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**Revised Addendum to
Site Investigation Work Plan
Former Gulf States Creosoting Site
Hattiesburg, Mississippi**

April 8, 1998

Project No. 21-04

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Site Investigation Work Plan**

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Hattiesburg, Mississippi**

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Revised Addendum to Site Investigation Work Plan

Former Gulf States Creosoting Site Hattiesburg, Mississippi

Summary

Project Background

Kerr-McGee Chemical Corporation (KMCC) submitted a *Site Investigation Work Plan* for the Gulf States Creosoting Site (the site) to the Mississippi Department of Environmental Quality (MDEQ) for review on January 8, 1997. In a letter dated February 21, 1997, MDEQ approved the work plan for implementation. Remedial Investigation (RI) field activities were conducted between February 24 and April 30, 1997. The findings of the investigation were presented in the *Remedial Investigation Report* dated June 30, 1997.

MDEQ comments on the *Remedial Investigation Report* were transmitted to KMCC's legal counsel in a letter dated January 13, 1998. In its comment #7, MDEQ requested the submittal of a remedial investigation work plan sufficient to establish the vertical and horizontal extent of affected soil and ground water at the site. An initial work plan addendum presenting activities proposed by KMCC to accomplish this goal was submitted to MDEQ on February 25, 1998.

Representatives of KMCC met with MDEQ in Jackson, Mississippi on March 16, 1998. The purpose of the meeting was to discuss investigative activities proposed by KMCC in the initial work plan addendum. This revised work plan addendum includes additional proposed investigative activities and provides clarification requested by MDEQ at the March 16, 1998 meeting.

Summary of Previous Studies

Beginning in January 1990, the site has been studied extensively to determine the presence and extent of affected media (i.e., soil and ground water). Over 150 soil samples have been collected and submitted to fixed-base laboratories for analysis of chemical constituents. Ground water samples have been collected from eight on-site ground water monitoring wells for chemical analysis. The results of previous studies indicate that the majority of wood treating residuals exist at two distinct and separate locations. The first location is an approximate 2.5-acre former process area located in the northeastern corner of the site (the Process Area). The second location is an obvious fill area located between Gordon's Creek and West Pine Street, within and adjacent to the former Gordon's Creek channel (the Fill Area).

An extensive analytical database has been generated through previous studies. In many portions of the site, sufficient data to establish the vertical and horizontal extent of affected media are currently available. In other areas, additional data must be collected to achieve this goal. This revised work plan addendum addresses those areas in which additional investigative activities are warranted.

Proposed Additional Activities

Proposed additional activities can be divided into the following tasks:

- Soils Investigations
- Stratigraphic Characterization
- Ground Water Investigations
- Surface Water and Sediment Sampling
- Data Evaluation and Reporting

A brief description of the activities proposed to complete each task is provided below. Detailed information and supporting rationale for proposed additional activities are provided in Sections 2.0 through 5.0.

Soils Investigations

Additional soils investigations are proposed in the following areas:

- **Off-Site Process Area** - The extent of affected soil to the southwest and northwest of the Process Area has been established through previous investigations. The extent of affected soil to the southeast (i.e., toward the N.O. & N.E. Railroad right-of-way) and northeast (i.e., toward Scooba Street) from the former Process Area has not yet been established. Five soil borings will be advanced in these areas to further delineate the extent of creosote-impacted soil.
- **Former Treated Wood Storage Areas** - Historical aerial photographs indicate that the area southwest of the former Process Area and southeast of the current location of West Pine Street was used during operations for the storage of treated wood. Numerous soil samples have been collected in this area, most associated with the assessment of the former Gibson's Shopping Center. The results of previous studies indicate that wood treating residuals in these areas are confined to the upper two feet of soil. Nine additional soil borings will be advanced in the former treated wood storage area to further delineate the extent of creosote-impacted soil and to verify results from previous studies.
- **Other Areas** - Historical aerial photographs indicate that the portion of the site northwest of the current location of West Pine Street was never used as part of wood treating operations or for the storage of treated wood. However, low concentrations of wood treating constituents have been reported in shallow soils at some locations within these areas. Seven soil borings will be advanced in these areas to further delineate the extent of creosote-impacted soil and to verify results from previous studies.

Stratigraphic Characterization

Additional stratigraphic characterization is proposed in the following areas:

- **North and East of Process Area** - The geometry of the sand channel beneath and immediately adjacent to the Process Area was defined during 1997 RI activities. The geometry of the sand channel to the north and east of the Process Area is unknown. Six stratigraphic CPT pushes will be advanced outside the Process Area to determine the configuration of the sand channel and to select appropriate ground water sampling locations and depths.
- **Gordon's Creek Fill Area** - The stratigraphy within the Fill Area was defined using CPT and Geoprobe methods during 1997 RI activities. No stratigraphic information was obtained, however, from the opposite (northwest) bank of Gordon's Creek. Two stratigraphic CPT pushes will be advanced to evaluate the stratigraphy and to select appropriate ground water sampling locations and depths on the northwest bank of Gordon's Creek.

Ground Water Investigations

Additional ground water investigations are proposed in the following areas:

- **North and East of Process Area** - Analytical data from on-site monitoring wells show that affected ground water does not extend westward or significantly southward from the Process Area. The extent of affected ground water to the north and east of the Process Area has not been defined. Ground water samples will be collected from push-in well screens at one upgradient location and five downgradient locations to further define the extent of affected ground water and to determine appropriate locations and screen depths for three new wells downgradient of the Process Area. An interim report with proposed monitoring well locations will be submitted to MDEQ for review and approval prior to undertaking additional well installations.
- **Fill Area** - Ground water quality within the Fill Area has not been characterized during previous investigations. Ground water samples will be collected from push-in well screens at five locations within or adjacent to the Fill Area to define the extent of affected ground water and to determine appropriate locations and screen depths for three new wells in the Fill Area. Again, an interim report with proposed monitoring well locations will be submitted to MDEQ for review and approval prior to undertaking additional well installations.

Surface Water and Sediment Sampling

As stated in the 1997 RI Report, the site is located within two distinct drainage areas: one drained by a ditch and culvert system to the east-northeast of the Process Area; the other drained by Gordon's Creek and its tributary ditches to the west. The following surface water and sediment sampling activities are proposed for the two drainage pathways:

- **Northeast Drainage Pathway** - No surface water or sediment data from the northeast drainage pathway are available. Surface water and sediment samples will be collected near the inception of the drainage pathway and at 500-foot intervals to a

- distance 1,500 feet downstream of the site. Background surface water and sediment samples will be collected for comparison to northeast drainage pathway samples.
- **Gordon's Creek** - Limited sediment data and no surface water data from Gordon's Creek are available. Surface water and sediment samples will be collected immediately adjacent to the Fill Area and at 500-foot intervals to a distance 1,500 feet downstream of the site. Background surface water and sediment samples will be collected for comparison to Gordon's Creek samples.

Data Evaluation and Reporting

Once stratigraphic characterization and ground water screening activities have been completed, the data will be evaluated and summarized in an interim report. The report will include a table summarizing ground water screening analytical data, a potentiometric surface map generated using ground water elevation data from existing wells, and a map depicting proposed locations of monitoring wells. The installation of wells will not commence until MDEQ approval of proposed locations has been received.

Upon completion of the activities detailed in Sections 2.0 through 5.0 of this revised work plan addendum, and once laboratory analytical reports are received and validated, the data obtained will be evaluated and presented in an addendum to the RI Report. The report will include descriptions of field activities, summary data tables, maps depicting sample locations, and conclusions drawn from the new RI data.

1.0 Introduction

1.1 Site Background

The former Gulf States Creosoting site is located in Hattiesburg, Mississippi near the intersection of U.S. Highways 49 and 11. The site is situated entirely within Section 16 of Township 4 North, Range 13 West, in Forrest County, Mississippi (Figure 1-1). Creosoting operations are believed to have been conducted at the site between the early 1900s and approximately 1960 (Roy F. Weston, 1990). The property was developed commercially beginning in approximately 1962. The original plant area is currently occupied by several automobile dealerships, auto parts stores, a beverage dealership, a convenience store, and other commercial operations (Figure 1-2).

Beginning in January 1990, the site has been studied extensively to determine the presence and extent of affected media. Figure 1-3 is a map depicting sampling locations from previous investigations. A summary of data from previous investigations was provided as Appendix A of the RI Report.

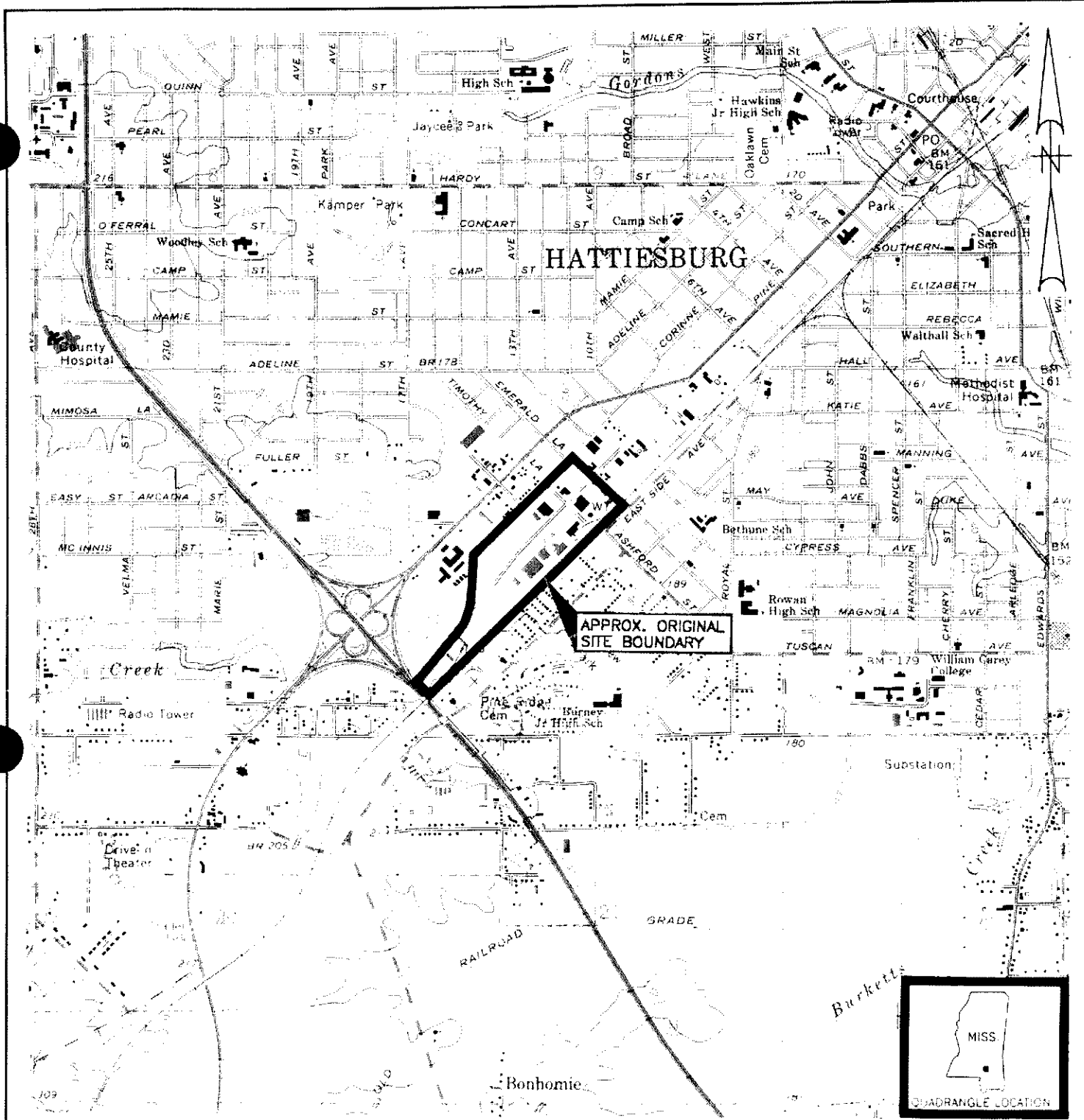
1.2 Objectives of Investigation

The objectives of additional site investigation activities include the following:

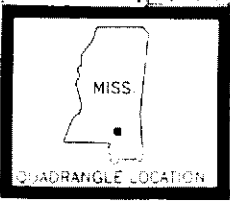
1. Delineate the vertical and horizontal extent of creosote-impacted soils to the north and east of the Process Area;
2. Delineate the vertical extent of on-site creosote-impacted surface soils;
3. Determine the geometry of the sand channel to the north and east of the Process Area;
4. Determine the lateral extent of creosote-impacted ground water within the sand channel to the north and east of the Process Area;
5. Determine ground water quality within the Fill Area sands;
6. Determine appropriate locations and depths for additional ground water monitoring wells; and
7. Determine if surface water and sediment have been impacted with creosote constituents.

1.3 Work Plan Addendum Organization

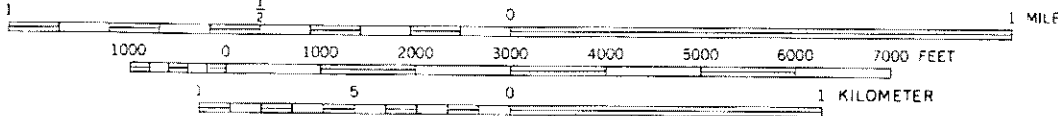
The original *Site Investigation Work Plan* and its appendices presented extensive site background information (Sections 2.0 through 4.0) and detailed procedures for data collection, quality assurance and quality control (QA/QC), health and safety, and planning and reporting activities (Sections 5.0 through 9.0). In order to avoid duplication and reduce the volume of paperwork generated, this addendum incorporates the background information and procedures from the original work plan by reference. This addendum, therefore, consists of the proposed scope of work and rationale for additional activities and presents only those procedures not detailed in the original plan.



APPROX. ORIGINAL
SITE BOUNDARY



SCALE 1:24 000



CONTOUR INTERVAL 10 FEET

SOURCE: USGS MAP OF HATTIESBURG, MISSISSIPPI, 7.5' QUADRANGLE, 1964 PHOTOREVISED 1982

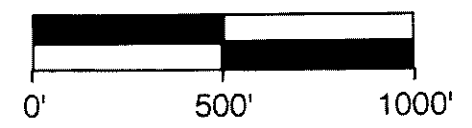
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FIGURE 1-1
SITE LOCATION
FORMER GULF STATES CREOSOTING SITE
HATTIESBURG, MISSISSIPPI

SCALE: DWG. NO.: 21-01/07A



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MICHAEL PISANI & ASSOCIATES	
Environmental Management & Engineering Services	
New Orleans, Louisiana	Houston, Texas
TITLE:	FIGURE 1-2 CURRENT SITE FEATURES
PROJECT:	FORMER GULF STATES CREOSOTING SITE
LOCATION:	HATTIESBURG, MISSISSIPPI
SCALE:	DWG. NO.: