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SITE SAFETY PLAN MOBILE ENHANCED MULTI PHASE EXTRACTION (MEME) AND
GROUND WATER SAMPLING EVENTS MILLINGTON SUPPACT TN
09/01/1998
CMD ASSOCIATES

CMD ASSOCIATES, LLC

SITE SAFETY PLAN

MOBILE ENHANCED MULTI-PHASE EXTRACTION AND

GROUND WATER SAMPLING EVENTS

NAVAL SUPPORT ACTIVITY, MEMPHIS

NAVAL HOSPITAL BOILER SYSTEM

MILLINGTON, TENNESSEE

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SEPTEMBER 1998

SITE SAFETY PLAN

MOBILE ENHANCED MULTI-PHASE EXTRACTION AND

GROUND WATER SAMPLING EVENTS

NAVAL SUPPORT ACTIVITY, MEMPHIS

NAVAL HOSPITAL BOILER SYSTEM

MILLINGTON, TENNESSEE

SEPTEMBER 1998

CMD ASSOCIATES, LLC

SITE EMERGENCY FORM

Contaminants of Concern: Petroleum Hydrocarbons

Minimum Level of Protection: Modified Level D

DO NOT ENDANGER YOUR LIFE. SURVEY THE SITUATION BEFORE TAKING ANY ACTION.

CMD Office Telephone: 901-259-2362

CMD Office Address: 3144 STAGE POST DRIVE, SUITE 112
BARTLETT, TENNESSEE 38133

Telephone Located at:

EMERGENCY PHONE NUMBERS

IN THE EVENT OF ANY EMERGENCY, CONTACT PROJECT MANAGER OR HEALTH AND SAFETY REPRESENTATIVE

Ambulance: 911

Fire: 911

Police: 911

Poison Control: 1-901-528-6048

Hospital Name: Methodist North

Nat. Response Center: 1-800-424-8802

Project Manager: Barry Levine

Phone: 901-259-2362; ext. 109

Health & Safety Rep: Barry Levine

Phone: 901-259-2362; ext. 109

Client Contact: Randy Wilson

Phone: 874-5902

State Agency: TDEC

Phone: 901-368-7939

Hospital Phone: 384-5200

Chemtrec: 1-800-424-9300

FIRST AID FOR PETROLEUM HYDROCARBON EMERGENCIES

Ingestion: DO NOT INDUCE VOMITING. Call Poison Control; follow instructions. Administer CPR, if necessary. Seek medical attention.

Inhalation: Remove person from contaminated environment. DO NOT ENTER A CONFINED SPACE TO RESCUE SOMEONE WHO HAS BEEN OVERCOME UNLESS PROPERLY EQUIPPED AND A STANDBY PERSON IS PRESENT. Administer CPR if necessary. Seek medical attention.

Skin Contact: Brush off dry material, remove wet or contaminated clothing. Flush skin thoroughly with water. Seek medical attention if irritation persists.

Eye Contact: Flush eyes with water for 15 minutes. Seek medical attention.

Exposure Symptoms: Headache, dizziness, nausea, drowsiness, irritation of eyes, nose, throat, breathing difficulties.

Contingency Plan: Report incident to Project Manager and Health and Safety Representative after emergency procedures have been implemented.

EMERGENCY FIRST AID

1. **Survey the situation. Do not endanger your own life. DO NOT ENTER A CONFINED SPACE TO RESCUE SOMEONE WHO HAS BEEN OVERCOME UNLESS PROPERLY EQUIPPED AND A STANDBY PERSON IS PRESENT.**
2. Call 911 or the fire department IMMEDIATELY. Explain the physical injury, chemical exposure, fire, or release.
3. Decontaminate the victim without delaying life-saving procedures.
4. If the victim's condition appears to be noncritical, but seems to be more severe than minor cuts, he/she should be transported to the nearest hospital by trained Emergency Medical Services (EMS) personnel. If the condition is obviously serious, EMS should transport the victim if they are immediately available. If EMS are not immediately available, site personnel may have to transport the victim.
5. Notify the Project Manager and the Health and Safety Representative. Complete the Accident/ Incident Form within 24 hours.

EMERGENCY FIRST AID PROCEDURES CMD ASSOCIATES, LLC	
To Stop Bleeding	Cardiopulmonary Resuscitation (CPR)
1. Give medical statement.	1. Call for help.
2. Assure airway, breathing, circulation	2. Arousal: Check for consciousness.
3. Use DIRECT PRESSURE over the wound with clean dressing or your hand (use nonpermeable gloves). Direct pressure will control most bleeding.	3. Open airway with chin-lift.
4. Bleeding from an artery or several injury sites may require DIRECT PRESSURE on a PRESSURE POINT. Use pressure points for 30-60 seconds to help control severe bleeding.	4. Look, listen, and feel for breathing
5. Continue primary care and seek medical aid as needed.	5. If breathing is absent, give 2 slow, full rescue breaths.
	6. Check the pulse for 5 to 10 seconds.
	7. If pulse is present, continue rescue breathing: 1 breath every 5 seconds.
	8. If pulse is absent, start CPR: 15 compressions, 2 breaths (1 man)

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1.0 INTRODUCTION

CMD Associates, LLC (CMD) has been retained by Naval Support Activity, Memphis, Millington, Tennessee (NSA Memphis) to conduct four mobile enhanced multi-phase extraction (MEME) and ground water sampling events at the former location of an underground storage tank (UST) system at the NSA Memphis, hospital boiler system, Memphis-Millington, Tennessee (Site). The Site is located on Navy Road in the northeastern quadrant of the Site.

The UST system formerly located at the Site was used to store number 2 fuel oil as a backup fuel for the hospital boiler system. A release of fuel oil was detected and reported to the Tennessee Department of Environment and Conservation (TDEC) in June 1991. An investigation by Navy personnel revealed that the fuel leaked from a pipe joint.

A Site Assessment was completed in September 1992. Four ground water monitoring wells were installed at the Site at the locations depicted on the figure in *Appendix A*. The UST was removed in 1996 and well number 2 was abandoned during the closure activities.

Results of assessments conducted at the Site indicate that soils and ground water in the area of the boiler room have been impacted by the fuel release. The majority of the soil hydrocarbon impacts appears to be limited to the sandy engineered fill of the building foundation located beneath the concrete floor of the boiler room. The sand layer ranged from 1.0 to 2.5 feet in thickness. The vertical migration of petroleum contaminants in soil appears to be restricted by a natural clay layer present immediately below the sand fill. The permeability of this clay layer ranges from 5.02×10^{-8} centimeters per second (cm/sec) to 6.26×10^{-9} cm/sec. Impacts to ground water may be the result of migration of contaminants along building supports. Several structural footings are present in the area which could serve as conduits for the contaminants.

Ten ground water monitoring events have been performed between April 1994 and December 1997. The results of these events show that contaminants have not migrated from the immediate vicinity of the release. The table enclosed in *Appendix B* provides a summary of the analytical results from the ground water monitoring events.

The purpose of each MEME event is to reduce the levels of total petroleum hydrocarbons (TPH) in ground water and soils at the Site. The initial MEME event is tentatively scheduled to be completed on September 25, 1998. Subsequent events will be conducted approximately 21 days after the preceding event. A ground water sampling event consisting of the collection of one ground water and a duplicate sample from monitoring well NHGW04 will be completed prior to each MEME event.

This Site Safety Plan is written to ensure the well-being of all field personnel and the community surrounding the Site. All personnel assigned to this project must sign the Agreement and Acknowledgment Sheet (*Appendix C*) to confirm that they understand and agree to abide by the provisions of the plan.

All work will comply with the OSHA Standard, "Hazardous Waste Operations and Emergency Response," (29 CFR 1910.120) and other federal, state and local procedures that require the development and implementation of a Site Safety Plan.

This plan addresses the safety issues associated with conducting each MEME event at the Site which typically involves the following Site tasks:

- Field Survey/Walkover
- Groundwater Sampling
- Ground Water Elevation Monitoring

All activities of this project will be carried out under Modified Level D Personal Protective Equipment (PPE). This Site Safety Plan must be modified or amended when circumstances or conditions develop that are beyond the scope of a routine MEME and/or ground water event. Any changes in project work scope and/or Site conditions as described must be amended in writing by the Health and Safety Representative (HSR) on the Site Safety Plan Amendment Sheet (*Appendix D*).

Table 1-1 presents an overview of the CMD health and safety programs in which all field personnel are required to participate. These include the medical surveillance and comprehensive training programs in accordance with OSHA Hazardous Waste Operations and Emergency Response regulation, 29 CFR 1910.120.

TABLE 1-1 CMD ASSOCIATES, LLC HEALTH AND SAFETY PROGRAMS		
Activity	Description	Action
Medical Surveillance	<ul style="list-style-type: none"> ■ The program tracks the physical condition of the Company's employees in compliance with DOT and OSHA regulations, and other customer requirements. 	<ul style="list-style-type: none"> ■ Medical examination and consultations are completed for all employees prior to assignment, annually, upon termination, and in the event of injury and/or illness resulting from exposure at the work site.
Training	<ul style="list-style-type: none"> ■ Training requirements and programs comply with the OSHA Hazardous Waste Operations and Emergency Response regulation, 29 CFR 1910.120. 	<ul style="list-style-type: none"> ■ Field personnel must complete a minimum of 40 hours of hazardous waste activity instruction. ■ Field personnel must complete a minimum of three days supervised field instruction. ■ Field personnel assigned to the site will also receive eight hours of refresher training each year. ■ On-site managers and supervisors directly responsible for employees engaged in hazardous waste operations receive an additional eight hours of supervisory training.

2.0 HAZARD IDENTIFICATION AND CONTROL

The potential for hazardous conditions is present at the Site. Personnel should take precautions to minimize this potential. Table 2-1 identifies typical potential hazards associated with the work to be performed at the Site and lists controls to minimize/avoid these conditions. In addition, Standard Work Practices and Operating Procedures which are to be followed at the Site are provided in *Appendix E*. Also, Material Safety Data Sheets for the chemicals suspected to be present at the Site are provided in *Appendix G*.

TABLE 2-1 POTENTIAL HAZARDS AND CONTROL	
Potential Hazard	Control
Exposure to Petroleum Products (see Appendices F: MSDS Definitions and G: MSDSs)	<ol style="list-style-type: none"> 1. Stand up-wind of petroleum products whenever possible. 2. Minimize contact with and exposure time to petroleum products. 3. Avoid walking through discolored areas, puddles, leaning on drums, or contacting anything that is likely to be contaminated. 4. Do not eat, drink, smoke and/or apply cosmetics in work area 5. Wear gloves when in contact with contaminated surfaces. 6. Safety glasses must be worn at a minimum. 7. Splash goggles must be worn when working with liquids. 8. >10 ppm organic vapors in breathing zone requires work stoppage 9. If unknown materials are encountered, call the HSR.
Vehicular Traffic	<ol style="list-style-type: none"> 1. Wear traffic safety vest when vehicle hazard exists. 2. Use cones, flags, barricades, and caution tape to define work area. 3. Use vehicle to block work area. 4. Engage police detail for high-traffic situations
Inclement Weather	<ol style="list-style-type: none"> 1. Stop outdoor work during electrical storms and other extreme weather conditions such as extreme heat or cold temperatures. 2. Take cover indoors or in vehicle. 3. Listen to local forecasts for warnings about specific weather hazards such as tornados, hurricanes and flash floods.
Noise	<ol style="list-style-type: none"> 1. Wear hearing protection when equipment such as a drill rig, jackhammer, cut saw, air compressor, blower or other heavy equipment is operating on the site. 2. Wear hearing protection whenever you need to raise your voice above normal conversational speech due to a loud noise source; this much noise indicates the need for protection.

**TABLE 2-1
POTENTIAL HAZARDS CONTROL**

Potential Hazard	Control
Electric Shock	<ol style="list-style-type: none"> 1. Maintain appropriate distance from overhead utilities; 20-foot minimum clearance from power lines required; 10-foot minimum clearance from shielded power lines. 2. Use ground-fault circuit interrupters as required. 3. Use three-pronged plugs and extension cords. 4. Contact your local underground utility-locating service.
Physical Injury	<ol style="list-style-type: none"> 1. Wear hard hats and safety glasses when on site. 2. Maintain visual contact with the equipment operator and wear orange safety vest when heavy equipment is used on site. 3. Avoid loose-fitting clothing. 4. Prevent slips, trips and falls; keep work area uncluttered. 5. Keep your hands away from moving parts.
Back Injury	<ol style="list-style-type: none"> 1. Use a mechanical lifting device or a lifting aid where appropriate. 2. If you must lift, plan the lift before doing it. 3. Check your route for clearance. 4. Bend at the knees and use leg muscles when lifting. 5. Use the buddy system when lifting heavy or awkward objects. 6. Do not twist your body while lifting.
Heat Stress	<ol style="list-style-type: none"> 1. Increase water intake while working. 2. Increase number of rest breaks and/or rotate workers in shorter work shifts. 3. Watch for signs and symptoms of heat exhaustion and fatigue 4. Plan work for early morning or evening during hot months. 5. Use ice vests when necessary. 6. Rest in cool, dry areas. 7. In the event of heat stroke, bring the victim to a cool environment and initiate first aid procedures.
Cold Stress	<ol style="list-style-type: none"> 1. Take breaks in heated shelters when working in extremely cold temperatures. 2. Remove the outer layer clothing and loosen other layers to promote evaporation of perspiration, upon entering the shelter. 3. Drink warm liquids to reduce the susceptibility to cold stress.

**TABLE 2-1
POTENTIAL HAZARDS CONTROL**

Potential Hazard	Control
Insects	<ol style="list-style-type: none"> 1. Tuck pants into socks. 2. Wear long sleeves. 3. Use insect repellent.
Poisonous Plants (such as poison ivy, oak or sumac)	<ol style="list-style-type: none"> 1. Don't enter areas infested with poisonous plants. 2. Immediately wash any areas that come into contact with poisonous plants.
Ladders	<ol style="list-style-type: none"> 1. Make sure ladder rungs are sturdy and free of cracks. 2. Use ladders with secure safety feet. 3. Pitch ladders at a 4:1 ratio. 4. Secure ladders at the top when possible. 5. Use non-conductive ladders near electrical wires.
Fire Control	<ol style="list-style-type: none"> 1. Smoke only in designated areas. 2. Keep flammable liquids in closed containers. 3. Keep site clean; avoid accumulating combustible debris such as paper. 4. Isolate flammable and combustible materials from ignition sources.
Static Electricity	<ol style="list-style-type: none"> 1. Do not create static discharge in flammable atmospheres. 2. Electrically bond and ground drums and bailers when moving liquids. 3. Electrically bond and ground vacuum trucks and the tanks they are emptying. 4. Do not splash fill containers with flammable liquids.

3.0 AIR MONITORING

Air monitoring must be performed at the site. Organic vapor concentrations are monitored in the field with a flame ionization detector (FID) or photoionization detector (PID). All readings are taken in the workers' breathing zone to determine whether an action level has been met and/or exceeded. Air monitoring results must be documented on the Air Monitoring Form (*Appendix H*).

Air monitoring action levels (Table 3-1) have been developed to indicate the chemical concentrations in the breathing zone that require an upgrade in level of personal protective equipment (PPE). The action levels apply to all tasks associated with conducting the MEME event. Guidelines for frequency of air monitoring are presented in Table 3-2.

TABLE 3-1 AIR MONITORING ACTION LEVELS		
Function	Measurement	Action
0-10 ppm	Level D required	
>10 ppm	Stop work. Contact PM and HSR for guidance	

TABLE 3-2 AIR MONITORING FREQUENCY GUIDELINES
<p>Conduct periodic monitoring when: (1) it is possible that the IDLH condition or a flammable atmosphere has developed or (2) there is an indication that exposures may have risen over permissible exposure limits or published exposure levels since the last monitoring. Look for a possible rise in exposures associated with these situations:</p> <ul style="list-style-type: none">- Change in Site Area - work begins on a different section of the site- Change in Contaminants - handling contaminants other than those first identified- Change in On-Site Activity - one operation ends and another begins- Handling Leaking Drums or Containers- Working with Obvious Liquid Contamination (e.g., a spill or lagoon) <p>Conduct air monitoring when the possibility of volatilization exists (such as with a new monitoring well or a well containing known product).</p> <p>Conduct air monitoring on a well at a site known to have little contamination (documented by experience or laboratory data), only if an odor emanates from the well.</p>

4.0 CHEMICAL HAZARD CONTROL

4.1 Personal Protective Equipment

Personal protective equipment (PPE) is worn to minimize the potential contact of personal with chemicals. The level of PPE required is determined by the chemicals present and the potential for contact. Modified Level D PPE, as shown in Table 4-1, will be used to conduct the MEME event at the Site.

TABLE 4-1 PERSONAL PROTECTIVE EQUIPMENT	
Level	Requirements
Modified Level D	<ul style="list-style-type: none">■ Work uniform■ Steel-toed boots■ Approved safety glasses or goggles■ Hard hat (When working around heavy equipment)■ Fluorescent vest, when vehicular traffic is on or adjacent to the site■ Latex or Nitrile gloves for water sampling and handling

4.2 Site Control: Work Zones

Work zones will be established in order to: (1) delineate high-traffic locations, (2) identify hazardous locations and (3) contain contamination within the smallest area possible. Employees entering the work zone must wear the proper personal protective equipment for that area. Work and support areas will be established based on ambient air data, necessary security measures, and site-specific conditions.

4.3 Decontamination Procedures

Operations conducted at the Site have the potential to contaminate field equipment and personal protective equipment. To prevent the transfer of contamination to vehicles and personnel, the procedures presented in Table 4-2 must be followed.

TABLE 4-2 DECONTAMINATION PROCEDURES		
Item	Examples	Procedure
Disposable PPE/ Field Sampling Equipment	latex gloves & disposable bailers	<ul style="list-style-type: none">■ Dispose according to the requirements of the client and state and federal agencies.
Field Equipment	oil/water interface probe & water level indicator	<ul style="list-style-type: none">■ Decontaminate on site with phosphate free detergent and tap water followed with a distilled water rinse.

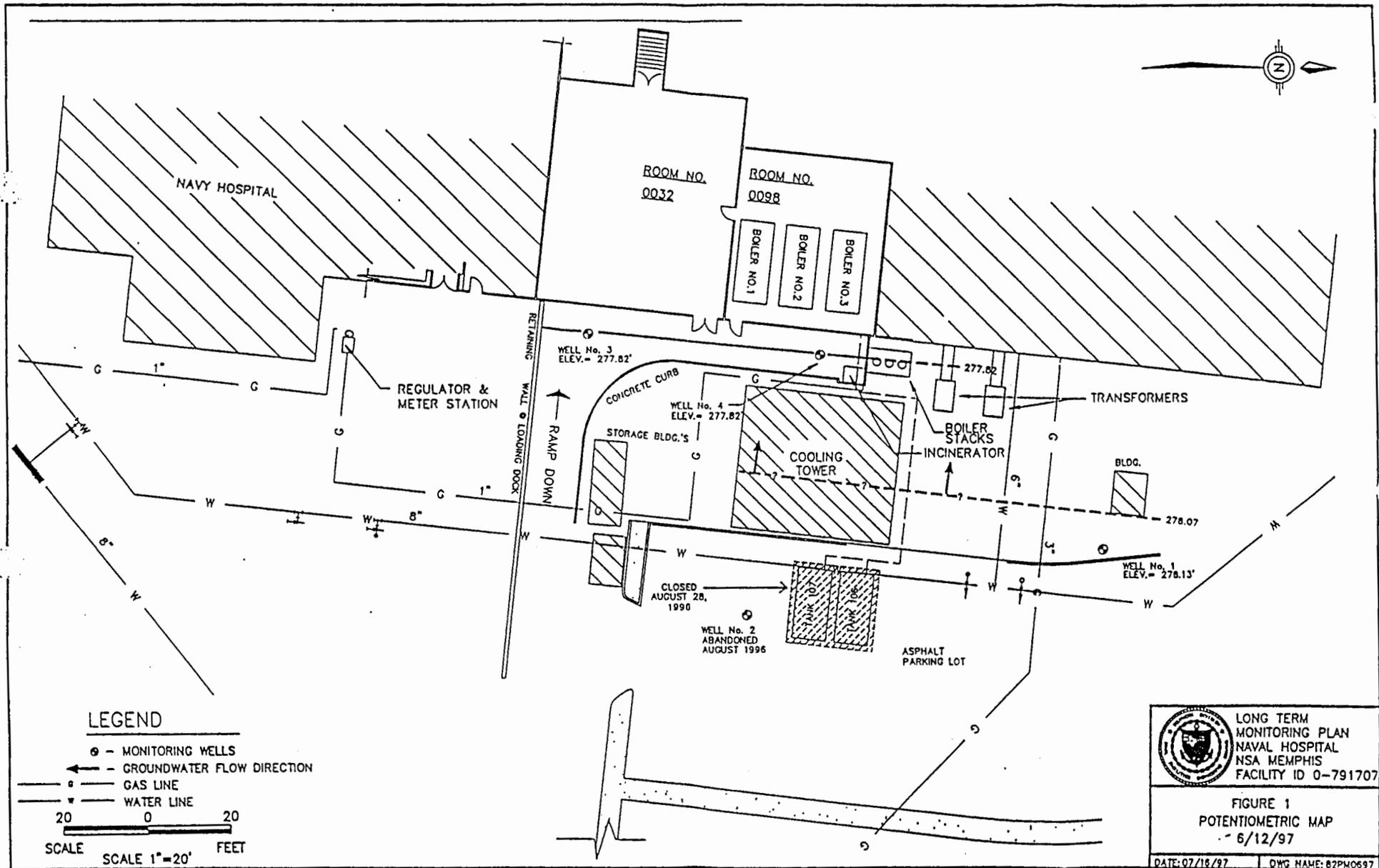
5.0 CONTINGENCY PLANS

Contingency plans are required in the event an emergency situation develops at the Site. Table 5-1 presents contingency plans for potential emergency situations. Emergency contacts and first aid instructions are provided on the Site Emergency Form (*precedes Table of Contents*) and a map to the Methodist Hospital North is provided in *Appendix I*. An Incident Report is provided in *Appendix J*.

Table 5-1 Emergency Contingency Plans	
Situation	Action
5.1 Evacuation	<ol style="list-style-type: none"> 1. Immediately notify all on-site personnel of an emergency requiring evacuation. 2. Leave the dangerous area and report to a designated rally point. 3. Notify Emergency Services, as appropriate. 4. Account for all personnel. 5. Contact the PM and the HSR as soon as possible. 6. Maintain site security and control measures for community safety until emergency responders arrive.
5.2 Medical Emergency	<ol style="list-style-type: none"> 1. Survey the situation: Do not enter an area that may jeopardize your safety. <ul style="list-style-type: none"> ■ Establish the patient's level of consciousness. ■ Call for help. ■ Contact Emergency Medical Services and inform them of patient's condition. 2. Primary Assessment (patient unconscious) <ul style="list-style-type: none"> ■ Arousal ■ Airway ■ Breathing ■ Circulation Only trained personnel should perform CPR or First Aid. 3. Secondary Assessment (patient conscious) <ul style="list-style-type: none"> ■ Control bleeding ■ Do not move patient (unless location is not secure). ■ Monitor vital signs. ■ Provide First Aid to the level of your training. ■ Contact the PM and HSR as soon as possible. ■ Document the incident on the PIR form
5.3 Fire Emergency	<ol style="list-style-type: none"> 1. Evacuate the area. 2. Notify the Emergency Services 3. Extinguish small fires with an all-purpose extinguisher. 4. Contact the PM and HSR. 5. Document the incident using the PIR form.

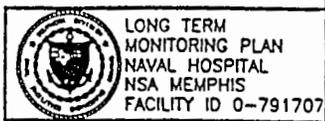
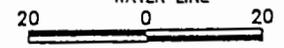
APPENDIX A

FIGURE



LEGEND

- ⊙ - MONITORING WELLS
- ← - GROUNDWATER FLOW DIRECTION
- GAS LINE
- WATER LINE



LONG TERM
MONITORING PLAN
NAVAL HOSPITAL
NSA MEMPHIS
FACILITY ID 0-791707

FIGURE 1
POTENTIOMETRIC MAP
6/12/97

DATE: 07/18/97 DWG NAME: 82PM0697

APPENDIX B

TABLE

Table
 DRO in Groundwater ($\mu\text{g/L}$)
 Facility ID 0-791707
 Tenth-Period Groundwater Sampling

Well ID	EAR	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	Cleanup Level
NHGW01	50	100 U	120	240	110	100 U	100 U	100 U	100 U	100 U	100 U	1,000
NIIGW02	50 U	150	1300	1400	850	200	520	770	NA	NA	NA	1,000
NHGW03	50 U	100 U	100 U	100 U	630	100 U	100 U	100 U	100 U	100 U	100 U	1,000
NIIGW04	58,000 ^a	43,000 ^a	15,000 ^a	21,000 ^a	16,000 ^b	1,700 ^c	31,000 ^a	88,000 ^a	380,000	130,000 ^c	21,000 ^b	1,000

Notes:

- EAR = Environmental Assessment Report (May 1995).
- U = Compound not detected. Value indicates method reporting limit.
- ^a = Compound analyzed at a secondary dilution factor of 1:20.
- ^b = Compound analyzed at a secondary dilution factor of 1:10.
- ^c = Compound analyzed at a secondary dilution factor of 1:5.
- ^e = Compound analyzed at a secondary dilution factor of 1:50.
- NA = Not applicable — well closed.

APPENDIX C

AGREEMENT AND ACKNOWLEDGMENT SHEET

APPENDIX D

AMENDMENT SHEET

APPENDIX D: AMENDMENT SHEET

Project Name: _____

Project Number: _____

Project Manager: _____

Location: _____

Changes in field activities or hazards:

Approved by: _____
Health and Safety Representative

_____ Date

APPENDIX E

WORK PRACTICES AND STANDARD OPERATING PROCEDURES

APPENDIX E: WORK PRACTICES AND STANDARD OPERATING PROCEDURES

Disciplinary action may be the consequence of ignoring these procedures.

1. Eating, drinking, chewing gum or tobacco, taking medication, smoking, applying cosmetics or inserting contact lenses is prohibited in contaminated or potentially contaminated areas or where the possibility for the transfer of contamination exists. Carrying food, beverage, matches, lighters, cosmetics, etc. around on site is prohibited unless in the clean zone exclusively.
2. Upon leaving contaminated or suspected contaminated areas, the hands and face must be thoroughly washed.
3. Avoid contact with potentially contaminated substances. Do not walk through puddles, pools, muds, etc. Avoid, whenever possible, kneeling on the ground, leaning or sitting on the ground, drums or equipment. No horse-play.
4. A beard or facial hair which interferes with respirator fit is not permitted.
5. Wear only designated respiratory protective devices (NIOSH/MSHA approved) and protective clothing.
6. Drinking alcoholic beverages and/or taking other controlled substances during working hours or when driving is prohibited.
7. Driving while intoxicated may result in immediate termination.
8. Wind indicators should be strategically placed to enable all on-site personnel to instantly assess if they are downwind or upwind.
9. Decontamination must be carefully done, every time.
10. Personnel should be sincerely reminded to ask questions in order to prevent accidents, poor workmanship, delays, poor recognition of hazards or signs and symptoms of exposure or heat stress.
11. Working spaces, walkways, and similar locations shall be kept clear of cords and tools to prevent tripping or other accidents.
12. Worn or frayed electric cords or cables shall not be used.
13. Extension cords shall not be fastened with staples, hung from nails, or suspended by wire.
14. Use three pronged extension cords and GFCI's.
15. Compressed gas cylinders must be secured (with chain or other) upright. SCBA units must be upright or in cases.

16. The buddy system is mandatory whenever entry to the hot zone is made in Level C or higher; whenever any entry into the hot zone occurs, the buddy system should be in effect!
17. Visual contact is maintained between “buddies” on-site. Close proximity must be maintained in cases of emergencies. Responsibilities of the buddy include:
 - assisting buddy in donning protective wear;
 - checking protective clothing;
 - checking radios;
 - keeping visual and voice contact;
 - monitoring the buddy for symptoms and signs of heat stress and/or chemical exposure;
 - checking the buddy’s back; and
 - getting help, primarily; secondarily, getting the buddy out of the hot zone, if possible.
18. Only FM approved metal safety cans may be used to transport and store flammable liquids. Do not leave these in the sun or near heat--pressure builds and when opened, the liquid spurts out.
19. Gasoline and diesel-driven engines requiring refueling must be shut down and allowed to cool for 5-15 minutes before filling.
20. Smoking is never permitted within the deacon or hot zones.
21. Medicine and alcohol can increase the effects of exposure to toxic chemicals. Check with a pharmacist or physician.
22. Drinking alcoholic beverages is prohibited. Drinking alcoholic beverages and driving is prohibited at any time. Driving at excessive speeds is always prohibited. Alcohol intake predisposes a person to fatal heat stroke.
23. Skin abrasions must be thoroughly protected to prevent chemicals from penetrating the abrasion. Long pants are worn to prevent abrasions.
24. Contact lenses must not be worn with ½ face respirators, which are not generally acceptable.
25. The Site Safety Plan (SSP) must be reviewed and signed by all employees and subcontractors before work begins (see *Appendix B*). The SSP must be kept on-site, according to 1910.120 (b) (4) (I).
26. The SSP is to be updated as it becomes necessary. At job completion, the SSP should be placed with the job’s original documents. The Health and Safety Program is available to persons involved with the operations, such as subcontractors, contractors, employee representatives, OSHA, and regulatory agencies on the site.

27. Every vehicle used for site work will be equipped with a first aid/safety kit and safety equipment including:

- cones
- flags and/or barricades (as needed)
- hazard tape
- fire extinguisher
- water, suitable for drinking
- plastic garbage can

28. Electrical equipment and Ground Fault Circuit Interrupters

All electrical equipment and power cables in and around wells or structures suspected or containing chemical contamination must be intrinsically safe and equipped with a three-wire, ground lead that has been rated as explosion-proof for hazardous atmospheres (Class 1, Division 1 & 2). In accordance with OSHA 29 CFR 1926.404, approved ground fault circuit interrupters (GFCI) must be used for all 120 volt, single phase, 15 and 20 ampere receptacle outlets on the site which are in use by employees and which are not part of the permanent wiring as defined by the NEC 1987. Receptacles on the ends of extension cords are not part of the permanent wiring and therefore, must be protected by GFCI's whether or not the extension cord is plugged into permanent wiring.

The GFCI is a fast-acting circuit breaker which senses small imbalances in the circuit caused by current leakage to ground, and in a fraction of a second shuts off the electricity. However, the GFCI will not protect the employee from line-to-line contact hazards (such as a person holding two "hot" wires or a hot and neutral wire in each hand). The GFCI does provide protection against the most common form of electrical shock hazard - the ground fault. It also provides protection against fires, overheating, and destruction of insulation on wiring.

GFCIs can be used successfully to reduce electrical hazards on construction sites. Tripping of GFCIs, interruption of current flow, is sometimes caused by wet connectors and tools. It is good practice to limit exposure of connectors and tools to excessive moisture by using water tight or sealable connectors. Providing more GFCIs or shorter circuits can prevent tripping caused by the cumulative leakage from several tools or by leakages from extremely long circuits. (Adapted from OSHA 3007; Ground-Fault Protection on Construction sites, 1987.)

APPENDIX F

MSDS DEFINITIONS

APPENDIX F: MSDS Definitions

- (TLV-TWA)** *Threshold Limit Value - Time Weighted Average.* The time-weighted average concentration for a normal 8-hour work day and a 40-hour work week, to which nearly all workers may be repeatedly exposed without adverse effect.
- (PEL)** Time-weighted average concentrations similar to (and in many cases derived from) the Threshold Limit Values.
- (REL)** *Recommended Exposure Limit* as defined by NIOSH similar to the Threshold Limit Values.
- (IDLH)** *Immediately dangerous to life or health* - Any atmospheric condition that poses an immediate threat to life, or which is likely to result in acute or immediate severe health effects. Oxygen deficiency is **IDLH**.
- (LEL)** *Lower Explosive Limit* - The minimum concentration of vapor in air below which propagation of a flame will not occur in the presence of an ignition source.
- (UEL)** *Upper Explosive Limit* - The maximum concentration of vapor in air above which propagation of a flame will not occur in the presence of an ignition source.
- Flash Point (F.P.)** The lowest temperature at which the vapor of a combustible liquid can be made to ignite momentarily in air.
- Vapor Pressure (V.P.)** The pressure characteristic at any given temperature of a vapor in equilibrium with its solid form, often expressed in millimeters of mercury (mm Hg).
- Odor Threshold** A property displayed by a particular compound. Low detection indicates a physiological sensation due to molecular contact with the olfactory nervous system (based on 50% of the population).
- Ionization Potential (I.P.)** The amount of ionization characteristic a particular chemical compound displays.

CONTAMINANTS PROFILE			
Chemical	Exposure Route	Symptoms of Overexposure	Incompatibilities
Gasoline	Inhalation	<ul style="list-style-type: none"> ● Intense burning of mucous membranes, throat, and respiratory tract, flushing of face, staggering gait, slurred speech, mental confusion. 	Oxidizing agents such as hydrogen peroxide, nitric acid.
	Ingestion	<ul style="list-style-type: none"> ● Inebriation, drowsiness, blurred vision, dizziness, confusion, vomiting, cyanosis. 	
	Skin Contact	<ul style="list-style-type: none"> ● Prolonged skin contact may cause dermatitis. 	
Diesel Fuel Jet Fuel Oils	Inhalation and/or Ingestion	<ul style="list-style-type: none"> ● Irritation to respiratory passages, headache, dizziness and nausea, vomiting, loss of coordination. ● Chemical pneumonitis (when oil is aspirated in the lungs) 	Oxidizing agents such as hydrogen peroxide, nitric acid.
	Skin Contact	<ul style="list-style-type: none"> ● Irritation, rash of acne pimples and spots 	

APPENDIX G

MATERIAL SAFETY DATA SHEETS (MSDS)

APPENDIX G: MATERIAL SAFETY DATA SHEETS (MSDS)

The following MSDS are for hazardous materials that will be encountered at this site. Contact your local Health and Safety Representative if you need additional information on these materials.

Material Safety Data Sheet

Lion Oil Company
1000 McHenry Street
El Dorado Ar 71730

Product: LOW SULFUR DIESEL
Internal ID: 270

MSDS No: LION / LO0270
Revision: 3
Date: December 17, 1997

National Paint
and Coatings
Association

Hazardous Material
Identification
System

HEALTH HAZARD	1 - Slight
FLAMMABILITY HAZARD	2 - Moderate
REACTIVITY HAZARD	0 - Minimal
PERSONAL PROTECTION	SEE SECTION 8

SECTION I. MATERIAL IDENTIFICATION

Trade/Material Name: LOW SULFUR DIESEL

Description: Slight yellow-green cast with diesel odor.

Other Designations: 74 Grade Low Sulfur Diesel, Clear Low Sulfur Diesel

CAS: 68476-34-6

Chemical Name: Petroleum Hydrocarbon

Manufacturer: or Distributor
Lion Oil Company
1000 McHenry Street
El Dorado, AR. 71730

Phone: 870-862-8111

For Chemical Emergency
Spill, Leak, Fire, Exposure
or Accident
CALL CHEMTREC
Day or Night
800-424-9300

SECTION II. INGREDIENTS AND HAZARDS

Ingredient Name:	CAS Number:	Percent:	Exposure Limits:
Diesel Fuel	68476-34-6	100	TLV 350 mg/m ³

SECTION III. PHYSICAL DATA

Appearance & Odor: Slight yellow-green cast with diesel odor.

Boiling point: 360°-670°F, Range	Evaporation rate: (Butyl Acetate = 1)
182°-354°C	0.02
Vapor pressure: <1	Specific gravity (H ₂ O=1): 0.910
Water solubility (%): <0.1%	% volatile by volume: <2
Vapor density (air=1): >5	

Lion Oil Company
1000 McHenry Street
El Dorado Ar 71730

Product: LOW SULFUR DIESEL
Internal ID: 270

MSDS No: LION / L00270
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SECTION IV. FIRE AND EXPLOSION DATA

Flash Point (method): +150°F, 66°C (PMCC) Limits: LEL %: 0.9% UEL %: 7.0%
Extinguishing Media: Dry chemical, Halon, CO₂, foam water, fog
Unusual fire or explosion hazards: A moderate fire and explosion hazard when heated.
Reacts with oxidizing agents.
Special fire-fighting procedures: Use self contained breathing equipment when fighting fires in enclosed areas.

SECTION V. REACTIVITY DATA

Material is stable Hazardous polymerization will not occur
Chemical incompatibilities: Avoid strong oxidizing agents
Conditions to avoid: Avoid excessive heat and sources of ignition.
Hazardous decomposition Products: Forms carbon monoxide and carbon dioxide during combustion along with thick black smoke.

SECTION VI. HEALTH HAZARD INFORMATION

This product is not considered a carcinogen

Summary of risks: This product is considered an irritant, skin hazard and eye hazard.

Signs & symptoms of overexposure:

Eye contact: Can cause irritation.

Skin contact: High concentrations of vapor or liquid contact can cause irritation, defatting and dermatitis.

Inhalation: Inhalation of vapor or mist is irritating to respiratory tract, can cause headaches, nausea, stupor, convulsions or loss of consciousness.

Ingestion: Can cause irritation, vomiting, diarrhea, and can be toxic.

First aid:

Eye contact: Flush with water for 15 minutes or until irritation stops.

Skin contact: Wash with soap and water.

Inhalation: Not a problem at ambient temperature.

Ingestion: Do not induce vomiting. Call a physician.

Lion Oil Company
1000 McHenry Street
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SECTION VII. SPILL, LEAK AND DISPOSAL PROCEDURES

Spill / Leak procedures: Eliminate ignition sources. Keep people away. Recover free product. Minimize breathing vapors. Add sand, earth or absorbant to spill area. Keep out of sewers.

Waste management / Disposal: Contaminated absorbant material may be disposed of in an approved chemical waste landfill. Local, state and federal disposal regulations must be followed.

SECTION VIII. SPECIAL PROTECTION INFORMATION

Personal protective equipment:

Goggles: Use goggles or face shield when eye contact may occur.

Gloves: Use chemical resistant gloves if needed to prevent prolonged exposure.

Respirator: Normally not needed at ambient temperature. Enclosed area, use fresh air mask.

Other: Use chemical resistant clothing if needed to prevent prolonged exposure.

Workplace considerations:

Ventilation: Provide ventilation sufficient to prevent exceeding recommended exposure limit or buildup of explosive concentrations.

SECTION IX. SPECIAL PRECAUTIONS

Storage segregation: Do not handle or store near strong oxidants.

Special handling / storage: Do not handle or store near heat, sparks or flame.

Prepared/revised by: Bobby Lee, Chief Chemist

December 17, 1997

The information and recommendations contained herein are to the best of Lion Oil Company's knowledge and belief, accurate and reliable as of the date issued. Lion does not warrant or guarantee their accuracy or reliability, and shall not be liable for any loss or damage arising out of the use thereof. User should satisfy himself that he has all current data relevant to his use.

APPENDIX H

AIR MONITORING FORM

APPENDIX I

MAP TO HOSPITAL

APPENDIX J

INCIDENT REPORT

APPENDIX J: INCIDENT REPORT

**CMD ASSOCIATES, LLC
INCIDENT REPORT**

Person Completing Report _____ Phone _____ Today's Date _____

Incident Date _____ Time: _____ am/pm Location _____ Dept. # _____

Type Of Incident:

- Personal Injury/Illness
- Unsafe Condition/Action
- Property Damage
- Permit/Code Compliance
- Fire/Explosion
- Equipment Damage
- Spill/Release
- Newspaper/Radio/
Television
- Chemical Exposure
- Customer Incident
- Near miss
- Motor Vehicle

Other _____

Personal Injury Yes No (If no, go to next section)

First Aid Only Hospitalization Medical Treatment Possible Injury, Not confirmed

Person Injured: CMD Employee Subcontractor Customer/Public/Other

Injured Name _____ Telephone _____

Office/Address _____

Nature of Injury, Illness or Exposure _____

Describe nature of incident, how it occurred, who was involved, witnesses and possible casual factors:

Describe actions taken and persons notified:

Manager Responsible for Follow-up _____ Telephone _____

Provide this report to the responsible manager within 24 hours.

Distributed to: _____

INCIDENT REPORTING GUIDE

Incident Class	Class I:	Class II:	Class III:
<p>Examples of Incidents</p>	<ul style="list-style-type: none"> ● First Aid Injury ● Minor damage to property (less than \$200) ● Non-reportable quantity spill ● Near miss incident ● Unsafe condition or action <p>Note: If there is a question as to Class I or II, follow Class II notification actions.</p>	<ul style="list-style-type: none"> ● Personal injury (more than first aid to employee, subcontractor or public). ● Vehicle accident involving injury or damage to vehicle or property. ● Damage to property greater than \$200 but less than \$10,000 ● Near miss incident that could have been very serious ● Fire/Explosion ● Non-emergency notification of regulatory agency is required 	<ul style="list-style-type: none"> ● Hospitalization (of one or more person) ● Unprotected chemical exposure ● Death ● Damage to property greater than \$10,000 ● Regulatory agency response to incident site ● Multiple injury of employees, sub-contractors or public ● Emergency notification of regulatory agency ● Site visit from regulatory agency ● Contact or appearance of news or public media
<p>Notification Actions</p>	<ol style="list-style-type: none"> 1. On-scene person notifies Manager immediately by phone 2. Provide PIR form to Manager within 24 hours 3. Manager investigates and follows up 	<ol style="list-style-type: none"> 1. On-scene person notifies Manager immediately by phone 2. Manager investigates 3. Manager notifies the H&S Representative 4. Manager provides a detailed final investigation report within 30 days to H&S Representative 	<ol style="list-style-type: none"> 1. On-scene person notifies Manager immediately by phone 2. Manager immediately notifies H&S Representative.