Appendix D

Site Health and Safety Plan

Project No. 21-02
Former Gulf States Creosoting Site
Hattiesburg, Mississippi

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January 7, 1996

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Hattiesburg, Mississippi

1.0 Introduction

This plan presents health and safety procedures and practices to be used during field investigations at the former Gulf States Creosoting site in Hattiesburg, Mississippi. This plan is applicable to all Michael Pisani and Associates, Inc. personnel. This plan must be reviewed by all personnel prior to entering the exclusion zone or contamination reduction zone on the site.

All on-site personnel, contractors and subcontractors included, shall be informed of the site emergency response procedures and any potential fire, explosion, health, or safety hazards. Subcontractors must have their own Health and Safety Plan (HASP) which must, at a minimum, be consistent with the requirements of this plan.

During development of this plan, consideration was given to current safety standards as defined by OSHA, health effects and standards for known site constituents, and procedures designed to account for the potential for exposure to unknown substances. Specifically, the following reference sources have been consulted:

- 29 CFR 1910.120, OSHA
- *Occupational Health and Safety Guideline for Hazardous Waste Site*, OSHA/NIOSH/EPA/USCG
- *Activities Pocket Guide to Chemical Hazards*, NIOSH
- *Threshold Limit Values*, American Conference of Governmental Industrial Hygienists

1.1 Key Personnel and Organization

Personnel responsible for the implementation of this HASP are:

• Principal-In-Charge	Michael Pisani Michael Pisani & Associates, Inc. (504) 582-2468
• Project Manager & Site Safety Officer	David Upthegrove Michael Pisani & Associates, Inc. (504) 582-2468
• Field Personnel	To be designated

The Project Manager (PM) is responsible for all on on-site operations and assumes control of the site. The PM is also responsible for ensuring the health and safety of personnel at the site and has the authority to make all site health and safety-related decisions for the company. The PM has stop work authorization which will be executed upon determination

of an imminent safety hazard, emergency, or other potentially dangerous situation. Authorization to proceed with work will be issued by the PM. The PM will initiate and execute all contact with support facilities and personnel when this action is appropriate.

The Project Manager will also serve as the Site Safety Officer (SSO). The SSO will supervise site health and safety activities. The SSO's primary responsibility is to provide the appropriate monitoring to ensure the safe conduct of field operations. The SSO also has stop work authority.

The SSO will also be responsible for the control of specific field operations and all related activities, such as personnel decontamination, monitoring of worker heat stress, distribution of safety equipment, and conformance with all other procedures established in the HASP.

The SSO has the authority to exclude from the site all personnel who will not or cannot abide by the site safety plan. Should the SSO be unable to adequately control the site, work will cease.

1.2 Visitors

All visitors entering the contamination reduction zone and exclusion zone at the site will be required to read and verify compliance with the provisions of this HASP. Visitors will fully comply with the requirements of this plan. Visitors will be expected to provide their own protective equipment.

In the event that a visitor does not adhere to the provisions of the HASP, he/she will be requested to leave the work area. All non-conformance incidents will be recorded in the field logbook.

1.3 Medical Surveillance and Training

Consistent with OSHA's 29 CFR 1910.120 regulation covering Hazardous Waste Operations and Emergency Response, all site personnel are required to be trained. At a minimum, all personnel are required to be trained as to on-site hazards, provisions of this HASP, and responsible personnel.

1.3.1 Pre-Assignment and Annual Refresher Training

Prior to arrival on-site, each worker must meet the requirements of pre-assignment training. Consistent with OSHA 29 CFR 1910.120 paragraph (e)(3), each employee should be able to provide a document certifying dates of 24 hours training for workers occasionally on-site for a specific task, or 40 hours of training for general site workers. All personnel must receive eight hours of annual refresher training.

1.3.2 Site Supervisors Training

Consistent with OSHA 29 CFR 1910.120 paragraph (e)(4), individuals designated as site supervisors require an additional eight hours of specialized training on managing site operations.

The following individuals are identified as site supervisors:

Name	Title/Responsibility
David Upthegrove, P.G.	Geologist/Project Manager

An alternate site supervisor will be identified prior to initiating field activities.

1.3.3 Training and Briefing Topics

The following items will be discussed by the SSO at the site pre-entry briefing:

- Identification of the SSO and alternate SSO;
- Requirements for employees to work in pairs, if necessary;
- Buddy system, including subcontractors;
- Proper materials handling;
- Preventive maintenance of safety equipment;
- Requirements for and use of personal protective equipment;
- Required personal hygiene practices;
- Heat stress;
- Effective response to any emergency;
- Emergency alarms;
- Responses to fires and explosions;
- Shutdown of operations;
- Emergency procedures;
- Areas of the site that have restricted access;
- Methods used for decontamination; and
- General safety precautions.

The entire plan should be reviewed at the initial health and safety meeting. A safety meeting log will be completed for each meeting held at the site. A copy of the safety meeting log is provided as Attachment 1.

Daily safety meetings will be held by the SSO for all employees and subcontractor employees utilized on the project. It shall include the following agenda items:

- Review of project accidents and near-miss incidents;
- Review of any substandard health or safety practices and their correction;
- Review of job site condition of order (Housekeeping);
- Safety training activities;
- Pertinent health and hygiene topics;
- General comments; and
- Questions and answers.

This is a "tool box" meeting to be held at the site on a daily basis.

The provisions of this plan may be modified to cover nonintrusive types of activities including surveying, fence installation, etc. to be conducted by contractors that have not completed 40 hours of 29 CFR 1910.120(e) training.

2.0 Scope of Investigation

The objective of this investigation is to collect surface and subsurface soil samples, probe the subsurface with a cone penetrometer, install ground water monitoring wells, and sample ground water. The scope of work designed to meet this objective entails:

- The collection of soil and ground water samples from specified locations at the facility.
- The installation of ground water monitoring wells.
- The analysis of selected soil and ground water samples for polycyclic aromatic hydrocarbons (PAHs)and other compounds.
- Preparation of a report which will detail the field procedures and present results of the investigation.

3.0 Hazard Assessment

3.1 Chemical Hazards

The chemicals which have been identified as potentially being encountered during this investigation are semivolatile compounds, particularly PAHs.

Exposure levels are expected to be below the permissible OSHA, National Institute for Occupational Safety and Health (NIOSH), and/or the American Conference of Governmental Industrial Hygienists (ACGIH) exposure limits. Potential exposure hazards include inhalation of airborne particulates and vapors and/or dermal or eye contact. The various chemicals or chemical groups, their exposure limits, and health hazards are discussed below.

Creosote

Creosote is a mixture of phenols and phenol derivatives obtained from coal tar. Acute doses may cause gastrointestinal irritations and cardiovascular collapse. Creosote is flammable and is a confirmed human carcinogen.

A. Levels Anticipated: Creosote may be present in the soils at levels from low parts per billion to near saturation.
B. Exposure Routes: Dermal contact, inhalation, ingestion
C. Exposure Limits: 0.2 mg/m^3 TWA (OSHA PEL), 0.2, A1 mg/m^3 TWA (ACGIH TLV)

3.2 Physical Hazards

3.2.1 Slip-Trip-Fall Hazards

While it is difficult to prevent slip-trip-fall hazards, injuries can be prevented by proper site control measures and by keeping the work area free of obstructions. Personnel will be required to perform field work in pairs (buddy system) so that immediate assistance will be available should an injury occur.

3.2.2 Tool and Equipment Hazards

Hazards present during the use of tools and equipment are generally associated with improper tool handling and inadequate maintenance. Management of these hazards requires rigorous maintenance of tools and equipment and effective training of employees in the proper use of these tools.

Electrically-powered tools have inherent physical hazards. Hand-held power tools should be held firmly. Electrical cords should have unbroken insulation and should not be exposed to water or other liquids.

Large power tools and equipment should be lifted properly to prevent back injuries. Safety glasses, ear protection, and steel-toed boots will be worn while operating powered tools or equipment.

Hazards generally associated with drilling and CPT probing include the following:

- Noise levels exceeding the OSHA PEL of 85 decibels are both a hazard and hindrance to communication. Wear ear plugs and agree on method of communication prior to entering the high noise area.
- Fumes (carbon monoxide) from the rig in a confined space.
- Overhead utility wires (i.e., electrical and telephone) can be hazardous when the rig boom is in the upright position.
- Underground pipelines and utility lines can be ruptured or damaged during drilling operation.
- Moving parts, e.g., augers and hydraulics, on the rig may catch clothing. Free or falling parts from the cat head may cause head injury.
- High pressure hydraulic lines and air lines used on rigs are hazardous when they are in ill repair or incorrectly assembled.
- During the sampling of drilled cores, skin and inhalation contact with the affected material is possible. Protective measures must be taken.

Hazard Prevention Measures for Drilling and CPT Probing

- Review the contaminants suspected to be on site. If fumes are encountered, shut down rig and/or divert exhaust fumes.
- All chains, lines, cables should be inspected daily for weak spots, frays, etc.
- Ear muffs and/or ear plugs effectively reduce noise levels.
- Hard hats should be worn at all times when working around a drill rig. Secure loose clothing. Check boom prior to approaching drill rig.
- To avoid contact with any overhead lines, the drill rig boom should be lowered prior to moving the rig. Overhead utilities should be considered "live" until determined otherwise.
- The rig mast should not be erected within ten feet of an overhead electrical line until the line is de-energized, grounded or shielded and an electrician has certified that arcing cannot occur.
- A thorough underground utilities search should be conducted before the commencement of a drilling project.
- All high pressure lines should be checked prior to and during use.

- Personnel protective equipment, including latex gloves, should be worn during sampling of the drilled cores to reduce the potential of contact with affected materials by site workers.

3.2.3 Heat Stress Hazards

The use of personal protective clothing will increase the potential for heat stress. During hot or humid days or during the performance of strenuous work, extra precautions may be necessary to reduce the potential for heat stress. Implementation of worker rotation and rest period schedules, and adjustments of the workday to take advantage of the cooler parts of the day may be used to prevent exposure to heat stress hazards; frequent consumption of liquids (e.g., water, Gatorade™, etc.) is necessary to prevent dehydration. Should heat problems be encountered, contact the Health and Safety department for guidelines regarding implementation of heat stress mitigation procedures.
Heat stress is characterized by the following symptoms, and the following treatments are appropriate:

- Heat Cramps
  Symptoms: Muscle cramps, especially in the legs and abdomen.
  Treatment: Move individual to a cool area to rest and provide water and electrolyte beverage (e.g., Gatorade™).

- Heat Exhaustion
  Symptoms: Body temperature elevated (100° to 104°F). Skin is pale and moist (clammy). Profuse perspiration. Victim feels tired and weak. Possible headache and nausea. Possible fainting.
  Treatment: Move victim to a cool area and provide electrolytic beverage, if conscious.

- Heat Stroke
  Symptoms: Elevated body temperature (may be as high as 106°F). Skin is characteristically hot, red, and dry (sweating mechanism is blocked). Pulse is rapid and strong. Victim may lose consciousness, become delirious, or fall into a coma. This is a life-threatening situation.
  Treatment: Remove the individual from the work area, strip his personnel protective equipment and cool by spraying with water and fanning. Immediately transport to the designated emergency facility or nearest hospital. It is appropriate to continue cooling the body in route to the hospital.

The SSO is responsible for monitoring the status of all on-site workers. Should anyone appear disoriented, irritable, or suddenly pale, the SSO will direct the person to the rest area.

4.0 Personal Protection

Modified Level D protection will be worn at the site. Personal protective wear required for Level D field dress includes:

- general work uniform (long pants, work shirt);
- steel-toed leather boots or shoes;

- latex gloves (during sampling);
- safety glasses with side shields;
- hard hats; and
- tyvek and nitrile gloves when affected materials are encountered.

5.0 Area Control

Access to hazardous and potentially hazardous areas of the site will be controlled to reduce the probability of occurrence of physical injury and chemical exposure of field personnel, visitors and the public. A hazardous or potentially hazardous area includes any area where borings are being advanced with powered equipment.

The boundaries of hazardous and potentially hazardous areas can be identified by cordons, barricades, or emergency traffic cones or posts, if necessary.

Entry to hazardous areas shall be limited to individuals who must work in those areas. Unofficial visitors must not be permitted to enter hazardous areas while work in those areas is in progress. Official visitors should be discouraged from entering hazardous areas, but may be allowed to enter only if they agree to abide by the provisions of this document, follow orders issued by the SSO and are informed of the potential dangers that could be encountered in the areas.

6.0 Decontamination

6.1 Decontamination of Personnel and Equipment

Field decontamination of personnel and equipment is required. Recommended decontamination procedures follow:

A. Personnel
Potential contaminants should be removed from skin using a mild detergent and water. Hot water is more effective than cold. Liquid dishwashing detergent is more effective than hand soap.

B. Equipment
Sampling equipment shall be washed in soapy water and rinsed with distilled water or steam cleaned.

6.2 Decontamination During Medical Emergencies

If emergency life-saving first aid and/or medical treatment is required, decontamination procedures may be limited or omitted. If the contamination does not present a hazard to the rescue personnel, life-saving care may be instituted immediately. If the contamination will present a risk to the rescue personnel, minimal decontamination may be implemented to allow initiation of aid.

Medical assistance personnel should be notified prior to initiating the response if the victim is contaminated with hazardous materials. Assurance must be made that the medical personnel at the receiving area are able and willing to handle a victim who is contaminated. Site personnel will accompany contaminated victims to the medical facility to advise on matters involving decontamination.

Heat-related illnesses range from heat fatigue to heat stroke. Heat stroke requires prompt treatment to prevent irreversible damage or death. Protective clothing must be promptly removed. Less serious forms of heat stress also require prompt attention. Unless the victim is obviously contaminated, decontamination may be omitted or minimized and treatment begun immediately.

For inhalation exposure cases, treatment can only be performed by a qualified physician. If the contaminant is on the skin or in the eyes, an emergency shower should be used to rinse the affected area with water for at least 15 minutes.

7.0 Spill Containment Program

The procedures described in this section comprise the spill containment program in place for activities at the site.

- All drums and containers used during the clean-up shall meet the appropriate DOT, OSHA, and EPA regulations for the waste that they will contain.
- Drums and containers shall be inspected and their integrity assured prior to being moved. Drums or containers that cannot be inspected before being moved because of storage conditions shall be positioned in an accessible location and inspected prior to further handling.
- Operations on site will be organized so as to minimize the amount of drum or container movement.
- Employees involved in the drum or container operations shall be warned of the hazards associated with the containers.
- Where spills, leaks, or ruptures may occur, adequate quantities of spill containment equipment (absorbent pads, etc.) will be stationed in the immediate area. The spill containment program must be sufficient to contain and isolate the entire volume of hazardous substances being transferred.
- Drums or containers that cannot be moved without failure, shall be emptied into a sound container.
- Fire extinguishing equipment meeting 29 CFR part 1910 subpart L shall be on hand and ready for use to control fires.

8.0 Emergency Response

The name, telephone number, and location of police, fire, or other emergency response agencies will be present in the support zone. If emergency personnel are called to the site, efforts should be made to accommodate their operations in the support zone.

8.1 Pre-Emergency Planning

During the periodic site briefings (tool box meetings), all employees will be trained in and reminded of provisions of the emergency response plan, communication systems, and evacuation routes. The plan will be reviewed and revised, if necessary, on a regular basis by the SSO.

8.2 Route to Hospital

The closest emergency medical facility to the site is Forrest County General Hospital, located approximately one mile northwest of the site. From the site, proceed one to two blocks northeast to the extension of West Pine Street (U.S. Highway 11). Turn left (southwest), then take U.S. Highway 49 northwest approximately one mile. The hospital is on the left (west) side of U.S. Highway 49, between Adeline Street and Mamie Street. A map to the hospital will be posted at the site at all times during field activities

8.3 Emergency Resources

In the event of a medical emergency, personnel will take direction from the SSO and notify the appropriate emergency organization. In the event of a fire or spill, the site supervisor will notify the appropriate local, state, and federal agencies.

Any time a notification is made, the SSO will provide an incident report to the Project Manager describing the following:

- The event (including date and time) that necessitated the notification and the basis for that decision.
- Date, time, and names of all persons/agencies notified and their response.
- Resolution of the incident (including duration) and the method/corrective action involved.

This report will be submitted within five working days of the resolution of the event. A blank incident report is provided as Attachment 2.

The following emergency information will be posed prominently on-site for appropriate use for the Contractor personnel.

Area Resources

Ambulance:	911
Police:	911
Fire Department:	911

Emergency Contacts

Michael Pisani & Associates	(504) 582-2468
Kerr-McGee	Mr. Keith Watson (405) 270-1313

Attachment 1

Safety Meeting Log

Project No. 21-02
Former Gulf States Creosoting Site
Hattiesburg, Mississippi

SAFETY MEETING LOG

MICHAEL PISANI & ASSOCIATES, INC.

Date _____ Site Supervisor_____

TOPIC DISCUSSED

_____

_____

_____

_____

_____

_____

_____

_____

MEETING ATTENDED BY

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

Supervisor's Signature: _____

Attachment 2

Incident Report Form

Project No. 21-02
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Hattiesburg, Mississippi

INCIDENT REPORT FORM

Please complete Part 1 and return form to the Project Manager within five working days of incident occurrence.

Part I: (To be completed by SSO)

Date of incident:_____ Location: _____

Time: _____ Occupation: _____

Name: _____

Description of incident (what, when, where, how): _____

_____

_____

_____

_____

_____

_____

_____

Part II: (To be completed by Project Manager)

Occupational injuries and illnesses resulting from incident:
(check all that apply)

_____no injury

_____medical treatment

_____hospitalization

_____fatality

_____loss of consciousness

_____lost work days

_____restricted work activity

_____job transfer/termination

_____no illness

_____skin diseases or disorders

_____lung diseases or disorders

_____respiratory conditions from toxic agents

_____systemic poisoning

_____disorders from physical agents

_____cumulative trauma disorders

_____other

INCIDENT REPORT FORM (Cont'd)

Job activity performed at time of or just before incident: _____

_____

Equipment involved and condition: _____

_____

Body movements associated with task (example: bending and lifting): _____

_____

Actions leading to incident (check all that apply and explain):

_____failure to observe warnings _____
_____failure to use personal protective equipment _____
_____failure to warn _____
_____delayed discovery _____
_____procedure not followed _____
_____abuse or misuse of equipment _____

Conditions leading to incident (check all that apply and explain):

_____temperature stress _____
_____weather _____
_____animal/(snakes, etc.) _____
_____lack of proper instrumentation _____
_____lack of personal protection equipment _____
_____construction deficiencies _____
_____inadequate space/faulty layout _____
_____improper design _____
_____faulty engineering _____
_____inadequate maintenance _____
_____improper tools and equipment _____
_____defective tools and equipment _____

Job factors leading to incident (check all that apply and explain):

_____poor leadership/supervision _____
_____poor work practices _____
_____defective tools and equipment _____
_____inadequate communication _____
_____inadequate training _____
_____inadequate procedures _____
_____inadequate inspections _____

INCIDENT REPORT FORM (Cont'd)

Personal factors leading to incident (check all that apply and explain):

_____physical capability	_____
_____physical stress of fatigue	_____
_____mental stress	_____
_____knowledge of task	_____
_____employee skills	_____
_____attention to details	_____
_____other	_____

What has been done or should be done to correct the causes listed above?

Corrective Action	Person(s) Responsible for Corrective Action
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____