high risk activities requiring mechanized equipment (i.e., excavations, regarding, drilling, and test pitting) or when ice is present must wear a PFD equipped with a D-ring with an emergency whistle attached. Additionally, personnel working within 10 feet of the shore will have a "buddy/spotter" present at all times. If the work requires reaching, stretching, etc., over the water the worker shall be equipped with a harness and lifeline. The lifeline shall be attached to the chain link fence that runs parallel to the Site shoreline.

PFDs will be inspected on a daily basis for dry rot, chemical damage, or other defects, which may alter their strength or buoyancy. Defective or damaged PFDs will not be used. A Performance Test will be performed on PFDs that are new or have not been worn within the last six months. A Fit Test will be performed prior to the start of each workday. Data from the Performance Test, the Fit Test, and the daily inspection should be recorded by the SHSO on the attached PFD Inspection Form (See Attachment G1). This form should be kept on-site through the duration of the associated field efforts.

If personnel are required to wear additional personal protective equipment (PPE such as booties) then the PPE shall be appropriate for working near water. Footwear should have sufficient traction to reduce the risk of slipping. Tyvek boot coverings and other non tread/grip boots create a slipping hazard and will not be allowed while working near the shoreline.

Ring buoys will be located within 25 feet of the shoreline and will be positioned at locations along the shoreline closest to the location of work being performed. This distance cannot exceed 200 ft. Additionally, each ring buoy will have at least 90 feet of line readily available for emergency rescue operations. If someone is throwing the ring buoy from the shoreline, the thrower must stand back 10 feet from the shoreline to prevent the thrower from falling or being dragged into the water and becoming a second victim.

One person, preferably someone with boater safety and emergency rescue experience, will be responsible for operating a life saving skiff that will be immediately available at locations where people are working adjacent to water and where the potential for drowning exists. The Operator must have an Emergency Rescue Procedure and Communication System in place and be familiar with how to operate the skiff. The skiff will contain a PFD for each occupant, a throw ring with sufficient line, and a pole to reach overboard victims. A skiff will be staged in the water or adjacent to the shoreline while personnel are working within 10 feet of the shoreline. The skiff will be located near the water tower where the ground is stable and can withstand the

activity of putting the skiff in the water. If needed, a second skiff may be required. The Site skiff(s) will be stored near the site trailer, inside Building 51, or at a location outside the tidal influence and within a secured area when work is not being conducted adjacent to the river and at the end of each work day. Walkie-talkies and/or cell phones will be used to inform the Skiff Operator of an emergency and to inform the Operator where the skiff is needed.

In the event a person working near the shore falls into the river the Skiff Operator should be notified to mobilize immediately. The Skiff Operator will don an appropriate PFD before lowering the boat into the river. The Operator will ensure the boat is secure before lowering himself or herself straight down into the center of the boat. If others are boarding, they should step along the fore-and-aft centerline of the boat while holding the boat in place along the shoreline. All efforts will be made to avoid carrying anything aboard. Instead, once on the boat, an on-shore person will hand necessary items to the person in the boat.

Amount and location of weight (persons and gear: the movable ballast) is critical for capsize protection while in the boat. In the skiff, personnel will be required to keep their weight toward the middle, both fore-and-aft and side-to-side. If waves are approaching they should be taken on the bow. Overloading the skiff will inhibit the skiff's ability to rise to oncoming waves. Less freeboard means less clearance above the water's surface to prevent swamping. All craft must be operated within the boat manufacturers weight limits.

G3 INCIDENT REPORTING

All incidents involving personal injury or property damage, or which had the potential to cause significant injury or damage (near-miss) must be immediately reported All information and assistance must be made available upon request to assist with an incident investigation, if necessary.

G4 PFD REQUIREMENTS

PFD selection, testing the fit of a PFD, and performing regular inspections and documentation of a PFD are described below.

G4.1 PFD Selection

To select an appropriate PFD and verify its fit, personnel will do the following:

- Check to make sure the PFD label indicates the PFD is USCG approved for the following:
  - Wearer's size and weight;
  - Type of activity being performed; and
  - Water type to be encountered.
- Ensure the PFD fits properly and is comfortable by performing a Fit Test. A PFD should fit snugly; if it is too loose it will not provide proper flotation in the water. To check the fit of the PFD, first put on the PFD, tighten all straps, and close all zippers.

Second, raise your arms above your head and have someone lift the PFD up by the shoulders. The PFD is not a good fit if the PFD freely moves and almost comes off, or if the main zipper touches your nose. Use the adjustable straps to refit the PFD.

G4.2 PFD Performance Test (Optional)

Each person should test the performance of his or her PFD in a controlled environment to become familiar with use of the PFD and to ensure that it is appropriate. To test the PFD follow the steps listed below.

- Put the PFD on and step into shallow water (water that is just deep enough to stand with your head above water).
- Pick your feet off the bottom. The PFD should keep the person on their back or just slightly back of vertical.
- Verify that the mouth of the person performing the test is well above the water surface.

G4.3 PFD Storage

To increase the performance duration of a PFD the following steps should be followed:

- Dry the PFD thoroughly before putting it away but not by using a direct heat source.
- Store the PFD in a well ventilated place. Don't store PFDs in plastic bags.
- Don't store heavy objects on a PFD or use the PFD to kneel on. PFDs loose buoyancy when crushed.
- Don't store in direct sunlight. Long-term exposure to UV light can weaken fabrics and belts. Fading is an indication of loss of integrity.

G5 DEFINITIONS

Near Water: Any work being conducted on shore within 10 feet of the shoreline.

Personal Flotation Device (PFD): A device designed to keep persons afloat while in water, including life preservers, life jackets, flotation coats, flotation suits, or work vests. PFDs used at the Site must be USCG approved pursuant to 46 CFR Part 160 (Type I, II, III, or V PFD), in good serviceable condition, and the appropriate size for the intended user. Any boat 16 feet and longer must also carry one throwable PFD (Type IV PFD).

PFDs used at the site must be designated as one of the following:

- Type I: This PFD (off-shore life jacket) is the most buoyant life jacket and is suitable for all water conditions including rough or isolated water, where emergency response may be delayed. This type of PFD has a flotation collar that will turn most unconscious individuals into the face-up position.
- Type II: This PFD (near-shore jacket) is designated for calm, open water where emergency response will occur quickly and are not designed for long periods in rough

water. This type of PFD does not have a flotation collar and will turn some, but not all, unconscious victims to the face-up position.

- Type III: This PFD is designated for calm, open water where emergency response will occur quickly. The PFD is most commonly used for sporting activities (e.g., water skiing) and is designed to keep the wearer in a vertical position. Type III PFDs are considered buoyancy aids and require the wearer to maneuver themselves onto their back or in the vertical position. The Type III PFD is as effective at turning a person to the face-up position as a Type II PFD. This PFD is not recommended for rough waters.
  - Bomber (Mustang) jackets and/or coveralls are considered Type III PFDs and protect against hypothermia.
- Type IV: This type of PFD includes throwable devices and includes a square buoyant cushion, a life ring, or a horseshoe buoy. These devices are not to be worn; they are designed to be tossed to a conscious person to hold onto the device for flotation until the person can be rescued.

Type V: This PFD is usually worn for specific activities as described on the unit's label. A Type V label will list the PFDs performance as a Type I, II, or III PFD. An example of a Type V PFD is a full body survival suit that provides protection against hypothermia.

Inflatable PFDs and PFDs that require the operator to consciously pull an inflation cord are not permitted at the Site.

Life Saving Skiff: A light boat small enough to be operated by two people. The boat may be of wood, plastic, metal, rubber, etc., and must be equipped with oars and a motor.

Immediately Available Skiff: The skiff is ready to be used upon demand. It must be in the water or along the shore where it can be launched immediately by two people. There must be at least one person specifically designated to respond to water emergencies and operate the skiff at all times when personnel are working within 10 feet of the shoreline.

Skiff Operator: The designated operator must man the skiff at all times or remain in the immediate area such that the operator can quickly reach and operate the skiff. The operator may be assigned other tasks provided the tasks do not interfere with the operator's ability to quickly reach and operate the skiff. The Skiff Operator will be trained in USCG approved emergency rescue procedures.

Ring Buoy: A U.S. Coast Guard approved 30-inch (76.2 cm) life ring, with at least 90 feet (27.43 m) of line attached, shall be available at readily accessible points at each waterside work area where the employees' work exposes them to the hazard of drowning.

ATTACHMENT G1

PFD INSPECTION FORM

ATTACHMENT G1

DAILY PFD INSPECTION FORM

Site Location: Date:

Inspector: Time:

Task to be Performed:

General	YES	NO
1) Is the appropriate type of PFD being used for the task? (Indicate Type I, II, III, etc.)		
2) Is the PFD approved by the US Coast Guard (**USCG**) or International Convention for Safety of Life at Sea (**SOLAS**)?		
3) Is the USCG or SOLAS label attached and readable?		
Physical Condition		
4) Are there tears or thread worn areas in the fabric?		
5) Is the fabric faded?		
6) Are the straps and zippers worn, missing, or broken?		
7 Are there leaks, or lumpy or hardened areas in the buoyancy material?		
8) Is there mildew on the PFD?		
9) Is the PFD saturated in oil or oil-like products? (any amount)		
10) Do inflatable PFDs have a full cylinder and are all indicators on the inflator green?		
PFD Fit		
11) Is the PFD the appropriate type for the size and weight of the user? (check label)		
12) Do the straps and buckles fasten around both the front and back?		
13) Does the PFD fist snuggly and not ride above the shoulders?		

Comments

Notes

1) If the integrity of the PFD is not up to standard and fails the inspection, remove it from service.

2) If the PFD does not properly fit the user, find another PFD. Do not attempt to make it fit by leaving buckles unclasped, or gaps above shoulders, etc.

3) If you are unsure of a condition, seek out a supervisor and ask for assistance.

ATTACHMENT G1

DAILY PFD INSPECTION FORM

Site Location: Date:

Inspector: Time:

Task to be Performed:

General	YES	NO
1) Is the appropriate type of PFD being used for the task? (Indicate Type I, II, III, etc.)		
2) Is the PFD approved by the US Coast Guard (**USCG**) or International Convention for Safety of Life at Sea (**SOLAS**)?		
3) Is the USCG or SOLAS label attached and readable?		
Physical Condition		
4) Are there tears or thread worn areas in the fabric?		
5) Is the fabric faded?		
6) Are the straps and zippers worn, missing, or broken?		
7 Are there leaks, or lumpy or hardened areas in the buoyancy material?		
8) Is there mildew on the PFD?		
9) Is the PFD saturated in oil or oil-like products? (any amount)		
10) Do inflatable PFDs have a full cylinder and are all indicators on the inflator green?		
PFD Fit		
11) Is the PFD the appropriate type for the size and weight of the user? (check label)		
12) Do the straps and buckles fasten around both the front and back?		
13) Does the PFD fist snuggly and not ride above the shoulders?		

Comments

Notes

1) If the integrity of the PFD is not up to standard and fails the inspection, remove it from service.

2) If the PFD does not properly fit the user, find another PFD. Do not attempt to make it fit by leaving buckles unclasped, or gaps above shoulders, etc.

3) If you are unsure of a condition, seek out a supervisor and ask for assistance.

ATTACHMENT H

RESPIRATORY PROTECTION PLAN

Respiratory Protection

While most air is safe to breath, there are some conditions that necessitate the use of respiratory protection. This plan establishes working practices surrounding the use of respiratory protection during field activities for drilling and test pitting activities at the ExxonMobil Site in Long Island City, NY. This plan is established in accordance with OSHA's Respiratory Protection Standard (29 CFR 1910.134).

Employer and Employee Responsibility

Employer/Contractor responsibility:

- Provide respirators when they are necessary to protect the health of the employee;
- Provide the respirator that is applicable and suitable for the intended purpose;
- Establish and maintain respiratory protection program.

Employee responsibility:

- Use respiratory protection in accordance with instructions and training received;
- Guard against damage to respirator;
- Report any trouble or malfunction of respirator to supervisor.

Maintenance and Care of Respirators

Inspection:

1. All respirators shall be inspected routinely before and after each use.
2. Respirators kept for emergency use must be inspected after each use, and at least monthly.
3. A record shall be kept of inspection dated and findings for respirators kept for emergency use.
4. Respirator inspection shall include:
   - disassemble inhalation and exhalation valves and check for debris or tears. Ensure that seals and gaskets are in place;
   - ensure a protective cover lens is attached to the lens;
   - ensure that the proper cartridge is present and connected securely;
   - ensure that the face piece harness is not damaged;
   - ensure that speaking diaphragm retainer ring is hand tight;
   - don respirator and perform the positive/negative pressure fit test procedures;

Cleaning and Disinfection:

1. Respirators shall be cleaned after each use.
2. Cleaning Procedures:
   - Remove cartridges (if of the air-purifying type) and put in container provided;
   - remove regulator of airline respirator;
   - remove any gross contamination with water and paper towels, taking care not to scratch the plastic lens;

- wash all respirator parts (except cartridges and elastic headbands) in a cleaner-disinfectant solution at approximately 120 F. Use a hand brush to remove dirt;
- rinse completely in clean, warm water;
- air dry in clean area;
- inspect all parts; replace with new parts, if defective;
- reassemble the respirator and insert new filters or cartridges. Make sure seal is tight;
- disinfect all facial contact areas by spraying the respirator with an approved type disinfectant;
- place respirator in plastic bag and seal it for storage.

Repair of Respirators

1. Repair or replacement shall be done only by experienced persons with parts designed for that specific type of respirator.
2. No attempts shall be made to replace components or to make adjustment or repair beyond the manufacturer's recommendation.
3. Admission valves or regulators shall be returned to the manufacturer or to a trained technician for adjustment or repair.

Storage of Respirators

1. After inspection, cleaning, and necessary repairs, respirators shall be stored to protect against dust, sunlight, heat, extreme cold, excessive moisture or damaging chemicals.
2. Respirators placed at stations and work areas for emergency use should be stored in compartments built for the purpose, be quickly accessible at all times, and be clearly marked.
3. Routinely used respirators may be placed in plastic bags.
4. Respirators shall not be placed in such places as lockers or tool boxes unless they are in carrying cartons.
5. Respirators shall be packed or stored so that the face piece and exhalation valve will rest in a near normal position.

Medical Limitations

Employees will not be assigned tasks requiring the use of respirators unless they are physically able to perform the work and use the equipment. The respirator user's medical status will be reviewed annually by a physician or under the supervision of a physician.

Selection of Respirators

1. Respirator type and make will be selected by the individual in charge of the respiratory protection program.
2. Only respirators approved by NIOSH may be used.
3. The proper type of respirator for the specific hazard involved will be selected in accordance with the manufacturer's instructions.

Issuance of Respirators

1. Air sampling will be conducted and shall be the determining factor in the event of disputes between employer and employee on whether a respirator is needed.
2. Employees will be required to wear sampling apparatus during air sampling studies.

Training Practices

1. Instruction in the nature of the hazard and an honest appraisal of what may result if the respirator is not used.
2. An explanation of why that particular type of respirator is appropriate.
3. Explanation and example of the care and cleaning program.
4. Discussion of the respirator's capabilities and limitations.
5. Instruction and training in actual use, including close and frequent observation of actual use.
6. Fit testing procedures.
7. Any other special or emergency instructions.

Operating Procedures for Respirators

1. Respirators will be cleaned daily, or after each use.
2. Respirators must be stored in the proper area when not in use.
3. Respirators may not be worn when conditions prevent a good face seal.
4. Before and after using a respirator, the employee or immediate supervisor must make an inspection of tightness of connections and the condition of the face piece, headbands, valves, filter holders and filters. If any questionable items are found, have them corrected immediately.
5. To ensure proper protection, the face piece fit must be checked each time the respirator is donned.

    a. Positive Pressure Test:

    Close off the exhalation valve with one hand. Breathe air into mask. The face fit is satisfactory if some pressure can be built up inside the mask without any air leaking out between the mask and the face of the wearer.

    b. Negative Pressure Test:

    Close off the inlet openings of the cartridge with the palm of your hands. Some masks may require that the filter holder be removed to seal off the intake valve. Inhale gently so that a vacuum occurs within the face piece. Hold your breath for 10 seconds. If the vacuum remains, and no inward leakage is detected, the respirator is properly fit.

Toxic Atmospheres

In emergency situations where an atmosphere exists in which the wearer of the respirator could be overcome by a toxic or oxygen-deficient atmosphere, the following procedure shall be followed:

1. Never enter a dangerous atmosphere without first obtaining the proper protective equipment and permission to enter from the person in charge of the respirator program, or the site health and safety officer.
2. Never enter a dangerous atmosphere without at least one additional person present. They must remain in the safe atmosphere.
3. Communications (voice, visual, or signal line) must be maintained between both or all individuals present.
4. The person remaining in the safe atmosphere must have the proper rescue equipment to enable them to aid the person in the dangerous atmosphere if problems are encountered.

Control and Evaluation of the Respirator Program

In order to maintain an effective respiratory protection program, control and feedback on how the program is functioning is necessary. In this manner, improvements can be made and deficiencies eliminated.