Tronox LLC, Columbus

General Information

ID	Branch	SIC	County	Basin	Start	End
1696	Chemical	2491	Lowndes	Tombigbee River	10/27/1992	

Address

Physical Address (Primary)	Mailing Address
2300 14th Avenue North Columbus, MS 39701	PO Box 268859 Oklahoma City, OK 731268859

Telecommunications

Type	Address or Phone
Work phone number	(405) 775-5129

Alternate / Historic AI Identifiers

Alt ID	Alt Name	Alt Type	Start Date	End Date
2808700020	Tronox LLC, Columbus	Air-AIRS AFS	10/12/2000	06/01/2002
168000020	Kerr McGee Chemical Corporation, Columbus	Air-Construction	06/12/1998	
168000020	Kerr McGee Chemical Corporation, Columbus	Air-Synthetic Minor Operating	06/06/1997	06/01/2002
MSR220010	Kerr McGee Chemical Corporation, Columbus	Air-Synthetic Minor Operating	06/12/1998	06/01/2002
MSD990866329	Kerr McGee Chemical Corporation, Columbus	GP-Wood Treating	10/27/1992	07/13/1997
MSD990866329	Kerr McGee Chemical Corporation, Columbus	Hazardous Waste-EPA ID	10/12/2000	
MSD990866329	Tronox LLC, Columbus	Hazardous Waste-TSD	06/11/2001	04/12/2006
1696	Kerr McGee Chemical Corporation	Hazardous Waste-TSD	04/13/2006	05/31/2011
1696	Tronox, LLC	Historic Site Name	10/27/1992	04/10/2006
MSP090021	Kerr McGee Chemical Corporation, Columbus	Official Site Name	04/10/2006	
MSP090021	Kerr McGee Chemical Corporation, Columbus	Water-Pretreatment	10/11/1994	10/10/1999
MSP090021	Kerr McGee Chemical Corporation, Columbus	Water-Pretreatment	08/23/2000	07/31/2005
MSP090021	Tronox LLC, Columbus	Water-Pretreatment	10/31/2005	04/12/2006
		Water-Pretreatment	04/13/2006	09/30/2010

Regulatory Programs

Program	SubProgram	Start Date	End Date
Air	NSPS Subpart Dc	09/12/1990	06/01/2002
Air	SM	06/06/1997	06/01/2002
Hazardous Waste	Large Quantity Generator	04/01/1997	
Hazardous Waste	TSD - Not Classified	06/11/2001	
Water	PT CIU	10/11/1994	09/01/2003
Water	PT CIU - Timber Products	10/11/1994	09/01/2003

	Processing (Subpart 429)		
Water	PT NCS	09/01/2003	
Water	PT SIU	10/11/1994	

Locational Data

Latitude	Longitude	Metadata	S / T / R	Map Links
33 ° 30 ' 38 .51 (033.510697)	88 ° 24 ' 34 .02 (088.409450)	**Point Desc:** PG - Plant entrance (General) Data collected by Louis Crawford on 7/11/00. PG - Plant Entrance (General) Data collected by Clift Jeter on 6/13/02. LAT 33deg 30min 36.6sec LON 88deg 24min 35.1sec **Method:** GPS Code (Psuedo Range) Differential **Datum:** NAD83 **Type:** MDEQ	Section: Township: Range:	SWIMS TerraServer Map It

10/13/2006 10:29:50 AM

Kerr McGee Chemical Corporation, Columbus

General Information

ID	Branch	SIC	County	Basin	Start	End
1696	Chemical	2491	Lowndes	Tombigbee River	10/27/1992	

Address

Physical Address (Primary)	Mailing Address
2300 14th Avenue North Columbus, MS 39701	PO Box 25861 Oklahoma City, OK 73125

Telecommunications

Type	Address or Phone
Work phone number	(405) 270-2625

Alternate / Historic AI Identifiers

Alt ID	Alt Name	Alt Type	Start Date	End Date
08700020	Kerr McGee Chemical Corporation, Columbus	Air-AIRS AFS	10/12/2000	
168000020	Kerr McGee Chemical Corporation, Columbus	Air-Construction	06/12/1998	
168000020	Kerr McGee Chemical Corporation, Columbus	Air-Synthetic Minor Operating	06/06/1997	06/01/2002
168000020	Kerr McGee Chemical Corporation, Columbus	Air-Synthetic Minor Operating	06/12/1998	06/01/2002
MSR220010	Kerr McGee Chemical Corporation, Columbus	GP-Wood Treating	10/27/1992	07/13/1997
MSD990866329	Kerr McGee Chemical Corporation, Columbus	Hazardous Waste-EPA ID	10/12/2000	
MSD990866329	Kerr McGee Chemical Corporation, Columbus	Hazardous Waste-TSD	06/11/2001	05/31/2011
1696	Kerr McGee Chemical Corporation	Official Site Name	10/27/1992	
MSP090021	Kerr McGee Chemical Corporation, Columbus	Water-Pretreatment	10/11/1994	10/10/1999
MSP090021	Kerr McGee Chemical Corporation, Columbus	Water-Pretreatment	08/23/2000	07/31/2005
MSP090021	Kerr McGee Chemical Corporation, Columbus	Water-Pretreatment	10/31/2005	09/30/2010

Regulatory Programs

Program	SubProgram	Start Date	End Date

Air	NSPS Subpart Dc	09/12/1990	
Air	SM	06/06/1997	
Hazardous Waste	TSD - Not Classified	06/11/2001	
Water	PT CIU	10/11/1994	09/01/2003
Water	PT CIU - Timber Products Processing (Subpart 429)	10/11/1994	09/01/2003
Water	PT NCS	09/01/2003	
Water	PT SIU	10/11/1994	

Locational Data

Latitude	Longitude	Metadata	S / T / R	Map Links
33 ° 30 ' 38 .51 (033.510697)	88 ° 24 ' 34 .2 (088.409450)	**Point Desc:** PG - Plant entrance (General) Data collected by Louis Crawford on 7/11/00. PG - Plant Entrance (General) Data collected by Clift Jeter on 6/13/02. LAT 33deg 30min 36.6sec LON 88deg 24min 35.1sec **Method:** GPS Code (Psuedo Range) Differential **Datum:** NAD83 **Type:** MDEQ	Section: Township: Range:	SWIMS TerraServer Map It

Report Date: 11/16/2005 7:36:49 AM

RCRA FACILITY INVESTIGATION

WORK PLAN FOR 2008 SUPPLEMENTAL ON-SITE SOIL SAMPLING

Tronox LLC Facility

Columbus, Mississippi

August 8, 2008

TABLE OF CONTENTS

1. INTRODUCTION

A June 6, 2008 letter from the U.S. Environmental Protection Agency (USEPA) advises Tronox LLC (Tronox) that additional soil sampling is required as part of the RCRA Facility Investigation (RFI) for the former wood treating facility in Columbus, Mississippi. That letter requires that additional soil sampling be conducted to determine "if polychlorinated dibenzo-p-dioxins (PCDDs) and polychlorinated dibenzofurans (PCDFs) are present in soils and sediments at the facility." The scope of the required sampling was discussed in further detail during telephone conferences between Tronox representatives and Mr. Russ McLean of USEPA on June 18 and August 6, 2008. During those conversations, Mr. McLean said that, for initial investigation purposes, it would be adequate for Tronox to obtain and analyze surface soil samples at locations where elevated concentrations of pentachlorophenol (PCP) had been detected in previous RFI soil and sediment samples and at the location of a Solid Waste Management Unit (the Brickyard SWMU) that was identified during 2001.

The following was agreed with regard to the supplemental sampling and is addressed under this Supplemental Work Plan.

1. The USEPA concern relates to surface soil, and the supplemental samples will be composited over the depth range between the ground surface and 1.0 feet deep.

2. Sampling will be done in the three areas where elevated PCP concentrations were detected in previous RFI soil and sediment sampling. These include the locations of RFI borings SB3, SB4, SB5, B53, and B55 and sediment samples 003A, and 003B. These locations represent the following three facility areas: a portion of the former process area (Solid Waste Management Areas 3 and 4); a portion of the former black tie storage yard (SWMA 7); and a stormwater drainage area at the northeast corner of the property.[1]

3. Sampling also will be done in the vicinity of the "Brickyard SWMU" as identified in a January 21, 2001 SWMU Assessment Report.

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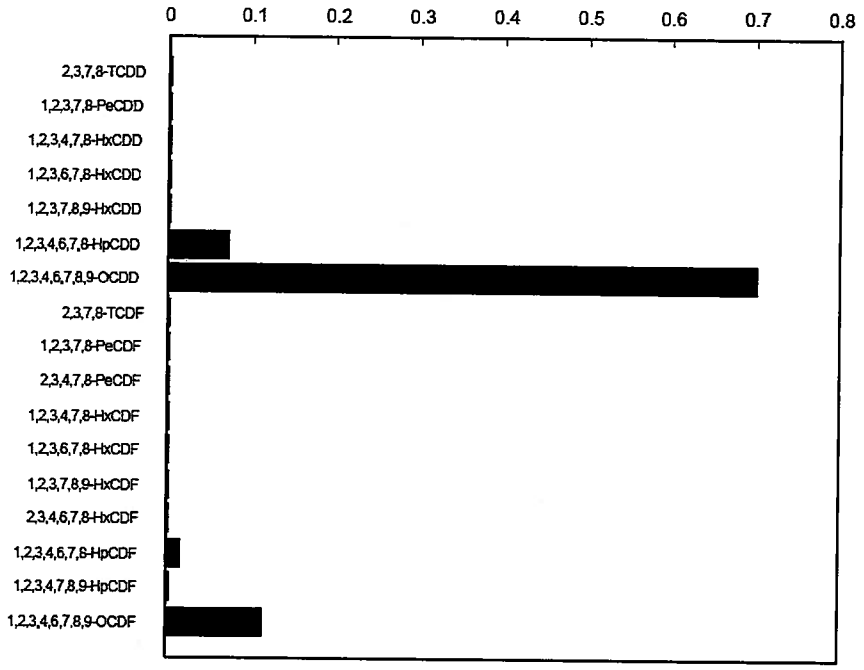
[1] Solid Waste Management Areas are identified in Section 2.5 of the November 1995, Work Plan for RCRA Facility Investigation.

4. The results of the analyses of the soil samples will be compared to residential human health risk criteria contained in USEPA Region IX Preliminary Remediation Goals (PRGs).

Samples will be analyzed for the two PCDDs and two PCDFs that usually are associated with PCP.[2] According to Cleverly, et al., 1,2,3,4,6,7,8 HpCDD and 1,2,3,4,6,7,8,9 OCDD are the dominant PCDDs in PCP, and 1,2,3,4,6,7,8 HpCDF and 1,2,3,4,6,7,8,9 OCDF are the dominant PCDFs in PCP. The depiction of the relative abundance of the PCDDs and PCDFs in PCP is depicted below (from Cleverly, et al., 1997).

The Congener Profiles of Anthropogenic Sources of Chlorinated Dibenzo-p-Dioxins and Chlorinated Dibenzofurans. Fractions in Technical PCP



The Supplemental Work Plan references the previous RFI Work Plans approved by USEPA for the Columbus facility. These previously approved work plans include the following.

1. November 1995, Work Plan for RCRA Facility Investigation, Kerr-McGee Chemical Corporation, Forest Products Division, Columbus Mississippi. By Grant Environmental, and

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2 Cleverly, D.; Schaum, J.; Schweer, G.; Becker, J.; Winters, D. 1997. "The congener profiles of anthropogenic sources of chlorinated dibenzo-p-dioxins and chlorinated dibenzofurans in the United States." Presentation at Dioxin '97, the 17th International Symposium on Chlorinated Dioxins and Related Compounds, held August 25-29, 1997 in Indianapolis, IN, USA. Short paper in Organohalogen Compounds, Volume 32:430-435.

2. December 1995, Phase II Work Plan for RCRA Facility Investigation, Columbus Mississippi. By Kerr-McGee Chemical Corporation, Forest Products Division.

Tronox submitted RCRA Facility Investigation (RFI) Reports for RFI Phases 1 and 2 to the USEPA and Mississippi Department of Environmental Quality (MDEQ) in March 1997, and September 2002. Tronox understands that the RFI Reports still are undergoing agency review at this time. The report of soil sampling to be conducted in accordance with the current Supplemental Work Plan will be submitted as a document separate from, but supplemental to, the RFI Reports.

2. PROCEDURES FOR SUPPLEMENTAL WORK PLAN

The technical methods that will be applicable to work conducted under this Supplemental Work Plan include the following procedures that are contained in Appendix A, "Sampling and Analysis Plan for RCRA Facility Investigation," of the November 1995 Work Plan for RCRA Facility Investigation.

- Procedure 1: Drilling and Sampling Procedure
- Procedure 3: Sediment Sampling Procedure
- Procedure 4: Field Book Procedure
- Procedure 5: Equipment Decontamination Procedure
- Procedure 8: Sample Preparation, Handling, Storage and Shipping Procedure
- Procedure 9: Custody Procedure
- Procedure 11: Quality Control Procedure

The cited procedures are not reproduced in this Supplemental Work Plan.

3. SUPPLEMENTAL SOIL SAMPLING

Supplemental soil sampling will be done in the vicinity of the following RFI borings and sediment samples[3], as indicated on Figure 1.

- Borings B53 and B55 Area. Two sample locations along a line between the two borings. One sample location will be between 25 and 50 feet southeast of Boring B55 and the second sample location will between 25 and 50 feet northwest of Boring B53. The precise sample locations will be determined in the field based on the presence of physical obstacles.

- Borings SB3, SB4, and SB5 Area. Three sample locations along a line between the Borings SB3 and SB5. One sample location will be between 25 and 50 feet east of Boring SB3, the second sample location will between 25 and 50 feet west of Boring SB5, and the third sample location will be approximately midway between Borings SB3 and SB5. The precise sample locations will be determined in the field based on the presence of physical obstacles.

- Sediment samples 003A and 003B Area. Two sample locations along a line between RFI sediment sample locations 003A and 003B. One sample location will be approximately 25 feet west of 003A and the second sample location will be approximately 25 feet west of 003B. The precise sample locations will be determined in the field based on the presence of physical obstacles.

- Soil Borings B7 and B16. Two samples along a line segment near the south property boundary near these two borings. These samples will be taken in the vicinity of the Brickyard SWMU. One sample will be approximately 25 feet west of Boring B16 and the second sample locations will be approximately 50 feet north of the property corner. The precise sample locations will be determined in the field based on the presence of physical obstacles.

Sample collection will be in accordance with Procedures 1, 3, and 5 using either a stainless steel trowel or hand auger. Recovered soil samples that are retained for laboratory analysis will be composited over the full depth of sampling (0.0 to 1.0 feet below ground surface), placed in laboratory-provided containers, and then stored in an ice-filled cooler for shipment to the

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[3] The locations of previous RFI borings and sediment samples will be determined based on surveyed coordinates of those borings or measurements from existing physical features.

analytical laboratory in accordance with Procedure 8. Sampling will be documented in the manner described in the Procedures 1, 4, and 9.

The composite samples will be analyzed for the four chlorinated dibenzo-p-dioxin (CDD) and chlorinated dibenzofuran (CDF) congeners listed below. TCDD Toxic equivalency will be calculated using toxic equivalency factors (TEFs) accepted by the Mississippi Department of Environmental Quality.

PCDD/PCDF Congener	TEF
1,2,3,4,6,7,8-Hepta CDD	0.01
1,2,3,4,6,7,8,9-Octa CDD	0.0001
1,2,3,4,6,7,8-Hepta CDF	0.01
1,2,3,4,6,7,8,9-Octa CDF	0.0001

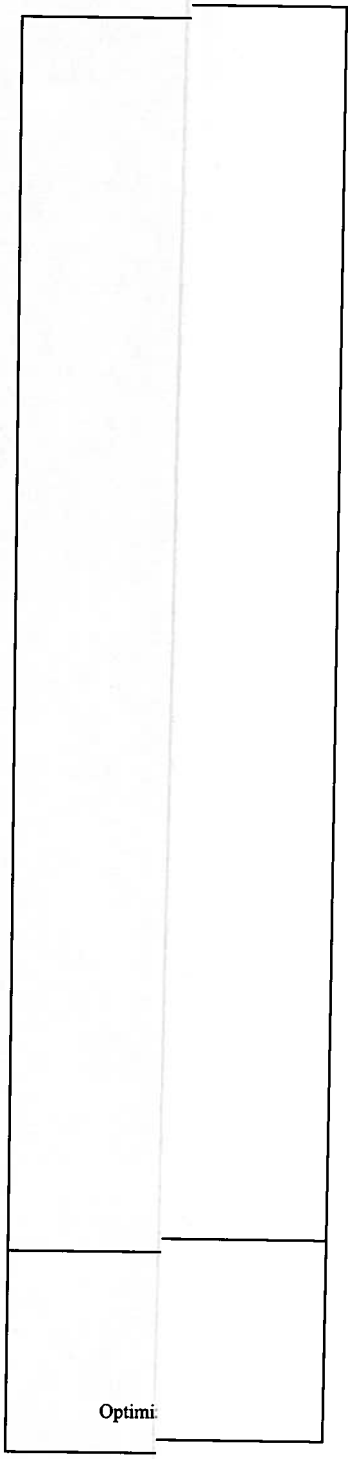
Sample locations will be identified and documented using portable global positioning system (GPS) equipment.

4. REPORTING

Tronox will prepare an RFI Report supplement documenting the actions described in this Supplemental Work Plan. The results of sample analyses will be presented in tabular and graphic format. The laboratory analyses reports will be included in a report appendix. The report and appendices will document pertinent field observations. Conclusions provided in the report will be based on comparison to the residential USEPA Region IX PRGs.

5. SCHEDULE FOR COMPLETION OF SUPPLEMENTAL ACTIONS

Tronox will begin work under this Supplemental Work Plan after receipt of USEPA approval of the work plan. Field sampling will begin within 60 days of receipt of written approval of the work plan and the Supplement to the RFI Report will be submitted within 90 days of completion of the field work.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RCRA HSWA Lowndes File (red)

TRONOX

Name Robert E. Pounds
Title Project Manager

Phone (405) 775-5168
Fax (405) 775-6562
e-mail robert.pounds@tronox.com

August 11, 2008

OVERNIGHT MAIL

Karen Knight
Chief Corrective Action Section
RUST Branch, RCRA Division
US EPA Region 4
Atlanta Federal Center
61 Forsyth Street
Atlanta, GA 30303-8960

Re: Supplemental RCRA Facility Investigation (RFI) Work Plan
Tronox LLC, Columbus, MS Facility
EPA I.D. Number MSD 990 866 329

Dear Ms. Knight,

As required by U.S. Environmental Protection Agency (EPA) in correspondence dated June 6, 2008, and in accordance with Condition II.K of the Hazardous and Solid Waste Amendment (HSWA) permit for the above referenced facility Tronox LLC (Tronox) is submitting a Supplemental RFI Work Plan (Work Plan). As requested in the June 2008, correspondence from EPA Tronox is submitting two (2) hard copies and one (1) electronic copy to EPA and one hard copy and one electronic copy to the Mississippi Department of Environmental Quality. The electronic copies were submitted by e-mail date August 11, 2008 from Mr. Robert Pounds

The Work Plan meets the requirements of Condition II.E.1.c, and Appendix B of the HSWA permit. The Work Plan presents the scope of an investigation to determine if polychloronated dibenzo-p-dioxins and polychloronated dibenzofurans are present in soils and sediments at the facility.

If you need anything further, please contact Robert Pounds at (405) 775-5168 or by e-mail at robert.pounds@tronox.com.

Sincerely,

Robert E. Pounds

Robert E. Pounds

c: Toby Cook – MDEQ
File

ec: Toby Cook – MDEQ
Russ McLean - EPA
Tom Reed - Tronox
Steve Wampler - AquaAeTer

A MEMBER OF THE ENVIRONMENTAL RESOURCES MANAGEMENT GROUP

Kerr-McGee Chemical LLC
Forest Products Division
Columbus, Mississippi

Supplemental Phase II RFI Workplan

December 17, 1999

W.O. #515-03

Environmental Resources Management
3501 N. Causeway Boulevard, Suite 200
Metairie, Louisiana 70002
(504) 831-6700

ERM®

Kerr-McGee Chemical LLC
Forest Products Division
Columbus, Mississippi

Supplemental Phase II RFI Workplan

December 17, 1999

W.O. #515-03

Barrett A. Cieutat, P.G.

Guy L. Swinford, P.G.
Principal

Environmental Resources Management
16300 Katy Freeway, Suite 300
Houston, Texas 77094-1611
(281) 579-8999

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List of Figures

EXECUTIVE SUMMARY

Kerr-McGee Chemical LLC, Forest Products Division (KMC-FPD) owns and operates a wood preserving facility in Columbus, Lowndes County, Mississippi. The facility has been in operation since 1928. KMC-FPD purchased the facility in 1964 from Moss American Corporation. The site occupies approximately 90 acres. The facility manufactures pressure treated railroad products including wooden crossties, switch ties, and timbers.

As part of its past operations, the facility generated hazardous waste which now is regulated under the Resource Conservation and Recovery Act (RCRA). On August 1, 1995, a Hazardous and Solid Waste Amendments (HSWA) permit was issued by Region IV of the U.S. Environmental Protection Agency (USEPA), governing the solid waste management units (SWMUs). The HSWA permit specifies that KMC-FPD perform a RCRA Facility Investigation (RFI) as outlined in the RFI Workplan, submitted November 28, 1995.

A Phase I RFI investigation based on the final approved RFI Workplan was performed and completed in November 1996. The Phase I report was submitted to the Mississippi Department of Environmental Quality (MDEQ) and it received final approval on August 28, 1997.

A Phase II RFI Workplan was submitted to the USEPA and the MDEQ on December 30, 1997, and it included a proposal for sampling activities in the drainage ditches proximal to the facility. KMC-FPD implemented the sampling program in the off-site drainage ditches in March 1998. Following the receipt of analytical data from the laboratory, KMC-FPD conducted an on-site meeting with USEPA and MDEQ on July 22, 1998 to review the data, to visually evaluate the drainage ditches, and to discuss recommendations for the next step in the corrective action process. KMC-FPD submitted the RFI Phase II Report to the USEPA and MDEQ on October 28, 1998, and it included a summary of the investigation and recommendations.

As requested in correspondence from the USEPA, dated October 13, 1999, the Supplemental Phase II RFI Workplan is being submitted as an addendum to the RFI, utilizing the protocols established in the previous RFI Workplans for performing the investigation and submitting the report. The Supplemental Phase II RFI Workplan outlines additional sampling activities to be conducted in the drainage ditches proximal to the facility, and the data that is collected will supplement the data collected by the MDEQ on July 1, 1999. This Workplan references the Sampling and Analysis Plan and Data Management Plan that has been utilized during throughout the RFI investigative process.

1.0 *INTRODUCTION*

Kerr-McGee Chemical LLC, Forest Products Division (KMC-FPD) owns and operates a wood preserving facility in Columbus, Lowndes County, Mississippi. The facility has been in operation since 1928. KMC-FPD purchased the facility in 1964 from Moss American Corporation. The site occupies approximately 90 acres. The facility manufactures pressure treated railroad products including wooden crossties, switch ties and timbers. A site location map is included as Figure 1.

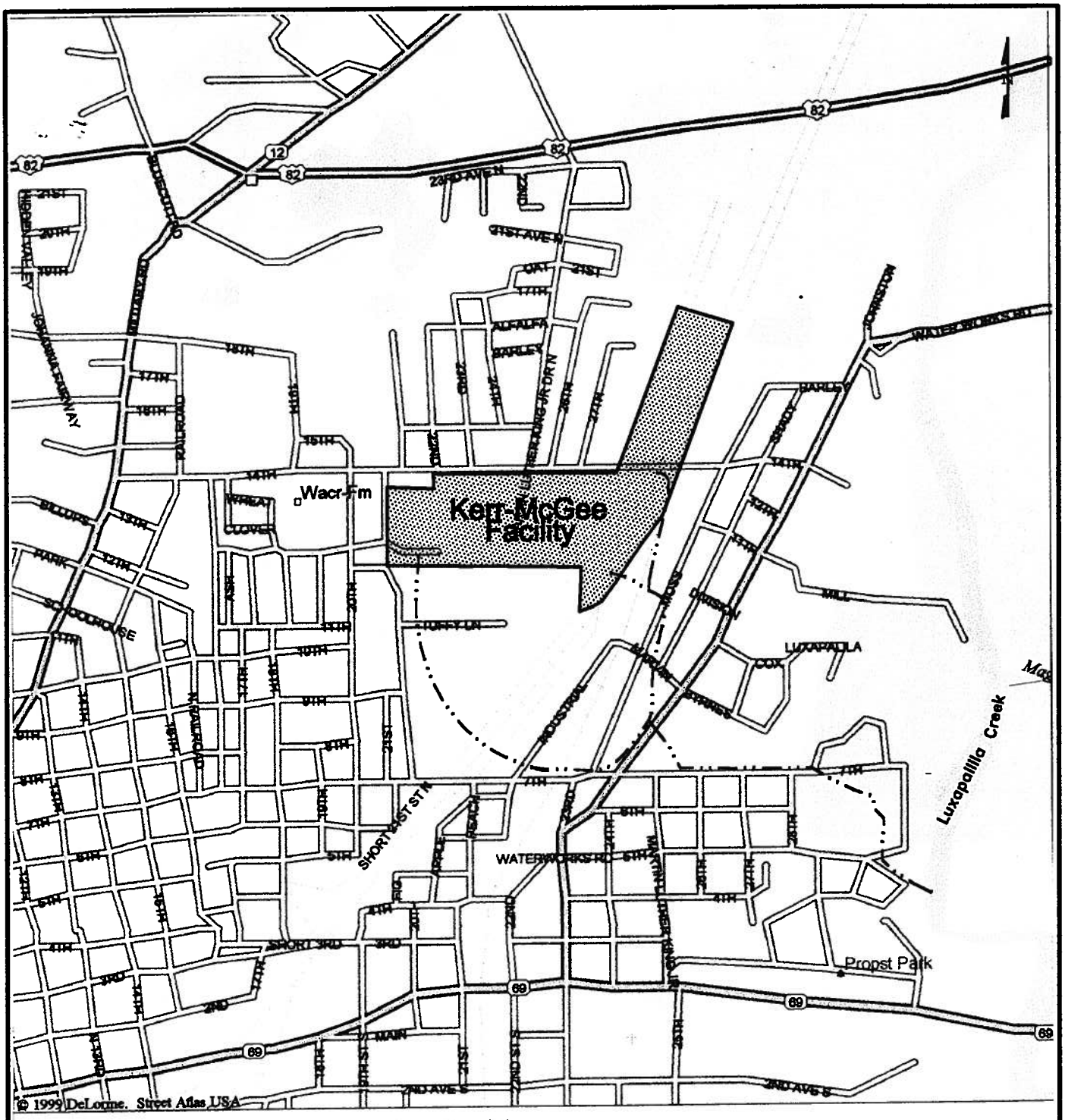
As required by item E of Consent Order No. 1636-89 (March 13, 1989) between the KMC-FPD and the Mississippi Department of Environmental Quality (MDEQ), a revised Part B Post-Closure Permit Application (KMC-FPD, 1990c) was submitted on April 12, 1990 in compliance with the Resource Conservation and Recovery Act (RCRA). As a result of the submittal and approval of the permit application, Hazardous Waste Permit No. HW-90-329-1 (RCRA Permit) was issued on September 11, 1990. Hazardous Waste Permit No. HW-90-329-1 was thereby modified and made effective on August 1, 1995 and it remains effective until August 1, 2005.

The HSWA permit specifies that KMC-FPD is required to perform a RCRA facility investigation (RFI).

The RFI Workplan that was originally submitted on November 28, 1995 (Grant, 1995) and revised on May 24, 1996, describes the investigative, the technical, and the administrative procedures to be followed during the RFI process.

KMC-FPD received the approval letter for the RFI Workplan on June 6, 1996. The Phase I investigation was completed on November 25, 1996 and the Phase I RFI report was submitted to the MDEQ on March 31, 1997. The MDEQ commented on the Phase I RFI Report in a letter dated July 14, 1996, and requested a Phase II RFI Workplan for the facility. The Phase II RFI Workplan was submitted to the USEPA and the MDEQ on December 30, 1997 and the Phase II RFI Report was submitted to the USEPA and the MDEQ on October 28, 1998.

This *Supplemental Phase II RFI Workplan* (Workplan) outlines additional sampling activities to be conducted within the drainage ditches (SWMA VIII) proximal to the facility. A map of the drainage ditches is included as Figure 2. This Workplan satisfies a request by the USEPA, as presented in correspondence to KMC-FPD dated October 13, 1999. The aforementioned correspondence is included in Appendix A.



Mag 15.00
Thu Dec 09 10:40 1999

Scale 1:15,625 (at center)
1000 Feet
500 Meters

Local Road
Major Connector
State Route
Drainage Ditch

Columbus
Mississippi

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DESIGN: BAC	CHKD.: BAC	DATE: 12/1/99	REV.:
DRAWN: MHS	SCALE: AS SHOWN	W.O.NO.: 51503A01L99	

FIGURE 2
DRAINAGE DITCH LOCATION MAP

Kerr-McGee Chemical LLC
Columbus, Mississippi

ERM

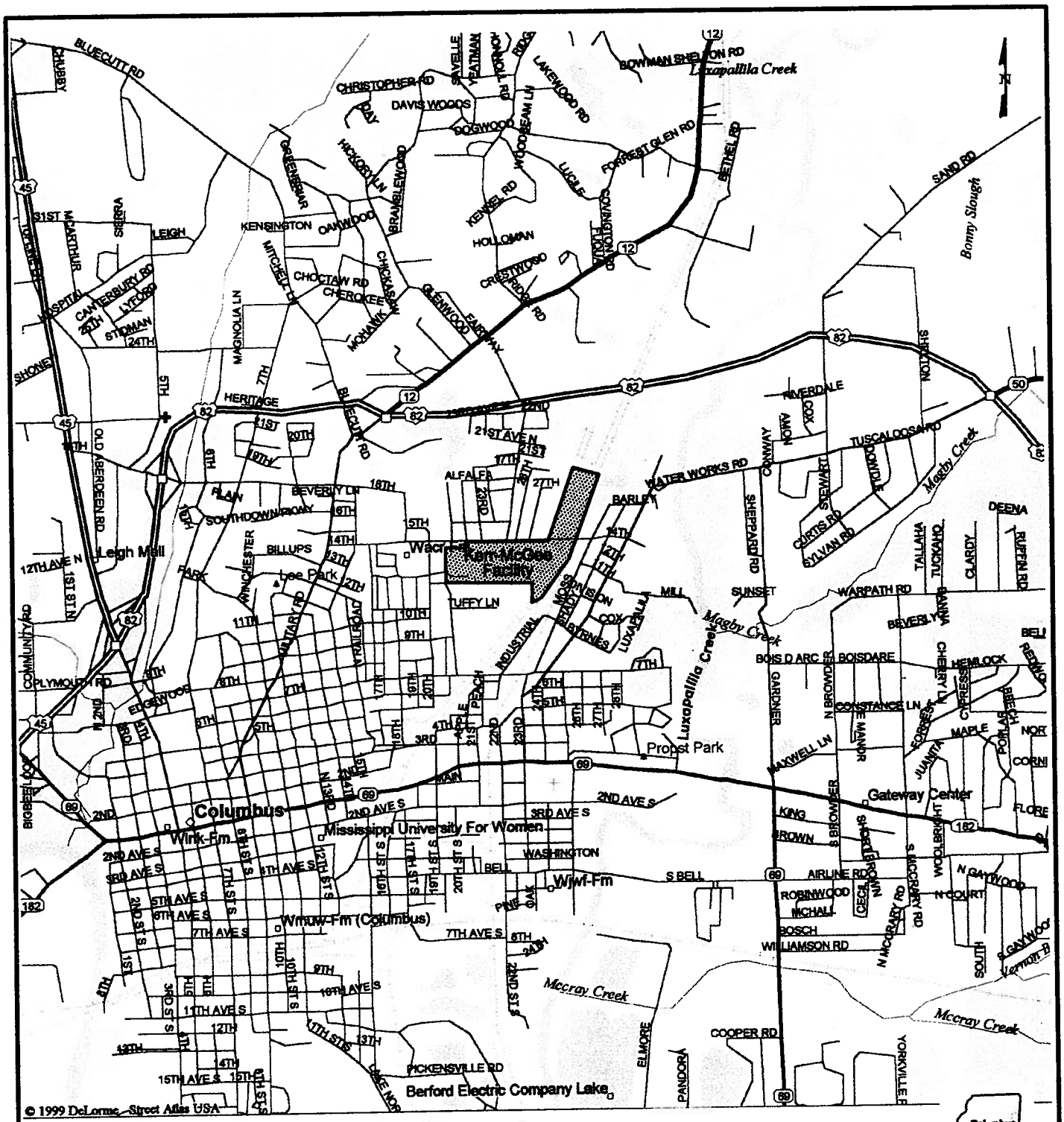

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FIGURE 1
SITE LOCATION MAP

Kerr-McGee Chemical LLC
Columbus, Mississippi

ERM

DESIGN: BAC	CHKD.: BAC	DATE: 12/10/99	REV.:
DRAWN: MHS	SCALE: AS SHOWN	W.O.NO.: 51101A02L99	

2.0 *DESCRIPTION OF CURRENT CONDITIONS*

2.1 *FACILITY BACKGROUND*

The wood preserving facility in Columbus, Mississippi has been in operation since 1928 and it historically manufactured pressure treated railroad products including wooden crossties, switch ties and timbers. KMC-FPD purchased the facility in 1964.

2.2 *SOIL CHARACTERIZATION*

Two distinct soil series are recognized near the closed impoundment at the Columbus facility. They are classified as the Prentiss-Urban land complexes (Pw) and the Rosella silt loam (Ro), and both are described in the Soil Survey of the Lowndes County, Mississippi (USDA, 1979).

The Prentiss-Urban land complexes (Pw) consist of moderately well drained soils in the City of Columbus and on the Columbus Air Force Base. The soils of this complex have been widely disturbed in the Columbus area as a result of construction activities. Much of the original soil profile has been so extensively altered that the soil series is difficult to identify at the facility. The moderately well drained soils typically have a surface layer of dark loam about seven inches thick. The upper part of the subsoil, to a depth of 26 inches, is yellowish brown loam. The lower part, to a depth of 73 inches, is a fragipan of sandy loam and loam mottled in shades of brown, gray and red.

Prentiss soils are strongly acidic. Permeability is moderate above the fragipan and moderately slow in the fragipan. Available water capacity is medium. Run-off is slow to medium, and the erosion hazard is slight or nonexistent.

The Rosella silt loam (Ro) is a poorly drained soil on broad flats and in depressions. Slopes range from 0-2 percent. Typically, the surface layer is a grayish brown, silty loam about 10 inches thick. The upper part of the subsoil, to a depth of 22 inches, is grayish brown loam that has yellowish brown mottles and tongues of light gray, very fine sand. The middle part, to a depth of 63 inches, is gray loam mottled in shades. The lower part, to a depth of 80 inches, is light gray loam mottled in shades of brown and red.

The Rosella soil is strongly acidic or very strongly acidic. Permeability is low, and available water capacity is high. Runoff is slow, and the erosion hazard is slight.

2.3 *SURFACE WATER CHARACTERIZATION*

Luxapallila Creek is the largest perennial drainage in the vicinity of the facility. It is located within one mile of the eastern boundary of the facility.

Stormwater at the facility flows into an onsite ditch system and is directed to designated outfall locations. Stormwater monitoring and reporting is conducted in accordance with NPDES Permit MSR20010.

3.0 *SUPPLEMENTAL PHASE II RFI INVESTIGATION*

3.1 *GENERAL INFORMATION*

The initial activities proposed for the Phase II RFI investigation were outlined in correspondence from KMC-FPD to the MDEQ, dated July 30, 1997 (Appendix B). Specifically, these items included the documentation of a containment system inspection program, additional drainage ditch sediment and surface water sampling and analysis, and a surface soil study.

The section below describes the drainage ditch sampling activities that were performed as part of the Phase II activities, as well as the proposed sampling that will be performed as supplemental RFI activities. The supplemental RFI activities are being conducted to satisfy a request by the USEPA, dated October 13, 1999. The aforementioned correspondence is included as Appendix A.

3.2 *DRAINAGE DITCH SEDIMENT SAMPLING PROGRAM*

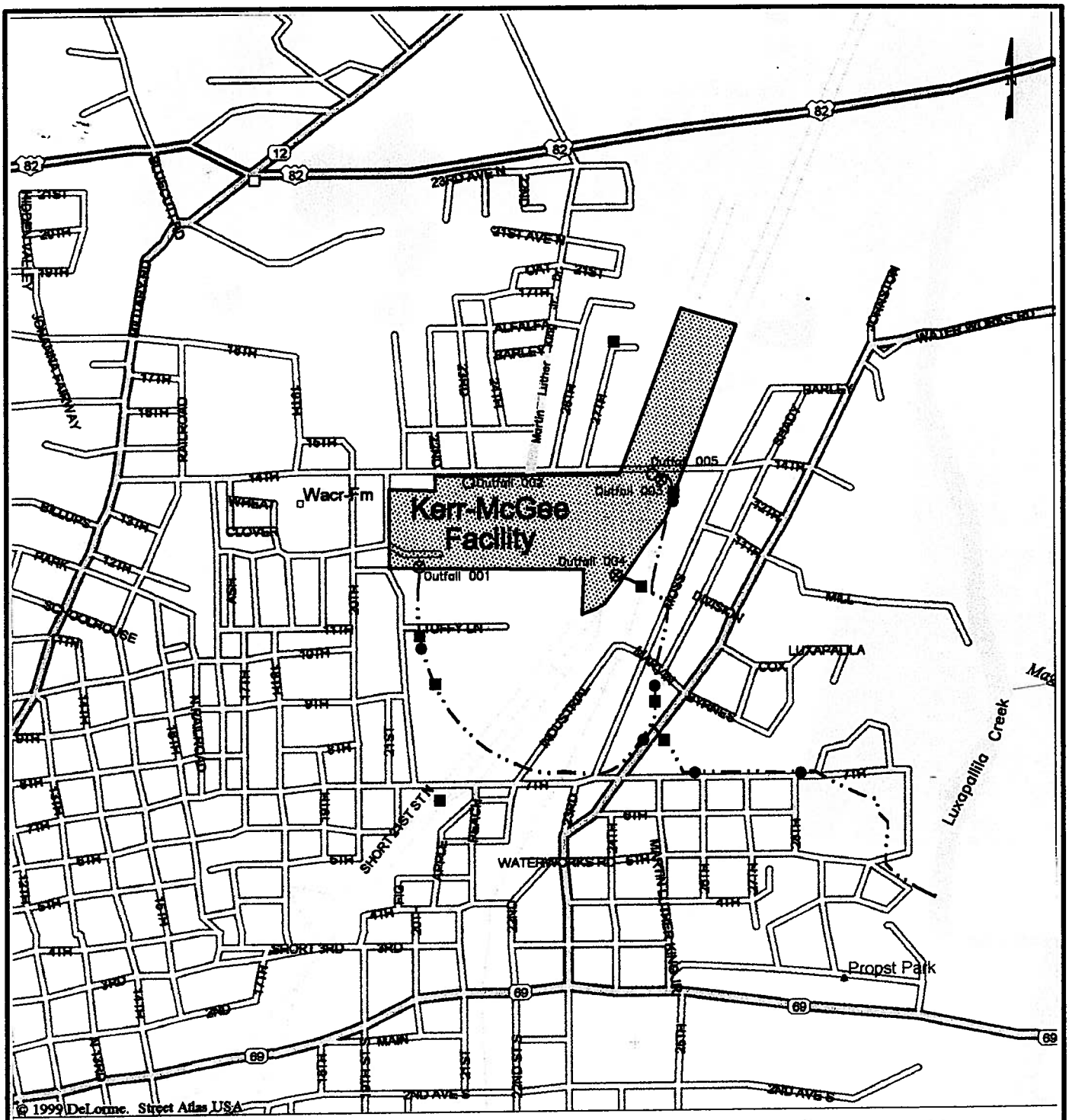
3.2.1 *Purpose*

The purpose of the supplemental drainage ditch sediment sampling program is to determine the offsite extent of affected material, if any, and to characterize the significance of the constituents, if present. As preparation for this additional proposed sampling, KMC-FPD split samples with MDEQ on July 1, 1999 and reviewed this data to determine the areas to be sampled, including the identification of sample intervals. The drainage ditches have been tracked from their exit points at the facility to Luxapallila Creek, and available data has been reviewed. Figure 3 displays the drainage ditches from the facility to Luxapallila Creek and the outfall locations from the facility. Also depicted are the previous and proposed sampling locations.

Outfalls 002, 003, and 005 combine to flow offsite in the northeastern corner of the facility. Outfall 004 exits the facility on the eastern boundary and commingles with Outfall 003. Outfall 001 flows south, southeast and east towards the drainage ditch that carries the combined flow of the previously identified outfall locations. This drainage system ultimately flows to Luxapallila Creek.

3.2.2 *Sampling Program*

Ditch sediment samples will be collected from two depth intervals at the approximate locations presented in Figure 3. The exact locations will be identified based on field conditions. To maximize the likelihood of identifying site constituents that may be present, attempts will be made to focus sampling



Scale 1:15,625 (at center)

1000 Feet

500 Meters

Legend:

- × Proposed Surface Water Sampling Location
- ● Proposed Sediment Sampling Location
- ■ Previous Sediment Sampling Location
- ○ Outfall Location

- Local Road
- Major Connector
- State Route
- Drainage Ditch

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DESIGN: BAC	CHKD.: BAC	DATE: 12/10/99	REV.:
DRAWN: MHS	SCALE: AS SHOWN	W.O.NO.: 51503A03L99	

FIGURE 3
PREVIOUS AND PROPOSED DITCH SAMPLING LOCATIONS

Kerr-McGee Chemical LLC
Columbus, Mississippi

ERM

efforts in areas of the ditches where there is an apparent decrease in fluid flow and a corresponding increase in sediment deposition. The two depth intervals to be retained for laboratory analysis will include 0-6 inches and 6-12 inches. A *Sediment Sampling Record* will be completed for each location. An example *Sediment Sampling Record* is included in Appendix C.

The ditch sediment samples will be collected, bottled, and preserved according to the approved facility Sampling and Analysis Plan (SAP) that was followed during the Phase I RFI investigation. The sediment samples will be shipped via overnight delivery to Southwest Laboratory of Oklahoma, Inc. for analysis of semivolatile organic constituents by USEPA Methodology SW846-8270. Sediment from at least two locations, based on the field determinations, will be submitted for leachate testing by USEPA's toxicity characteristic leaching procedure (TCLP). The leachate will be analyzed for semivolatile organic constituents by USEPA Methodology SW846-8270.

Methods utilized for the management and use of the collected data will follow the Data Management Plan (DMP) that was prepared for the Phase I RFI investigation. Both the SAP and DMP are included as appendices in the RFI Phase I Workplan (Grant, 1995), and are utilized by reference in the Phase II Workplan.

Following completion of the sediment sampling, each sample location will be surveyed for location and elevation utilizing Trimble Pro-XR Global Positioning System (GPS) equipment.

In addition to the sediment sampling, one surface water sample will be collected at outfalls 001, 003, and 004 and analyzed for semivolatile organic constituents by USEPA Methodology SW846-8270.

5.0 *SCHEDULE OF IMPLEMENTATION*

It is estimated that supplemental RFI activities will require approximately five months to complete after approval of the Supplemental Phase II RFI Workplan is received. The schedule listed below indicates the time duration and/or dates for each major task of the supplemental RFI Phase II activities.

1. Supplemental RFI Phase II Workplan submittal to MDEQ/USEPA – December 20, 1999
2. Conduct Supplemental Phase II RFI Activities -

   Obtain access agreements for offsite sampling - 4 weeks

   Conduct field work - 1 week

   Complete laboratory analyses - 3 weeks

   Delivery of laboratory report – 1 week

   Prepare draft report - 6 weeks

   Complete final report - 30 days after draft approval

6.0 RFI REPORT PREPARATION

6.1 PROGRESS REPORTS

KMC-FPD will prepare and submit quarterly progress reports during the Supplemental Phase II RFI activities. The reports will begin 90 days after the implementation of the Supplemental RFI Phase II Workplan. The contents of the progress reports are specified in the HSWA permit. The following outline will be used:

1. Description of RFI completed to date
2. Summary of findings
3. Summary of Agency contacts
4. Changes in relevant personnel
5. Projected work for next reporting period
6. Copies of daily reports, inspection reports, and laboratory/ monitoring data, etc.

5.2 SUPPLEMENTAL PHASE II RFI REPORT

On completion of the supplemental RFI activities and receipt of analytical data, a supplemental Phase II RFI report will be prepared. The contents of the report are specified in the HSWA permit. The following outline will be used:

1. Description of current conditions
2. Area characterization
3. Summary
4. Conclusions

7.0 *PROJECT MANAGEMENT AND ORGANIZATION*

The field data acquisition team, including professional and support personnel, will be trained in the specific technical activities to which they will be assigned. Professional personnel will be trained in pertinent field data collection activities described in this Supplemental Phase II RFI Workplan. Laboratory personnel will be trained in USEPA-approved procedures for conducting the assigned analyses. RFI team members will have completed safety training required for their specific work assignment in accordance with OSHA requirements and KMC-FPD standard operating practices.

The RFI manager for the Supplemental Phase II RFI activities will be Mr. Barrett Cieutat. Mr. Cieutat is a geologist for Environmental Resources Management (ERM). The Health and Safety Officer for the project will be a KMC-FPD employee or FPD representative as determined by the RFI manager. The Health and Safety Officer will be responsible for monitoring compliance with the Health and Safety Plan. All RFI management and organizational procedures will follow those outlined in the Phase I RFI Workplan (Grant, 1995).

8.0 *REFERENCES*

Grant, KMCC et al., 1995, RFI Workplan, Columbus, Mississippi

Kerr-McGee Chemical Corporation, 1989a, Groundwater Quality Assessment Program, Columbus Mississippi

Kerr-McGee Chemical Corporation, 1990a, Groundwater Quality Assessment Report, Columbus, Mississippi

Kerr-McGee Chemical Corporation, 1990c, Post-Closure Permit Application, Part B, Volume I, Columbus, Mississippi

Kerr-McGee Chemical Corporation, 1990d, Post-Closure Permit Application, Part B, Volume II, Columbus, Mississippi

Kerr-McGee Chemical Corporation, 1992a, 1991 Annual/Semi-Annual Performance Evaluation and Groundwater Sampling Report, Columbus, Mississippi

Kerr-McGee Chemical Corporation, Forest Products Division, 1995a, Safety and Health Policy and Procedures Manual

United States Department of Agricultural, 1979, Lowndes County Soil Survey

Wasson, B.E., Golden, H.G., M.W., 1965, Water for industry development in Clay, Lowndes, Monroe and Oktibbeha Counties, Mississippi, Water Resources Division, USGS

RFI Correspondence
dated October 13, 1999
Appendix A

W.O. #515-03
Kerr-McGee Chemical LLC
Columbus, Mississippi

Environmental Resources Management
3501 N. Causeway Boulevard, Suite 200
Metairie, Louisiana 70002
(504) 831-6700

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

OCT 13 1999

4WD-RCRA

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Stephen A. Ladner
Staff Environmental Specialist
Kerr-McGee Chemical Corporation
Forest Products Division
Kerr-McGee Center
Oklahoma City, Oklahoma 73125

SUBJ: Supplemental RFI Activities
Off-Site Drainage Ditch
Columbus, Mississippi Facility
EPA I.D. Number MSD 990 866 329

Dear Mr. Ladner:

The U. S. Environmental Protection Agency (EPA), Region 4 has reviewed the results of sediment sampling conducted in the ditches which drain the above-referenced facility. The sampling was conducted by the Mississippi Department of Environmental Quality (MDEQ). This sampling event took place on July 1, 1999 and the results were submitted to EPA in a memo dated August 24, 1999. The MDEQ investigated the drainage ditch sediments in response to a complaint filed by the Marantha Faith Center, following the removal of a steel culvert from the ditch during construction activities at the Center. The areas sampled generally coincide with those areas investigated by Kerr-McGee during the Phase II RFI and identified as the Off-Site Drainage Ditches.

During the Phase II RFI, Kerr-McGee detected low concentrations of polynuclear aromatic hydrocarbon (PAH) constituents which exhibited a rapid decline in concentration moving downstream from the facility. In the Phase II RFI Report submitted to EPA, Kerr-McGee presented the analytical results of this sampling and advocated natural attenuation as the remedy for the constituents in the ditches. This proposed remedy was supported by the low concentrations of constituents detected, source controls in place at the facility, preventing the current discharge of constituents to the ditches, proposed routine monitoring of the sediments at the NPDES outfalls to demonstrate continued attenuation and source control, the presence of other potential sources of this contamination and the lack of control to mitigate further impacts

from these sources, and the reduced mobility and bioavailability of the constituents due to their low solubilities and corresponding high sorption to the soil/sediment matrix.

The analytical results obtained from the MDEQ sampling event indicate concentrations of the constituents of concern in the downstream areas several times higher than levels detected by Kerr-McGee during the Phase II RFI. The differences in concentrations detected between the two sampling events appear to reflect the sampling methodology used to collect the samples. MDEQ utilized 6" stainless steel auger buckets to obtain sediments below the stream bed, while Kerr-McGee collected sediments from the bottom surface of the ditches. For exposure purposes, the upper sediments would present the greatest potential for exposure from direct contact and from a bioavailability standpoint. However, the purpose of the RFI is to establish the extent of contamination, both laterally and vertically, before a complete exposure assessment can be performed. As the potential for contamination in the ditches would be higher from an historical perspective, an investigation of the deeper soils and sediments underlying the ditches is required. This investigation should focus on areas of the ditches where sediment deposition would be greatest (i.e., deep pools, downstream of obstructions, on the outside of bends, etc.). It was also stated in the Phase II RFI Work Plan that surface water samples would be obtained from the ditches to demonstrate that the constituents present in the sediments is not leaching to the water column. This sampling is also required.

The Supplemental RFI activities should be presented as an addendum to the RFI, utilizing the protocols established in the previous RFI Work Plans for performing the investigation and submitting the report. This Work Plan addendum should be submitted to this office within thirty (30) days of receipt of this letter. Until the RFI process is completed, you have not fulfilled the requirements of your HSWA permit. Failure to comply with any permit condition may result in enforcement actions initiated by EPA pursuant to Section 3008 of RCRA, 42 U.S.C. 6928, under which EPA may seek the imposition of penalties of up to $27,500 per day of continued noncompliance.

Should you have any questions or comments in regard to the requirements contained in your HSWA permit or your obligation to respond to these requirements, please contact Russ McLean of the South Programs Section at (404) 562-8504.

Sincerely,

Patricia Herbert, for

Narindar Kumar, Chief
RCRA Programs Branch
Waste Management Division

cc: Bruce Ferguson, MDEQ

RFI Correspondence
dated July 30, 1997
Appendix B

W.O. #515-03
Kerr-McGee Chemical LLC
Columbus, Mississippi

Environmental Resources Management
3501 N. Causeway Boulevard, Suite 200
Metairie, Louisiana 70002
(504) 831-6700

KERR-McGEE CHEMICAL CORPORATION
KERR-McGEE CENTER • OKLAHOMA CITY, OKLAHOMA 73125

July 30, 1997

Mr. Bruce Ferguson
Office of Pollution Control
Mississippi Department of Environmental Quality
2380 Highway 80 West
Jackson, Mississippi 39204

RE: RFI Phase I Report Revisions
EPA I.D. Number MSD 990-866-329
Hazardous Waste Permit Number HW-90-329-01
Kerr-McGee Chemical Corporation - Forest Products Division
Columbus, Mississippi Facility

Dear Mr. Ferguson:

Kerr-McGee Chemical Corporation - Forest Products Division (KMCC-FPD) is in receipt of your correspondence dated July 14 , 1997 which details comments based upon review of KMCC-FPD's RFI Phase I Report for the Columbus facility. Based on our meeting at the Mississippi Department of Environmental Quality (MDEQ) offices on June 26th and follow-up conference call on the 27th, KMCC-FPD presents the following responses to your comments. The MDEQ comment will be listed first in italics, followed by the KMCC-FPD response.

1) MDEQ - *Section 5.4 of the RFI Workplan states that the integrity of containment systems within SWMA II will be assessed and the assessment will be modeled after the recommendations contained in the 1993 USEPA publication, "Determining the Integrity of Concrete Sumps: Technical Guidance Document." The RFI report states that the integrity of the containment systems is assessed by facility personnel, however, there is no documentation as to how the integrity of the containment systems was assessed. The protocol and results of the sump integrity assessments should be clearly documented.*

KMCC-FPD - The current inspection of the containment systems by facility personnel may be sufficient to meet the recommendations of the USEPA guidance document, however, KMCC-FPD will review the guidance recommendations and initiate procedures and documentation as required. This information will be provided in the RFI Phase II Workplan to be prepared at a later date.

2) MDEQ - *Section 6.2.1of the RFI Report states that soil sample SB6 did not contain creosote constituents exceeding the Health Based criteria. This statement does not correspond to Table 7 which shows benzo(a)anthracene and benzo(a)pyrene as being above the Health Based criteria.*

KMCC-FPD - For clarity and uniformity, the Health Based soil criteria has been replaced in the tables with Region III Risk Based Concentration criteria - industrial soil ingestion scenario (see comment #3). Based on these data for comparison, sample SB6 does not contain creosote

constituents exceeding these criteria. The appropriate revisions are included as attachments to this correspondence.

3) MDEQ - *Region III, June 1996 is referenced in the analytical summary tables. The health based limit listed in the table appears to be calculated using the methodology in the RFI Guidance, May 1989, and not that used by Region III for the Risk Based Concentration Tables.*

KMCC-FPD - The analytical summary tables and report text will be revised to include the Region III Risk Based Concentrations rather than health based data. The revised tables are included as attachments to this correspondence.

4) MDEQ - *Section 6.3.1. of the RFI report states that shallow soil borings SD6 and SD9 did not detect creosote constituents, however, they did have several "J" flags. Test Methods for Evaluating Solid Waste, Volume IA, SW-846 defines the method detection limit as "the minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix type containing the analyte." While these "J" flags may not be accurately quantifiable, the Office views these results as detects.*

KMCC-FPD - Again, while soil borings SD6 and SD9 did detect creosote constituents as "J" indicators, these values do not exceed the Region III Risk Based Concentration criteria. However, these "J" values did exceed the previously used Health Based criteria. The revised page(s) are included as attachments to this correspondence.

5) MDEQ - *A number of constituents were determined to be present in the drainage ditches at the site. With the exception of the ditch labeled 001, the concentrations where the ditch exits the facility were consistently greater than samples taken upstream. The report state that TCLP analyses of the sediment samples were non-detect, however, sample 002B showed detects of naphthalene and phenanthrene at quantifiable levels and acenaphthalene and carbazole at estimated levels. The extent of contamination in the drainage ditches should be fully characterized to non-detect levels. In addition, to this investigation at least one surface water sample should be taken at each discharge point and analyzed for all K001 constituents.*

KMCC-FPD - Section 6.4.1. includes the TCLP reference to sample 002B. This section will be revised to agree with the laboratory results. The revised page will be included as an attachment to this correspondence.

The additional sediment assessment of the ditches offsite from the facility along with surface water sampling will be proposed in a Phase II RFI Work Plan to be prepared following final approval of the Phase I report.

6) **MDEQ** - *All of the surficial samples collected show concentrations of constituents above health based criteria with the exception of SD9. The lateral extent of the surficial contamination should be defined.*

KMCC-FPD - Issues pertaining to surficial soil impact at the facility, including potential delineation of the lateral extent of the impact, will be addressed in the Phase II RFI Work Plan.

7) **MDEQ** - *It is stated throughout the report that extensive soil investigations through previous assessments have delineated the existing contamination at the facility. This previous information should be incorporated into the investigations conducted during this RFI to fully delineate the soil contamination at the facility. This data should be presented in the form of isoconcentration maps for the constituents of concern, cross sections showing the vertical distribution of these constituents, etc.*

KMCC-FPD - The soil investigation data collected in previously studies at the facility will be incorporated in the Phase II Work Plan in conjunction with the proposed resolution of the surficial soil impact issue (see comment #6). These data can be presented in a map and cross-section format for clarity and consistency.

8) **MDEQ** - *The RFI Work Plan indicated that the borings and surface soil samples would be made near the secondary O/W separator, wastewater pipes, polymer addition area and holding tank area as depicted in Figure 5.1 of the Work Plan. The locations shown on Figure 15 do not appear to follow this strategy. Explain what criteria were used for siting the sample locations. Indicate on Figure 12 the actual boring and surface soil sampling locations.*

KMCC-FPD - The proposed locations for the borings and surface sample locations shown on Figure 5.1 of the Work Plan were chosen based on ideal proximity to the units in question. At the time field work was initiated it was found that most of the locations could not be drilled or sampled because of overhead power lines, underground utilities, building clearances, and concrete slabs. The actual locations for the borings and soil samples have been spotted on revised versions of Figures 12 and 14. These maps are included as an attachment with this correspondence.

9) **MDEQ** - *Samples 005A and 005B appear to be taken from a ditch that receives runoff from an area of the facility that is used to store non-treated wood, yet, these samples show a remarkable amount of contamination. The RFI report should address what the source is for the contamination in samples 005A and 005B.*

KMCC-FPD - Using Figure 14 as a reference, drainage ditch outfall 002 flows off the facility property to the north and then flows along the north property line to the east to connect with outfall ditch 005. The source of contamination noted in the sediment samples from the 005

outfall moved from the 002 ditch to the 005 area. The concentrations noted in the 005 samples are correspondingly lower than those in the 002 samples, indicating a downgradient reduction in contaminant constituents.

Again, revised pages for the Phase I RFI report are attached to this correspondence and are to replace the equivalent pages in your copies. Please contact me with any questions or comments regarding this correspondence. My telephone number is (405) 270-2625.

Sincerely,

Kerr-McGee Chemical Corporation
Forest Products Division

Stephen A. Ladner
Staff Environmental Specialist

Attachments

cc: R. Murphey, w/ attachments
T. Reed, w/ attachments
K. Williams, Region IV - USEPA, w/ attachments

Sediment Sampling Record

Appendix C

W.O. #515-03
Kerr-McGee Chemical LLC
Columbus, Mississippi

Environmental Resources Management
3501 N. Causeway Boulevard, Suite 200
Metairie, Louisiana 70002
(504) 831-6700

FIGURE 1

SEDIMENT SAMPLING RECORD

Sample Location: _____ Sample Number: _____

Sample Date: _____, 19____ Time of Sampling: _____ a.m. / p.m.

Reason for Sampling: Regular Sampling _____ Special Sampling _____

Sample Collected By: _____

Weather: _____

Location Photographed ? yes / no Location Staked / Flagged / Numbered ? _____

Equipment Cleaning Materials:

- potable water & phosphate-free soap
- potable water rinse
- water rinse (distilled, deionized)
- air dry

Equipment Cleaned:

Observation of water (appearance, odor, other comments):

Flow Conditions (movement / standing):

On-Site Measurements:

pH: _____ Measured with: _____

Temperature: _____ Measured with: _____

Specific Conductivity: _____ Measured with: _____

Dissolved Oxygen: _____ Measured with: _____

Observation of Sample (Sediment particle size, color, odor):

Sample Containers

(material, number, size): _____

On-Site Sample Preservation

_____ None _____ Added to Containers by Laboratory

_____ Added in field

Method: _____ Containers: _____

Method: _____ Containers: _____

Method: _____ Containers: _____

Container Handling

_____ Container Sides Labeled and Labels Taped

_____ Container Lids Taped

_____ Container Placed in Ice Chest

Other Comments / Sketch of Sample Location (if appropriate):

_____ Sampler's Signature: _____ Date: _____

ENVIRONMENTAL RESOURCES MANAGEMENT

Kerr-McGee Chemical LLC
Forest Products Division
Columbus, Mississippi

Revised Supplemental Phase II RFI Workplan

June 27, 2000

W.O. #515-03

Environmental Resources Management
3501 North Causeway Boulevard, Suite 200
Metairie, Louisiana 70002
(504) 831-6700

ERM®

Kerr-McGee Chemical LLC
Forest Products Division
Columbus, Mississippi

Revised Supplemental Phase II RFI Workplan

June 23, 2000

W.O. #515-03

Barrett A. Cieutat

Barrett A. Cieutat, P.G.

Guy L. Swinford, P.G.
Principal

Environmental Resources Management
3501 North Causeway Boulevard, Suite 200
Metairie, Louisiana 70002
(504) 831-6700

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APPENDICES

List of Figures

EXECUTIVE SUMMARY

Kerr-McGee Chemical LLC, Forest Products Division (KMC-FPD) owns and operates a wood preserving facility in Columbus, Lowndes County, Mississippi. The facility has been in operation since 1928. KMC-FPD purchased the facility in 1964 from Moss American Corporation. The site occupies approximately 90 acres. The facility manufactures pressure treated railroad products including wooden crossties, switch ties, and timbers.

As part of its operations, the facility generated hazardous waste which now is regulated under the Resource Conservation and Recovery Act (RCRA). On August 1, 1995, a Hazardous and Solid Waste Amendments (HSWA) permit was issued by Region IV of the U.S. Environmental Protection Agency (USEPA), governing the solid waste management units (SWMUs). The HSWA permit specifies that KMC-FPD perform a RCRA Facility Investigation (RFI) as outlined in the RFI Workplan, submitted November 28, 1995.

Multiple phases of the RFI were conducted to investigate and delineate impacted media associated with the SWMUs at the facility. A Phase I RFI was performed and completed in November 1996. The Phase I report was submitted to USEPA and the Mississippi Department of Environmental Quality (MDEQ) and it received final approval on August 28, 1997.

A Phase II RFI Workplan was submitted to the USEPA and MDEQ on December 30, 1997, which included a proposal for sampling activities in the drainage ditches proximal to the facility. KMC-FPD implemented the sampling program in the off-site drainage ditches in March 1998. Following the receipt of analytical data from the laboratory, KMC-FPD conducted an on-site meeting with USEPA and MDEQ on July 22, 1998 to review the data, to visually evaluate the drainage ditches, and to discuss future activities in the corrective action process. KMC-FPD submitted the RFI Phase II Report to the USEPA and MDEQ on October 28, 1998, and it included a summary of the investigation and recommendations for future activities.

As requested in correspondence from the USEPA, dated October 13, 1999, a *Supplemental Phase II RFI Workplan* was submitted in December 1999 as an addendum to the RFI to identify additional sampling activities in the offsite drainage ditches proximal to the facility. The Workplan proposed to utilize the protocols established in the previous RFI Workplans for performing investigative activities and for submittal of a RFI report. The USEPA submitted comments on the *Supplemental Phase II RFI Workplan* to KMC-FPD in correspondence dated March 9, 2000, and participated in a subsequent meeting on April 11, 2000 to detail proposed modifications to the Workplan.

This *Revised Supplemental Phase II RFI Workplan* incorporates the modifications based on the aforementioned USEPA comments and subsequent meeting. It references the Sampling and Analysis Plan and Data Management Plan that have been utilized throughout the RFI investigative process.

1.0 *INTRODUCTION*

Kerr-McGee Chemical LLC, Forest Products Division (KMC-FPD) owns and operates a wood preserving facility in Columbus, Lowndes County, Mississippi. The facility has been in operation since 1928. KMC-FPD purchased the facility in 1964 from Moss American Corporation. The site occupies approximately 90 acres. The facility manufactures pressure treated railroad products including wooden crossties, switch ties, and timbers. A site location map is included as Figure 1.

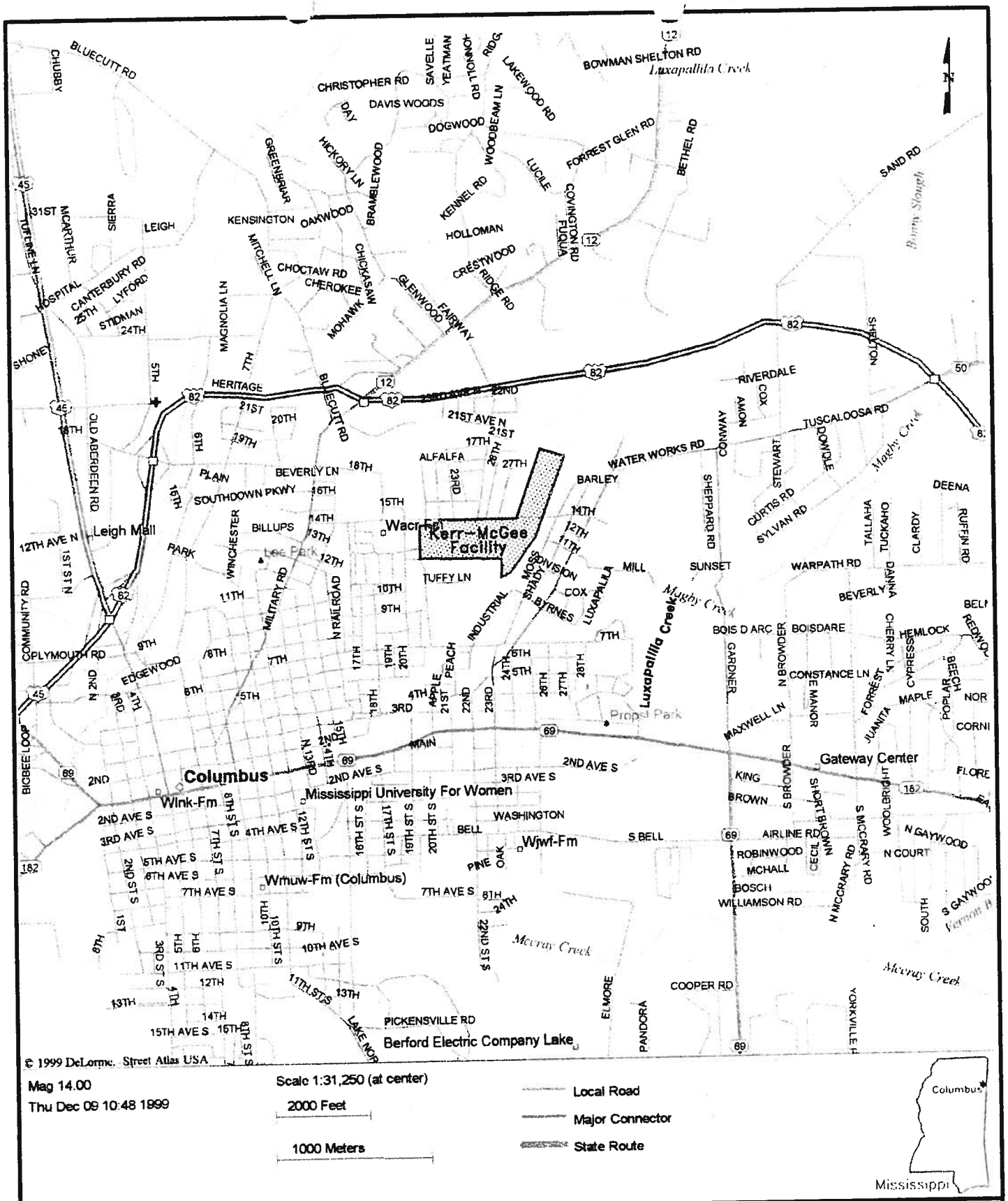
As required by item E of Consent Order No. 1636-89 (March 13, 1989) between the KMC-FPD and the Mississippi Department of Environmental Quality (MDEQ), a revised Part B Post-Closure Permit Application (KMC-FPD, 1990c) was submitted on April 12, 1990 to comply with the requirements of the Resource Conservation and Recovery Act (RCRA). Following the approval of the permit application, Hazardous Waste Permit No. HW-90-329-1 (RCRA Permit) was issued on September 11, 1990. Hazardous Waste Permit No. HW-90-329-1 was subsequently modified and made effective on August 1, 1995 and it remains effective until August 1, 2005.

The HSWA permit specifies that KMC-FPD is required to perform a RCRA facility investigation (RFI).

The RFI Workplan that was originally submitted on November 28, 1995 (Grant, 19995) and revised on May 24, 1996, describes the investigative, the technical, and the administrative procedures to be followed during the RFI process.

KMC-FPD received the approval letter for the Phase I RFI Workplan on June 6, 1996. The Phase I investigation was completed on November 25, 1996 and the Phase I RFI Report was submitted to the MDEQ on March 31, 1997. The MDEQ commented on the Phase I RFI Report in a letter dated July 14, 1996, and requested a Phase II RFI Workplan for the facility. The Phase II RFI Workplan was submitted to the USEPA and the MDEQ on December 30, 1997 and the Phase II RFI Report was submitted to the USEPA and the MDEQ on October 28, 1998.

A *Supplemental Phase II RFI Workplan* was submitted in December 1999 that outlined additional sampling activities to be conducted within the drainage ditches (SWMA VIII) proximal to the facility. A map of the drainage ditches is included as Figure 2. The aforementioned Workplan satisfied a request by the USEPA, as presented in correspondence to KMC-FPD dated October 13, 1999. The aforementioned correspondence is included in Appendix A.



ERM-Southwest, Inc.

HOUSTON · NEW ORLEANS · AUSTIN · DALLAS · BEAUMONT

FIGURE 1
SITE LOCATION MAP

Kerr-McGee Chemical LLC
Columbus, Mississippi

DESIGN: BAC	CHKD.: BAC	DATE: 12/10/99	REV.:
DRAWN: MMH	SCALE: AS SHOWN	W.O.NO.: 51301A02L99	

ERM

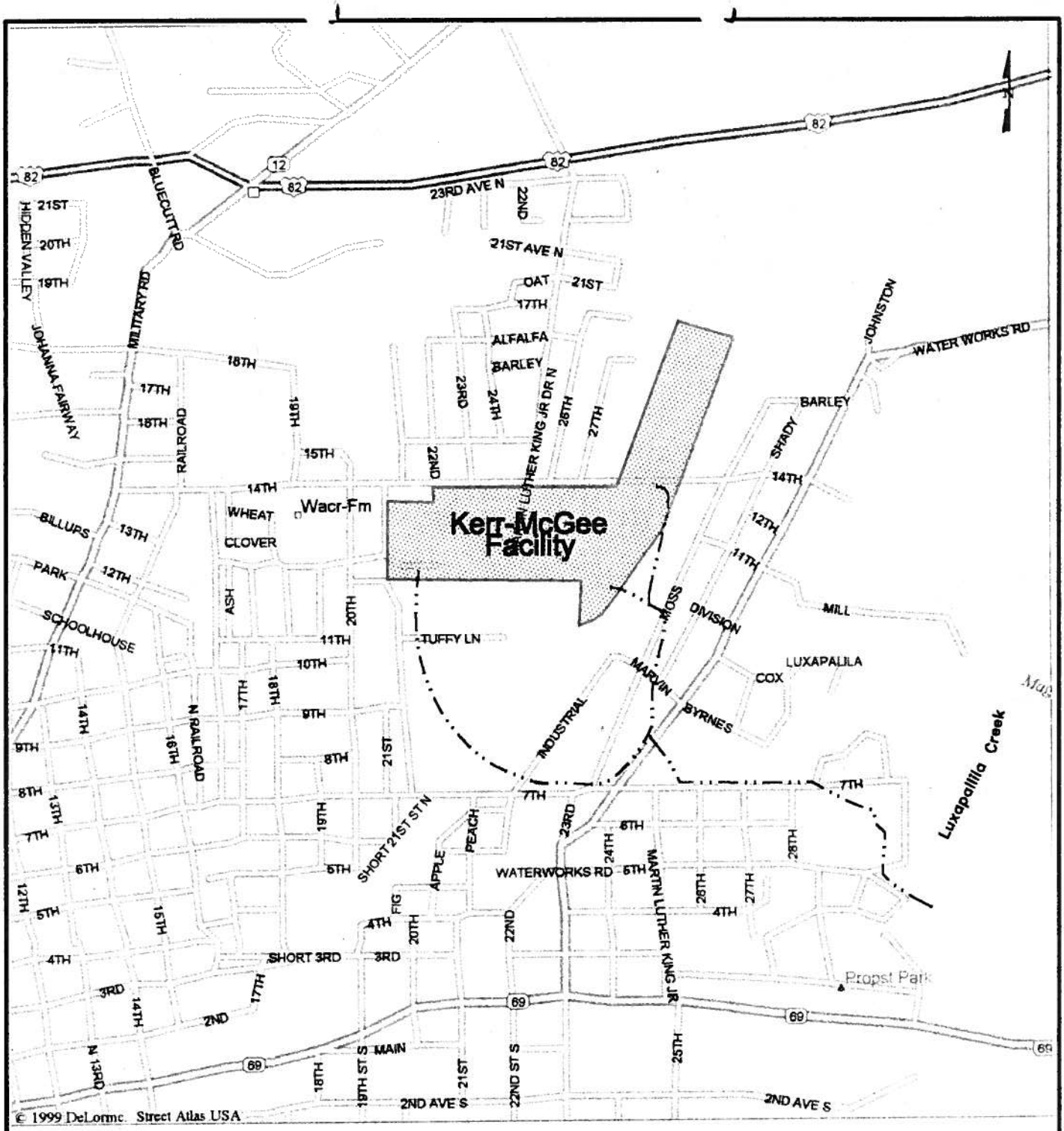


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FIGURE 2
DRAINAGE DITCH LOCATION MAP

Kerr-McGee Chemical LLC
Columbus, Mississippi

ERM

DESIGN: BAC	CHKD.: BAC	DATE: 12/1/99	REV.:
DRAWN: MHS	SCALE: AS SHOWN	W.O.NO.: 51503A01L99	

The USEPA submitted comments on the *Supplemental Phase II RFI Workplan* to KMC-FPD in correspondence dated March 9, 2000, and participated in a subsequent meeting on April 11, 2000 to detail proposed modifications to the Workplan. This *Revised Supplemental Phase II RFI Workplan* (Workplan) incorporates the modifications based on the aforementioned USEPA comments and subsequent meeting. USEPA comments on the *Supplemental Phase II Workplan*, as well as subsequent correspondence related to a time extension and a revised submittal date for the Workplan, is included in Appendix B.

2.0 DESCRIPTION OF CURRENT CONDITIONS

2.1 FACILITY BACKGROUND

The wood preserving facility in Columbus, Mississippi has been in operation since 1928 and it historically manufactured pressure treated railroad products including wooden crossties, switch ties, and timbers. KMC-FPD purchased the facility in 1964.

2.2 SOIL CHARACTERIZATION

Two distinct soil series are recognized near the closed impoundment at the Columbus facility. They are classified as the Prentiss-Urban land complexes and the Rosella silt loam, and both are described in the Soil Survey of the Lowndes County, Mississippi (USDA, 1979). Most of the descriptions and characteristics included in this section were obtained from the aforementioned document.

The Prentiss-Urban land complexes consist of moderately well drained soils in the City of Columbus. The soils of this complex have been widely disturbed in the Columbus area as a result of construction activities. Much of the original soil profile has been modified as a result of capital improvements such that the soil series is difficult to identify at the facility. The moderately well drained soils typically have a surface layer of dark loam about seven inches thick. The upper part of the subsoil, to a depth of 26 inches, is generally yellowish brown loam. The lower part, to a depth of 73 inches, is a fragipan of sandy loam and loam mottled in shades of brown, gray, and red.

Prentiss soils are typically strongly acidic, and soil permeability is highest above the fragipan. Available water capacity is medium. Run-off is slow to medium, and the erosion hazard is slight to nonexistent.

The Rosella silt loam is a poorly drained soil on broad flats and in depressions. Slopes range from 0-2 percent. Typically, the surface layer is a grayish brown, silty loam about 10 inches thick. The upper part of the subsoil, to a depth of 22 inches, is grayish brown loam that has yellowish brown mottles and tongues of light gray, very fine sand. The middle part, to a depth of 63 inches, is gray loam mottled in shades. The lower part, to a depth of 80 inches, is light gray loam mottled in shades of brown and red.

The Rosella soil is strongly acidic or very strongly acidic. Permeability is low, and available water capacity is high. Runoff is slow, and the erosion hazard is slight.

2.3 *SURFACE WATER CHARACTERIZATION*

Luxapallila Creek is the largest perennial drainage in the vicinity of the facility. It is located within one mile of the eastern boundary of the facility.

Stormwater at the facility flows into an onsite ditch system and is directed to designated outfall locations. Stormwater monitoring and reporting is conducted in accordance with NPDES Permit MSR20010.

2.4 *HYDROGEOLOGIC CHARACTERIZATION*

Two distinct ground water aquifers are present in the shallow subsurface beneath the facility. These are the Quaternary alluvial aquifer and the Eutaw aquifer.

2.4.1 *Alluvial Aquifer*

Underlying the facility are Quaternary-age alluvial deposits consisting of gravel, sand, silt, and clay. Generally, there is a coarsening of the sediments in a downward direction within the alluvial aquifer. Well records indicate the thickness of the alluvium to be about 25 feet in the area of the KMC-FPD facility.

2.4.2 *Eutaw Aquifer*

The Eutaw Formation underlies the Quaternary-age alluvial deposits. Regional data indicate that the Eutaw is typically composed of two members, the uppermost Tombigbee Sand Member and the lower member that is commonly referred to as 'typical' Eutaw. The Tombigbee Sand Member is a fine-to-medium grained, glauconitic, calcareous, massive sand. The lower 'typical' Eutaw member is a less glauconitic sand with a slightly coarser texture than the overlying Tombigbee Sand Member. Clay layers with associated lignite and plant fossils can be found in the 'typical' Eutaw and cross-bedding is common. In the area of the KMC-FPD facility, the upper portion of the Eutaw Formation is an erosional surface with fine-grained sediments that appears to impede vertical fluid flow.

3.0 SUPPLEMENTAL PHASE II RFI INVESTIGATION

3.1 GENERAL INFORMATION

The initial activities proposed for the Phase II RFI investigation were outlined in correspondence from KMC-FPD to the MDEQ, dated July 30, 1997 (Appendix C). Specifically, the initial Phase II activities included documentation of a containment system inspection program, drainage ditch sediment sampling, and a surface soil study.

The section below describes the drainage ditch sampling activities that were performed as part of the initial Phase II activities, as well as the proposed sampling that will be performed as supplemental RFI activities. The supplemental RFI activities are being conducted to satisfy written requests by the USEPA, dated October 13, 1999 and March 9, 2000, and verbal requests as identified during a meeting between USEPA and KMC-FPD on April 11, 2000. Documentation of the aforementioned requests is included in Appendices A and B.

3.2 DRAINAGE DITCH SEDIMENT SAMPLING PROGRAM

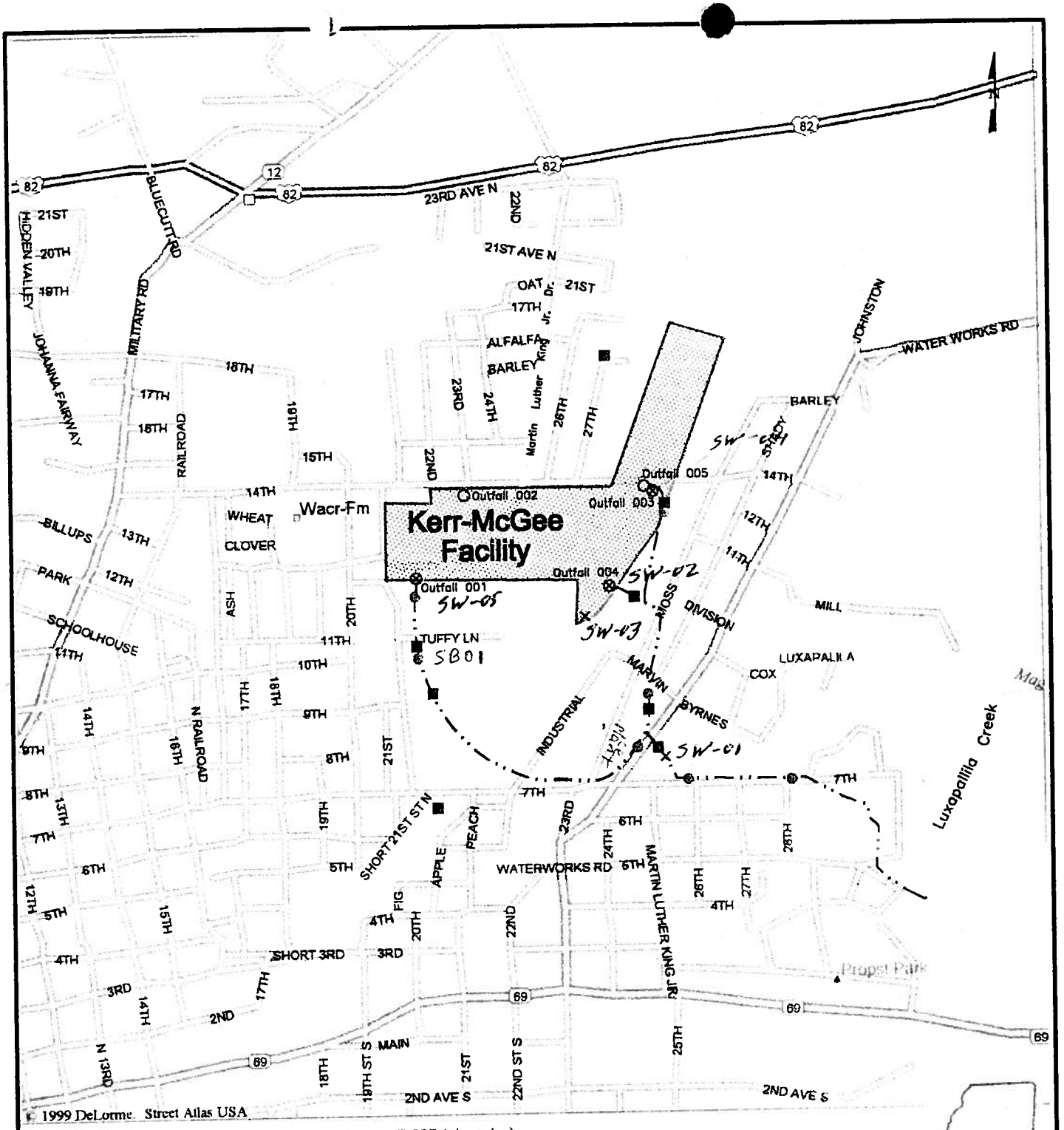
3.2.1 *Purpose*

The purpose of the supplemental drainage ditch sediment sampling program is to determine the offsite extent of affected material, if any, and to characterize the significance of the constituents, if present. As preparation for this additional proposed sampling, KMC-FPD split samples with MDEQ on July 1, 1999 and reviewed this data to determine the areas to be sampled, including the identification of sample intervals. Figure 3 displays the drainage ditches from the facility to Luxapallila Creek and the outfall locations from the facility. Also depicted are the previous and proposed sampling locations.

KMC-FPD will perform sampling at the proposed locations, as permissible based on obtaining appropriate access agreements from the necessary property owners. KMC-FPD will notify USEPA if access can not be obtained, and will modify sampling locations to accommodate access restrictions to the extent practicable.

Outfalls 002, 003, and 005 combine to flow offsite in the northeastern corner of the facility. Outfall 004 exits the facility on the eastern boundary and commingles with the combined discharge from Outfalls 002, 003, and 005.

Outfall 001 flows south, southeast and east towards the drainage ditch that carries the combined flow of the previously identified outfall locations. This drainage system ultimately flows to Luxapallila Creek.



ERM-Southwest, Inc.
HOUSTON · NEW ORLEANS · AUSTIN · DALLAS · BEAUMONT

DESIGN: BAC	CHKD.: BAC	DATE: 05/15/00	REV.:
DRAWN: MHS	SCALE: AS SHOWN	W.O.NO.: 51503A03E00	

FIGURE 3
PREVIOUS AND PROPOSED DITCH SAMPLING LOCATIONS

Kerr-McGee Chemical LLC
Columbus, Mississippi

ERM

3.2.2 *Sampling Program*

Ditch sediment samples will be collected from three depth intervals at each of the seven locations presented in Figure 3. Exact locations will be identified based on field conditions and receipt of appropriate access agreements. To maximize the likelihood of identifying site constituents that may be present, attempts will be made to focus sediment sampling efforts in areas of the ditches where there is an apparent decrease in water velocity and a corresponding increase in sediment deposition.

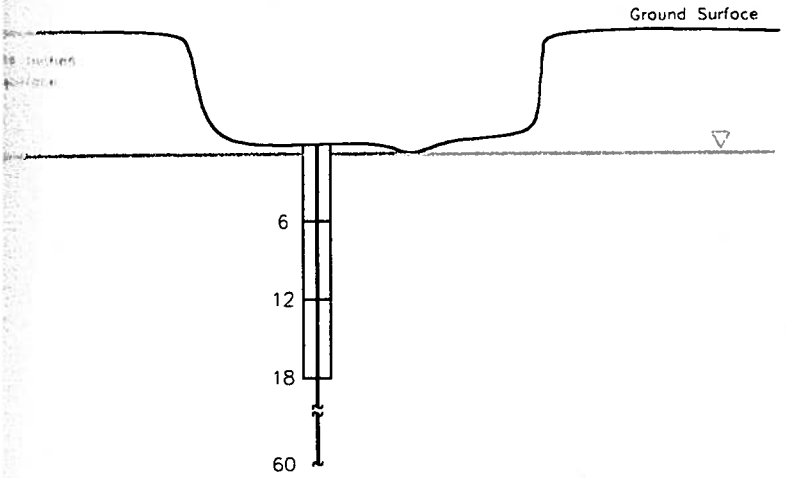
Borings will be advanced to a minimum depth of 60 inches below grade, and three depth intervals will be retained for laboratory analysis at each sample location. Two of the sample intervals will be repeated at each location, which include 0-6 and 6-12 inches below grade. The third 6-inch sample interval will be determined based on the field conditions at each sample location. The primary factor in determining the depth of the third sample interval will be the presence or absence of organoleptic evidence of impacted sediments. A schematic depiction of the sediment sample intervals based on the aforementioned conditions is shown in Figure 4, and descriptions are presented below:

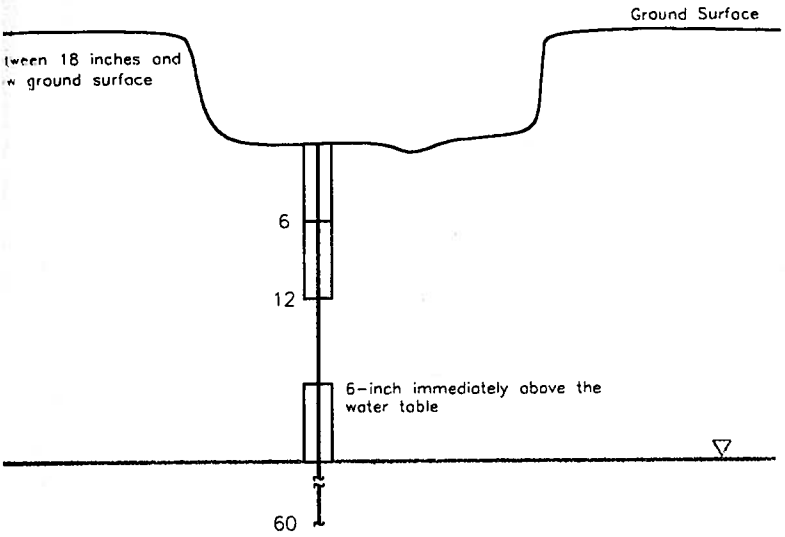
- Condition I - Organoleptic evidence of impacted sediments. If organoleptic evidence of impacted sediments is present deeper than 12 inches below grade, the third sample interval will include the 6-inch interval immediately below the deepest evidence of impacted material (Figure 4, Condition I.A). If the organoleptic evidence of impacted material is confined to the upper 12 inches, then the boring will be advanced to a depth of 60 inches below grade, and the third sample interval will be collected from 12-18 inches below grade (Figure 4, Condition I.B).

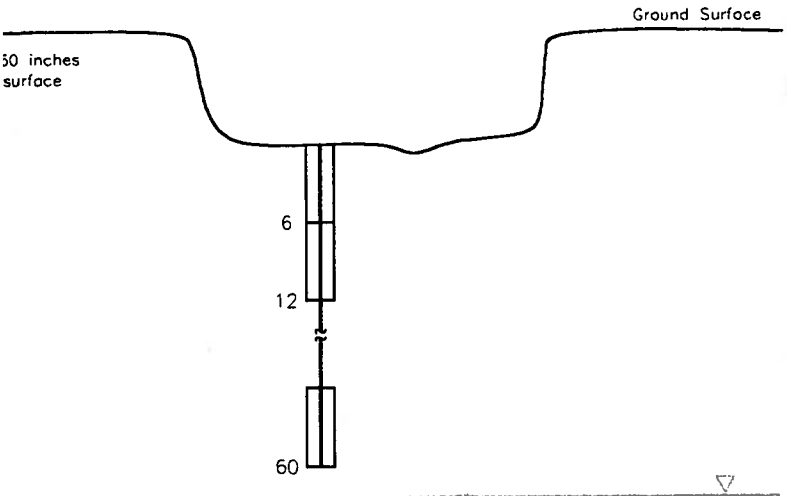
- Condition II - No organoleptic evidence of impacted sediments. At each sampling location where there is no organoleptic evidence of impacted sediments, the depth of the third sample interval will be based on the depth of the water table as determined by field observations of sediment saturation. If the water table is within the upper 18 inches below grade, then the third sample interval will be from 12-18 inches below grade (Figure 4, Condition II.A). If the water table is between 18 and 60 inches below grade, then the third sample will be collected from the 6-inch interval above the water table (Figure 4, Condition II.B). If the water table is deeper than 60 inches below grade, then the third sample interval will be from 54-60 inches below grade (Figure 4, Condition II.C).

A *Sediment Sampling Record* will be completed for each sampling location. An example *Sediment Sampling Record* is included in Appendix D.

ON II : NO ORGANOLEPTIC EVIDENCE OF IMPACTED SEDIMENT WITHIN DITCH AREA







Legend:

- Organoleptic Evidence of Impacted Sediment
- Water Table
- Depth of Boring Location/Vertical Extent of Logging Activities
- Represents a 6-inch Sample Interval
- Complete Vertical Interval Not Depicted
- 12 — Depth Below Ground Surface in Inches

Note: The above depictions are Not to Scale.

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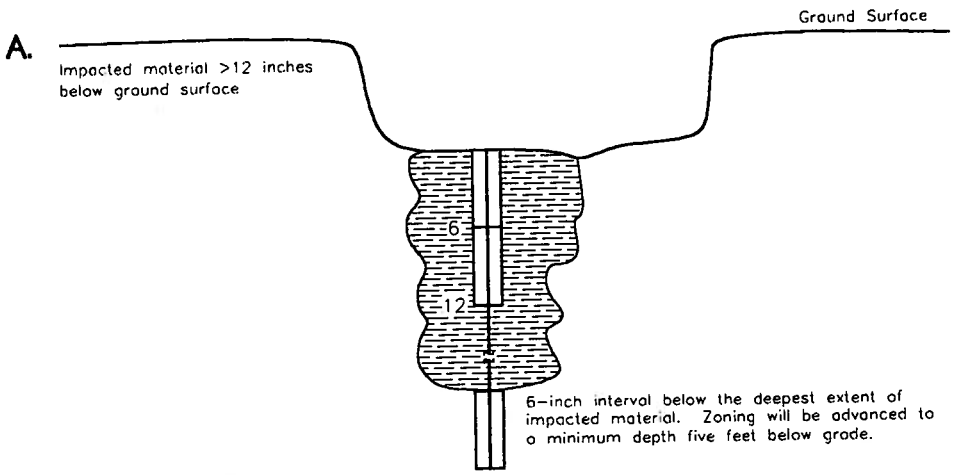
FIGURE 4
SCHEMATIC DEPICTION OF SEDIMENT SAMPLE INTERVALS

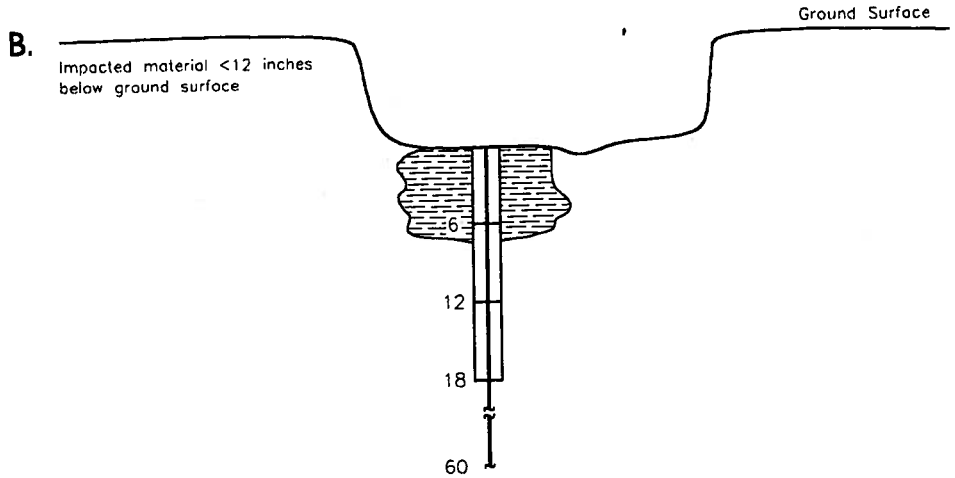
Kerr-McGee Chemical LLC
Columbus, Mississippi

DESIGN: BAC	CHKD.: BAC	DATE: 08/28/00	REV.:
DRAWN: MMH	SCALE: N.T.S.	W.O.NO.: 51503A04F00	

ERM

CONDITION I: ORGANOLEPTIC EVIDENCE OF IMPACTED SEDIMENT WITHIN DITCH AREA





Sediment samples will be collected using one or more of the following sampling devices: a stainless steel hand auger, a stainless steel scoop, a hand-operated vibracore-type sampler, or a bucket auger rig equipped with hollow stem augers. Cores will be logged by a geologist and appropriate information will be recorded in a field logbook. Prior to sampling, the exterior of each core will be trimmed to reduce the potential for cross contamination between sample intervals. The appropriate 6-inch sample intervals will then be homogenized in a decontaminated stainless steel bowl prior to transfer to laboratory-supplied containers. As necessary and to the extent practicable, KMC-FPD will complete additional lateral delineation borings downgradient in the ditch if field conditions indicate facility-related impacted material at the currently proposed downgradient sampling location.

The ditch sediment samples will be collected, bottled, and preserved according to the approved facility Sampling and Analysis Plan (SAP) that was followed during the Phase I RFI investigation. The sediment samples will be shipped via overnight delivery to Southwest Laboratory of Oklahoma, Inc. for analysis of semivolatile organic constituents by USEPA Methodology SW846-8270. Sediment from at least two locations, based on the field determinations, will be submitted for leachate testing by USEPA's toxicity characteristic leaching procedure (TCLP). The leachate will be analyzed for semivolatile organic constituents by USEPA Methodology SW846-8270. The TCLP analyses are being performed to identify the potential for constituents in impacted sediment, if present, to leach to surface water or shallow ground water.

Following completion of the sediment sampling, each sample location will be surveyed for location and elevation utilizing Trimble Pro-XR Global Positioning System (GPS) equipment. Impacted sediment and decontamination water that is generated during sampling activities will be containerized and transported to the KMC-FPD facility, and will be handled by KMC-FPD waste management personnel.

In addition to the sediment sampling, a total of five surface water samples will be collected at the locations shown in Figure 3. The samples will be collected prior to any sediment sampling activities to reduce the potential of unrepresentative turbidity in the ditch water. To the extent practicable, laboratory supplied sample containers will be directly submerged into the ditch. Each of the samples will be analyzed for semivolatile organic constituents by USEPA Methodology SW846-8270.

Methods utilized for the management and use of the collected data will follow the Data Management Plan (DMP) that was prepared for the Phase I RFI investigation. Both the SAP and DMP are included as appendices in the RFI Phase I Workplan (Grant, 1995), and are utilized by reference in this Workplan.

4.0 *SCHEDULE OF IMPLEMENTATION*

It is estimated that supplemental RFI activities will require approximately five months to complete after approval of the *Revised Supplemental Phase II RFI Workplan* is received. The schedule listed below indicates the time duration and/or dates for each major task of the supplemental RFI Phase II activities.

1. *Revised Supplemental RFI Phase II Workplan* submittal to MDEQ/USEPA – July 10, 2000
2. Conduct Supplemental Phase II RFI Activities -

   Obtain access agreements for offsite sampling - 4 weeks

   Conduct field work - 1 week

   Complete laboratory analyses - 3 weeks

   Delivery of laboratory report – 1 week

   Prepare draft report - 6 weeks

   Complete final report - 30 days after draft approval

5.0 *RFI REPORT PREPARATION*

5.1 *PROGRESS REPORTS*

KMC-FPD will prepare and submit quarterly progress reports during the supplemental Phase II RFI activities. The reports will begin 90 days after the implementation of the *Revised Supplemental RFI Phase II Workplan*. The contents of the progress reports are specified in the HSWA permit. The following outline will be used:

1. Description of RFI completed to date
2. Summary of findings
3. Summary of Agency contacts
4. Changes in relevant personnel
5. Projected work for next reporting period
6. Copies of daily reports, inspection reports and laboratory/ monitoring data, etc.

5.2 *SUPPLEMENTAL PHASE II RFI REPORT*

On completion of the supplemental RFI activities and receipt of analytical data, a Supplemental Phase II RFI report will be prepared. The contents of the report will be specified in the HSWA permit. The following outline will be used:

1. Description of current conditions
2. Area characterization
3. Summary
4. Conclusions

6.0 *PROJECT MANAGEMENT AND ORGANIZATION*

The field data acquisition team, including professional and support personnel, will be trained in the specific technical activities to which they will be assigned. Professional personnel will be trained in pertinent field data collection activities described in this *Revised Supplemental Phase II RFI Workplan*. Laboratory personnel will be trained in USEPA-approved procedures for conducting the assigned analyses. RFI team members will have completed safety training required for their specific work assignment in accordance with OSHA requirements and KMC-FPD standard operating practices.

The RFI manager for the supplemental Phase II RFI activities will be Mr. Barrett Cieutat. Mr. Cieutat is a geologist for Environmental Resources Management (ERM). The Health and Safety Officer for the project will be a KMC-FPD employee or FPD representative as determined by the RFI manager. The Health and Safety Officer will be responsible for monitoring compliance with the Health and Safety Plan. All RFI management and organizational procedures will follow those outlined in the Phase I RFI Workplan (Grant, 1995).

7.0 *REFERENCES*

Grant, KMCC etal, 1995, RFI Workplan, Columbus, Mississippi

Kerr-McGee Chemical Corporation, 1989a, Groundwater Quality Assessment Program, Columbus Mississippi

Kerr-McGee Chemical Corporation, 1990a, Groundwater Quality Assessment Report, Columbus, Mississippi

Kerr-McGee Chemical Corporation, 1990c, Post-Closure Permit Application, Part B, Volume I, Columbus, Mississippi

Kerr-McGee Chemical Corporation, 1990d, Post-Closure Permit Application, Part B, Volume II, Columbus, Mississippi

Kerr-McGee Chemical Corporation, 1992a, 1991 Annual/Semi-Annual Performance Evaluation and Groundwater Sampling Report, Columbus, Mississippi

Kerr-McGee Chemical Corporation, Forest Products Division, 1995a, Safety and Health Policy and Procedures Manual

United States Department of Agricultural, 1979, Lowndes County Soil Survey

Wasson, B.E., Golden, H.G., M.W., 1965, Water for industry development in Clay, Lowndes, Monroe and Oktibbeha Counties, Mississippi, Water Resources Division, USGS

RFI Correspondence
dated October 13, 1999
Appendix A

W.O. #515-03
Kerr-McGee Chemical LLC
Columbus, Mississippi

Environmental Resources Management
3501 N. Causeway Boulevard, Suite 200
Metairie, Louisiana 70002
(504) 831-6700

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

OCT 13 1999

4WD-RCRA

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Stephen A. Ladner
Staff Environmental Specialist
Kerr-McGee Chemical Corporation
Forest Products Division
Kerr-McGee Center
Oklahoma City, Oklahoma 73125

SUBJ: Supplemental RFI Activities
Off-Site Drainage Ditch
Columbus, Mississippi Facility
EPA I.D. Number MSD 990 866 329

Dear Mr. Ladner:

The U. S. Environmental Protection Agency (EPA), Region 4 has reviewed the results of sediment sampling conducted in the ditches which drain the above-referenced facility. The sampling was conducted by the Mississippi Department of Environmental Quality (MDEQ). This sampling event took place on July 1, 1999 and the results were submitted to EPA in a memo dated August 24, 1999. The MDEQ investigated the drainage ditch sediments in response to a complaint filed by the Marantha Faith Center, following the removal of a steel culvert from the ditch during construction activities at the Center. The areas sampled generally coincide with those areas investigated by Kerr-McGee during the Phase II RFI and identified as the Off-Site Drainage Ditches.

During the Phase II RFI, Kerr-McGee detected low concentrations of polynuclear aromatic hydrocarbon (PAH) constituents which exhibited a rapid decline in concentration moving downstream from the facility. In the Phase II RFI Report submitted to EPA, Kerr-McGee presented the analytical results of this sampling and advocated natural attenuation as the remedy for the constituents in the ditches. This proposed remedy was supported by the low concentrations of constituents detected, source controls in place at the facility, preventing the current discharge of constituents to the ditches, proposed routine monitoring of the sediments at the NPDES outfalls to demonstrate continued attenuation and source control, the presence of other potential sources of this contamination and the lack of control to mitigate further impacts

from these sources, and the reduced mobility and bioavailability of the constituents due to their low solubilities and corresponding high sorption to the soil/sediment matrix.

The analytical results obtained from the MDEQ sampling event indicate concentrations of the constituents of concern in the downstream areas several times higher than levels detected by Kerr-McGee during the Phase II RFI. The differences in concentrations detected between the two sampling events appear to reflect the sampling methodology used to collect the samples. MDEQ utilized 6" stainless steel auger buckets to obtain sediments below the stream bed, while Kerr-McGee collected sediments from the bottom surface of the ditches. For exposure purposes, the upper sediments would present the greatest potential for exposure from direct contact and from a bioavailability standpoint. However, the purpose of the RFI is to establish the extent of contamination, both laterally and vertically, before a complete exposure assessment can be performed. As the potential for contamination in the ditches would be higher from an historical perspective, an investigation of the deeper soils and sediments underlying the ditches is required. This investigation should focus on areas of the ditches where sediment deposition would be greatest (i.e., deep pools, downstream of obstructions, on the outside of bends, etc.). It was also stated in the Phase II RFI Work Plan that surface water samples would be obtained from the ditches to demonstrate that the constituents present in the sediments is not leaching to the water column. This sampling is also required.

The Supplemental RFI activities should be presented as an addendum to the RFI, utilizing the protocols established in the previous RFI Work Plans for performing the investigation and submitting the report. This Work Plan addendum should be submitted to this office within thirty (30) days of receipt of this letter. Until the RFI process is completed, you have not fulfilled the requirements of your HSWA permit. Failure to comply with any permit condition may result in enforcement actions initiated by EPA pursuant to Section 3008 of RCRA, 42 U.S.C. 6928, under which EPA may seek the imposition of penalties of up to $27,500 per day of continued noncompliance.

Should you have any questions or comments in regard to the requirements contained in your HSWA permit or your obligation to respond to these requirements, please contact Russ McLean of the South Programs Section at (404) 562-8504.

Sincerely,

Patricia Herbert, for

Narindar Kumar, Chief
RCRA Programs Branch
Waste Management Division

cc: Bruce Ferguson, MDEQ

RFI Correspondence
dated March 9, 2000, March 31, 2000 and May 5, 2000

Appendix B

W.O. #515-03
Kerr-McGee Chemical LLC
Columbus, Mississippi

Environmental Resources Management
3501 N. Causeway Boulevard, Suite 200
Metairie, Louisiana 70002
(504) 831-6700

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

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CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Stephen A. Ladner
Staff Environmental Specialist
Kerr-McGee Chemical LLC
Forest Products Division
Kerr-McGee Center
Oklahoma City, Oklahoma 73125

SUBJ: Notice of Technical Inadequacy
Supplemental Phase II RFI Work Plan
Columbus, Mississippi Facility
EPA I. D. Number MSD 990 866 329

Dear Mr. Ladner:

The U. S. Environmental Protection Agency (EPA), Region 4 has reviewed the Supplemental Phase II RFI Work Plan dated December 17, 1999. Based on this review, EPA has determined that the document is technically inadequate as noted in the enclosed comments.

You should address the enclosed comments in a revised Phase II RFI Work Plan. This revised Work Plan should be submitted to this office within thirty (30) days of receipt of this letter. Until the RFI process is completed, you have not fulfilled the requirements of your HSWA permit. Failure to comply with any permit condition may result in enforcement actions initiated by EPA pursuant to Section 3008 of RCRA, 42 U.S.C. 6928, under which EPA may seek the imposition of penalties of up to $27,500 per day of continued noncompliance.

Should you have any questions or comments in regard to the requirements contained in your HSWA permit or your obligation to respond to these requirements, please contact Russ McLean of the South Programs Section at (404) 562-8504.

Sincerely,

N. M. Kumar

Narindar M. Kumar, Chief
RCRA Programs Branch
Waste Management Division

Enclosure

cc: Bruce Ferguson, MDEQ

REVIEW COMMENTS
SUPPLEMENTAL PHASE 11 RFI WORK PLAN
KERR-MCGEE CHEMICAL LLC
COLUMBUS, MISSISSIPPI FACILITY

2.0 DESCRIPTION OF CURRENT CONDITIONS

Provide a characterization of the hydrogeological conditions in this area, including the ground water/surface water interaction with regard to the drainage ditches and Luxapallila Creek.

3.2 DRAINAGE DITCH SAMPLING PROGRAM

As stated in the opening paragraph to this section, the purpose of the sampling program is to determine the offsite extent of affected material and to characterize the significance of the constituents. The sampling program then proposes to collect sediment samples from two depth intervals, 0-6 inches and 6-12 inches, at six ditch locations.

In order to delineate the vertical extent of contamination, it is suggested that the initial samples be taken for analyses at the two depth intervals described above with additional samples collected as follows. Sampling shall consist of the collection of an undisturbed soil core extending through the entire length of the unsaturated zone. Core samples shall be inspected for organoleptic evidence of contamination, with at least one additional sample collected for analysis in the interval immediately below the deepest observed contamination. Should no evidence of contamination exist throughout the core, a sample should be collected for analysis in the interval immediately above the top of the water table. For delineating the lateral extent of affected material, soil core samples should continue to be obtained, using the same sampling protocol described above, proceeding downstream toward Luxapallila Creek until no evidence of contamination is exhibited.

In addition to the six (6) locations identified for sampling in the work plan, 12 -15 observational core samples shall be collected, throughout the entire length of the affected ditches. Soil cores shall be collected through the entire unsaturated soil interval, at locations approximately equidistant from the six (6) locations identified in the work plan and continuing downstream to Luxapallila Creek. A full lithologic description of all cores shall be recorded along with any observed evidence of contamination.

The presence of hazardous constituents, above relevant action levels, in soils at depth will necessitate an investigation of the ground water in this area Should evidence of contamination be identified in the soil cores, it may be more expedient and cost effective to consider pulling ground-water samples at select sampling location during this phase of the investigation.

3.2.2 Sampling Program

Specify the sampling equipment to be used for collecting undisturbed soil cores and the protocols for collecting the samples.

It is stated that sediment from at least two locations will be submitted for leachate testing using the TCLP. Provide the rationale for performing this analysis.

A surface water sample should be collected at the six (6) soil sampling location identified in the work plan. These surface water samples shall be analyzed for semi-volatile organic constituents using EPA Method SW846-8270.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
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ATLANTA, GEORGIA 30303-8960

APR 10 2000

MAR 31 2000

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CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Stephen A. Ladner
Staff Environmental Specialist
Kerr-McGee Chemical LLC
Forest Products Division
Kerr-McGee Center
Oklahoma City, Oklahoma 73125

SUBJ: Time Extension
Supplemental Phase II RFI Work Plan
Columbus, Mississippi Facility
EPA I.D. Number MSD 990 866 329

Dear Mr. Ladner:

The U.S. Environmental Protection Agency (EPA), Region 4 has received your request for a time extension for submittal of the revised Supplemental Phase II RFI Work Plan. You also requested a meeting with EPA to discuss and clarify the scope of the investigation. Per phone conversations between you and Russ McLean of my staff, a meeting has been scheduled in EPA's Regional Office in Atlanta for Tuesday, April 11, 2000 at 10:00 a.m.

The requirement for submittal of the revised Supplemental Phase II RFI Work Plan, as specified in the Notice of Technical Inadequacy of March 13, 2000, is suspended pending the meeting on April 11th. A new submittal date will be identified at this meeting.

Should you have any questions or comments in regard to the meeting, please contact Russ McLean of the South Programs Section at (404) 562-8504.

Sincerely,

Patricia Herbert, for

Narindar M. Kumar, Chief
RCRA Programs Branch
Waste Management Division

cc: Jerry Cain, MDEQ

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
100 ALABAMA STREET, S.W.
ATLANTA, GEORGIA 30303-3104

MAR 0 5 2000

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CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Stephen A. Ladner
Staff Environmental Specialist
Kerr-McGee Chemical LLC
Forest Products Division
Kerr-McGee Center
Oklahoma City, Oklahoma 73125

SUBJ: Submittal Date
Supplemental Phase II RFI Work Plan
Columbus, Mississippi Facility
EPA I. D. Number MSD 990 866 329

Dear Mr. Ladner:

As stated in our letter to you, dated March 31, 2000, the U. S. Environmental Protection Agency (EPA), Region 4 would identify a new submittal date for the revised Supplemental Phase II RFI Work Plan during our meeting of April 11, 2000. At the meeting it was agreed that submittal of the revised Work Plan would occur no later than ninety (90) days following the meeting. Submittal of the revised Work Plan shall be made to this office no later than July 10, 2000.

Should you have any questions or comments in regard to the meeting, please contact Russ McLean of the South Programs Section at (404) 562-8504.

Sincerely,

N. M. Kumar

Narindar M. Kumar, Chief
RCRA Programs Branch
Waste Management Division

cc: Jerry Cain, MDEQ

RFI Correspondence
dated July 30, 1997
Appendix C

W.O. #515-03
Kerr-McGee Chemical LLC
Columbus, Mississippi

Environmental Resources Management
3501 North Causeway Boulevard, Suite 200
Metairie, Louisiana 70002
(504) 831-6700

KERR-McGEE CHEMICAL CORPORATION
KERR-McGEE CENTER • OKLAHOMA CITY, OKLAHOMA 73125

July 30, 1997

Mr. Bruce Ferguson
Office of Pollution Control
Mississippi Department of Environmental Quality
2380 Highway 80 West
Jackson, Mississippi 39204

RE: RFI Phase I Report Revisions
EPA I.D. Number MSD 990-866-329
Hazardous Waste Permit Number HW-90-329-01
Kerr-McGee Chemical Corporation - Forest Products Division
Columbus, Mississippi Facility

Dear Mr. Ferguson:

Kerr-McGee Chemical Corporation - Forest Products Division (KMCC-FPD) is in receipt of your correspondence dated July 14 , 1997 which details comments based upon review of KMCC-FPD's RFI Phase I Report for the Columbus facility. Based on our meeting at the Mississippi Department of Environmental Quality (MDEQ) offices on June 26th and follow-up conference call on the 27th, KMCC-FPD presents the following responses to your comments. The MDEQ comment will be listed first in italics, followed by the KMCC-FPD response.

1) MDEQ - *Section 5.4 of the RFI Workplan states that the integrity of containment systems within SWMA II will be assessed and the assessment will be modeled after the recommendations contained in the 1993 USEPA publication, "Determining the Integrity of Concrete Sumps: Technical Guidance Document." The RFI report states that the integrity of the containment systems is assessed by facility personnel, however, there is no documentation as to how the integrity of the containment systems was assessed. The protocol and results of the sump integrity assessments should be clearly documented.*

KMCC-FPD - The current inspection of the containment systems by facility personnel may be sufficient to meet the recommendations of the USEPA guidance document, however, KMCC-FPD will review the guidance recommendations and initiate procedures and documentation as required. This information will be provided in the RFI Phase II Workplan to be prepared at a later date.

2) MDEQ - *Section 6.2.1of the RFI Report states that soil sample SB6 did not contain creosote constituents exceeding the Health Based criteria. This statement does not correspond to Table 7 which shows benzo(a)anthracene and benzo(a)pyrene as being above the Health Based criteria.*

KMCC-FPD - For clarity and uniformity, the Health Based soil criteria has been replaced in the tables with Region III Risk Based Concentration criteria - industrial soil ingestion scenario (see comment #3). Based on these data for comparison, sample SB6 does not contain creosote

constituents exceeding these criteria. The appropriate revisions are included as attachments to his correspondence.

3) MDEQ - *Region III, June 1996 is referenced in the analytical summary tables. The health based limit listed in the table appears to be calculated using the methodology in the RFI Guidance, May 1989, and not that used by Region III for the Risk Based Concentration Tables.*

KMCC-FPD - The analytical summary tables and report text will be revised to include the Region III Risk Based Concentrations rather than health based data. The revised tables are included as attachments to this correspondence.

4) MDEQ - *Section 6.3.1. of the RFI report states that shallow soil borings SD6 and SD9 did not detect creosote constituents, however, they did have several "J" flags. Test Methods for Evaluating Solid Waste, Volume IA, SW-846 defines the method detection limit as "the minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix type containing the analyte." While these "J" flags may not be accurately quantifiable, the Office views these results as detects.*

KMCC-FPD - Again, while soil borings SD6 and SD9 did detect creosote constituents as "J" indicators, these values do not exceed the Region III Risk Based Concentration criteria. However, these "J" values did exceed the previously used Health Based criteria. The revised page(s) are included as attachments to this correspondence.

5) MDEQ - *A number of constituents were determined to be present in the drainage ditches at the site. With the exception of the ditch labeled 001, the concentrations where the ditch exits the facility were consistently greater than samples taken upstream. The report state that TCLP analyses of the sediment samples were non-detect, however, sample 002B showed detects of naphthalene and phenanthrene at quantifiable levels and acenaphthalene and carbazole at estimated levels. The extent of contamination in the drainage ditches should be fully characterized to non-detect levels. In addition, to this investigation at least one surface water sample should be taken at each discharge point and analyzed for all K001 constituents.*

KMCC-FPD - Section 6.4.1. includes the TCLP reference to sample 002B. This section will be revised to agree with the laboratory results. The revised page will be included as an attachment to this correspondence.

The additional sediment assessment of the ditches offsite from the facility along with surface water sampling will be proposed in a Phase II RFI Work Plan to be prepared following final approval of the Phase I report.

6) MDEQ - *All of the surficial samples collected show concentrations of constituents above health based criteria with the exception of SD9. The lateral extent of the surficial contamination should be defined.*

KMCC-FPD - Issues pertaining to surficial soil impact at the facility, including potential delineation of the lateral extent of the impact, will be addressed in the Phase II RFI Work Plan.

7) MDEQ - *It is stated throughout the report that extensive soil investigations through previous assessments have delineated the existing contamination at the facility. This previous information should be incorporated into the investigations conducted during this RFI to fully delineate the soil contamination at the facility. This data should be presented in the form of isoconcentration maps for the constituents of concern, cross sections showing the vertical distribution of these constituents, etc.*

KMCC-FPD - The soil investigation data collected in previously studies at the facility will be incorporated in the Phase II Work Plan in conjunction with the proposed resolution of the surficial soil impact issue (see comment #6). These data can be presented in a map and cross-section format for clarity and consistency.

8) MDEQ - *The RFI Work Plan indicated that the borings and surface soil samples would be made near the secondary O/W separator, wastewater pipes, polymer addition area and holding tank area as depicted in Figure 5.1 of the Work Plan. The locations shown on Figure 15 do not appear to follow this strategy. Explain what criteria were used for siting the sample locations. Indicate on Figure 12 the actual boring and surface soil sampling locations.*

KMCC-FPD - The proposed locations for the borings and surface sample locations shown on Figure 5.1 of the Work Plan were chosen based on ideal proximity to the units in question. At the time field work was initiated it was found that most of the locations could not be drilled or sampled because of overhead power lines, underground utilities, building clearances, and concrete slabs. The actual locations for the borings and soil samples have been spotted on revised versions of Figures 12 and 14. These maps are included as an attachment with this correspondence.

9) MDEQ - *Samples 005A and 005B appear to be taken from a ditch that receives runoff from an area of the facility that is used to store non-treated wood, yet, these samples show a remarkable amount of contamination. The RFI report should address what the source is for the contamination in samples 005A and 005B.*

KMCC-FPD - Using Figure 14 as a reference, drainage ditch outfall 002 flows off the facility property to the north and then flows along the north property line to the east to connect with outfall ditch 005. The source of contamination noted in the sediment samples from the 005

Sediment Sampling Record

Appendix D

W.O. #515-03
Kerr-McGee Chemical LLC
Columbus, Mississippi

Environmental Resources Management
3501 North Causeway Boulevard, Suite 200
Metairie, Louisiana 70002
(504) 831-6700

FIGURE 1

SEDIMENT SAMPLING RECORD

Sample Location: _____ Sample Number: _____

Sample Date: _____, 19____ Time of Sampling: _____ a.m. / p.m.

Reason for Sampling: Regular Sampling _____ Special Sampling _____

Sample Collected By: _____

Weather: _____

Location Photographed ? yes / no Location Staked / Flagged / Numbered ? _____

Equipment Cleaning Materials:	Equipment Cleaned:
- potable water & phosphate-free soap - potable water rinse - water rinse (distilled, deionized) - air dry	

Observation of water (appearance, odor, other comments):

Flow Conditions (movement / standing):

On-Site Measurements:

pH: _____ Measured with: _____
Temperature: _____ Measured with: _____
Specific Conductivity: _____ Measured with: _____
Dissolved Oxygen: _____ Measured with: _____

Observation of Sample (Sediment particle size, color, odor):

Sample Containers

(material, number, size): _____

On-Site Sample Preservation

_____ None _____ Added to Containers by Laboratory

_____ Added in field

Method: _____ Containers: _____
Method: _____ Containers: _____
Method: _____ Containers: _____

Container Handling

_____ Container Sides Labeled and Labels Taped
_____ Container Lids Taped
_____ Container Placed in Ice Chest

Other Comments / Sketch of Sample Location (if appropriate):

_____ Sampler's Signature: _____ Date: _____

ENVIRONMENTAL RESOURCES MANAGEMENT

Kerr-McGee Chemical LLC
Forest Products Division
Columbus, Mississippi

Revised Supplemental Phase II RFI Workplan

June 27, 2000

W.O. #515-03

Environmental Resources Management
3501 North Causeway Boulevard, Suite 200
Metairie, Louisiana 70002
(504) 831-6700

ERM®

5/20
2.4

A.T. Kearney, Inc.
225 Reinekers Lane
P.O. Box 1405
Alexandria, Virginia 22313
703 836 6210

Management
Consultants

ATKEARNEY

May 19, 1988

Mr. Jeffrey H. Ovull
Kerr-McGee Chemical Corporation
607 14th Street No.
Columbus, MS 39701

Reference: EPA Contract No. 68-01-7038; Work Assignment No. R04-03-75; Visual Site Inspection Notification for Kerr-McGee Chemical Corporation, Columbus, MS (MSD 990 866 329)

Dear Mr. Ovull:

Mr. David Bockelman of the Mississippi Department of Natural Resources (MDNR) has requested that A. T. Kearney transmit this notification letter to you for the upcoming Visual Site Inspection (VSI) of your facility.

The Environmental Protection Agency (EPA) Region IV is requesting us to conduct a RCRA Facility Assessment (RFA) of the Kerr-McGee Chemical Corporation facility in Columbus, Mississippi. The 1984 Hazardous and Solid Waste Amendments (HSWA) provide new authority to EPA requiring comprehensive corrective actions on unregulated releases of hazardous constituents to air, surface water, ground water, soil, and subsurface gas generation.

The RFA includes a desk-top review of RCRA and CERCLA files at the Regional and state offices, a VSI of the facility, and if necessary, a sampling visit (SV). The purpose of the VSI is to:

1. Survey the site for hydrogeologic, geologic, and surficial features.

2. Identify solid waste management units (SWMUs) and other areas of concern (AOCs).

3. Review site information with facility representatives.

Attachment I presents a summary of information needs for the above-referenced facility. We would like to conduct a VSI on June 7, 1988. Photographs are to be taken of all SWMUs and AOCs at the facility.

The following individuals from the Kearney/Centaur Division of A. T. Kearney, Inc., will conduct the VSI:

L. Venkateshwara
D. LaRusso (Team Leader)

Please contact David Bockelman, MDNR, (who can be reached at 601/961-5070) if you have any questions concerning the VSI.

Sincerely,

Gayle Kline

Gayle Kline
Technical Director

Enclosure

cc: B. Foster, EPA Region IV
C. Falconer, EPA Region IV
C. Estes, MDNR
D. Bockelman, MDNR
J. Grieve
J. Levin
D. LaRusso
G. Bennsky
L. Venkateshwara
D. McNulty

4308E

ATTACHMENT I

ITEMS FOR REVIEW DURING VISUAL SITE INSPECTION
KERR-MCGEE CHEMICAL CORPORATION
COLUMBUS, MISSISSIPPI

General Items

- Provide information on the land use of the Kerr-McGee Chemical Corporation facility prior to installation of the wood preserving plant.
- Provide analytical results from all soil, surface water, air, and ground-water samples taken during operation of the facility.
- Spill/release history (including type of spill/release, location, volume, and clean-up procedures).
- Process flow diagrams for disposition of wastes handled at Kerr-McGee Chemical Corporation.
- Aerial photographs of the facility.
- History of the facility.
- Provide detail schematic for industrial and sanitary sewer lines.
- Provide a description of the two HWM units.
- Topographical map.
- Provide base map identifying all buildings and operations that occur in the buildings.
- Provide flood plain information for the facility.

- Provide details of final closure of the surface impoundments, including disposition of materials removed or treated.

- Identification of past or present solid waste management units which have not been previously identified. Include a brief description of wastes managed in these units and the period of operation. These include:

  - Present and former waste storage areas
  - All waste and product transfer areas, and associated activities including waste accumulation areas and loading areas
  - Waste treatment and disposal locations
  - Storage tanks including above ground and underground

- Provide the following information for the ground-water monitoring system:

  - Number, location, and identifier of each well
  - Dates of operation/age
  - Design features
  - Justification for location of each well
  - Schematic showing location of all monitoring wells
  - Sampling results

ATTACHMENT I (continued)

Potential Solid Waste Management Units

- For each of the following potential solid waste management units, provide a description of the unit, including dimensions, material of construction and function; composition of wastes managed; period of operation; history of releases; regulatory status; and any release controls.

Two Surface Impoundments (708,400-gallon capacity)
Primary Oil/Water Separator
Secondary Dual Compartment Oil/Water Separator
Aeration Pond
Oxidation Pond
Tank (60,000-gallon capacity)
Surface Impoundment (15,000-gallon capacity)
Two Aerobic Lagoons
Two Waste Piles
Two Sand Filter Beds
Settling Pond
Three Waste Water Treatment Units
Four Condensate Tanks
Two HWM

Potential Areas Of Concern

- For each of the following potential areas of concern provide a description of the unit, including dimensions, material of construction and function; composition of wastes managed; period of operation; history of releases; regulatory status; and any release controls.

Two Boilers
Two Cyclones

A.T. Kearney, Inc.
225 Reinekers Lane
P.O. Box 1405
Alexandria, Virginia 22313
703 836 6210

Management
Consultants

AT KEARNEY

July 28, 1988

Ms. Rowena Sheffield
Regional Project Officer
U.S. Environmental Protection Agency
Region IV
345 Courtland Street, N.E.
Atlanta, GA 30365

Reference: EPA Contract No. 68-01-7038; Work Assignment No. R04-03-75; Kerr-McGee, Columbus, Mississippi; Project Plan Revision 2

Dear Ms. Sheffield:

Enclosed please find the revised staffing chart and schedule for the Kerr-McGee facility in Columbus, Mississippi. Due to scheduling conflicts, the Work Assignment Manager has been changed from Dorothy LaRusso to Phebe Davol. In addition, the deliverable due date has been postponed, as agreed to by Caron Falconer, the Technical Monitor.

All applicable A.T. Kearney conflict of interest avoidance procedures have been adhered to for the proposed firms and staffs.

Also enclosed is a project plan approval sheet which you should sign and return to James Levin at Kearney/Centaur Division, 225 Reinekers Lane, Alexandria, VA 22314.

Please feel free to call me or Phebe Davol, the Work Assignment Manager (who can be reached at 703/683-7932), if you have any questions.

Sincerely,

Gayle Kline

Gayle Kline
Technical Director

Enclosure

cc: A. Pearce, EPA OSW
C. Miron, EPA Contracts
C. Falconer, EPA Region IV
B. Foster, EPA Region IV
J. Mabry, MDNR
J. Levin
J. Grieve
G. Bennsky
D. McNulty
P. Davol
M. Sulesky
D. LaRusso
W. Rohrer, DPRA

0186e

EPA Contract No. 68-01-7038
Work Assignment No. R04-03-75
Kerr-McGee
Columbus, Mississippi

Revision 2
July 28, 1988

Regional Project Plan Approval

I have reviewed the attached project plan and find it meets our criteria for technical accuracy. The projected cost/hour estimates are also acceptable.

APPROVAL:

_____ _____
EPA Regional Project Officer Date

CONCURRENCE:

_____ _____
A. T. Kearney Program Director Date

cc: EPA Headquarters Project Officer

EPA Contract No. 68-01-7038
Work Assignment No. R04-03-75
Kerr-McGee
Columbus, Mississippi

Revision 2
July 28, 1988

STAFF			TASK						
Name	Firm[1/]	Labor Category[2/]	01	02	03	04	98[3/]	99[4/]	TOTAL
Technical Director									
G. Kline	ATK	P3	4	-	-	-	-	8	12
Work Assignment Manager									
P. Davol	ATK(K/C)	P3	4	-	-	-	-	16	20
Staffing									
G. Bennsky	ATK	P4	1	-	-	-	-	1	2
D. McNulty	ATK	T2	4	-	-	4	-	-	8
L. Rao	ATK	P2	-	24	8	72	-	-	104
Tech. Support	ATK		4	4	-	26	-	-	34
P. Davol	ATK(K/C)	P3	-	-	-	28	-	-	28
D. LaRusso	ATK(K/C)	P4	-	18	8	-	-	-	26
M. Sulesky	ATK(K/C)	T1	2	-	-	8	-	-	10
L. Goldberg	TETC	P2	-	4	-	-	-	-	4
Quality Control									
W. Rohrer	DPRA	P4	-	-	-	-	8	-	8
Tech. Support	DPRA		-	-	-	-	3	-	3
TOTALS			19	50	16	138	11	25	259

1/ ATK = A. T. Kearney, Inc.
ATK(K/C) = A. T. Kearney/Centaur Division
DPRA = Formerly Pope-Reid Associates
TETC = The Earth Technology Corporation

2/ Labor Category (e.g. P4, P3)

3/ Task 98 - Quality Control

4/ Task 99 - Project Management

EPA Contract No. 68-01-7038
Work Assignment No. R04-03-75
Kerr-McGee
Columbus, Mississippi

Revision 2
July 28, 1988

SCHEDULE

The project will be conducted according to the following schedule:

Milestones	Project Tasks	Milestone Dates
01	Prepare project plan Project plan revision 1 Project plan revision 2	05/04/88 06/08/88 07/28/88
02	Complete review and summarize file material; prepare for Visual Site Inspection	05/20/88
03	Complete Visual Site Inspection	06/24/88
04	Submit Interim RFA report to QC	08/10/88
05	Submit QC comments to WAM	08/12/88
06	Submit final deliverable to Kearney Technical Director	08/17/88
07	Final deliverable due to EPA	08/22/88
08	Task 99 - project management	In accordance with above milestones

EPA Contract No. 68-01-7038
Work Assignment No. R04-03-75
Kerr-McGee
Columbus, Mississippi

Revision 2
July 28, 1988

ATTACHMENT I

STAFF RESPONSIBILITY CHART

STAFF	ROLE	AREAS OF RESPONSIBILITY
G. Kline	Technical Director	Management and oversight
P. Davol	Work Assignment Manager	Day-to-day management and oversight, VSI, PR/VSI report
G. Bennsky	Regional Liaison	Initiates work; monitors project planning and implementation; conducts project performance evaluation
D. LaRusso	Technical Staff	File review, VSI
L. Rao	Technical Staff	File review, VSI, PR/VSI report
D. McNulty	Technical Assistant	Adminstrative services
M. Sulesky	Technical Assistant	Administrative services
W. Rohrer	Quality Control	Quality control review of PR/VSI report
L. Goldberg	Technical Staff	File search

A.T. Kearney, Inc.
225 Reinekers Lane
P.O. Box 1405
Alexandria, Virginia 22313
703 836 6210

Management
Consultants

ATKEARNEY

June 8, 1988

Ms. Rowena Sheffield
Regional Project Officer
U.S. Environmental Protection Agency
Region IV
345 Courtland Street, N.E.
Atlanta, GA 30365

Reference: EPA Contract No. 68-01-7038; Work Assignment No. R04-03-75; Kerr-McGee, Columbus, Mississippi; Project Plan Revision 1

Dear Ms. Sheffield:

Enclosed please find the revised schedule for the Kerr-McGee facility. This revision is necessary because the facility was unable to schedule the VSI until June 23. The schedule for the final devliverable has been changed accordingly and has been discussed with the Technical Monitor.

Please feel free to call me or Dorothy LaRusso, the Work Assignment Manager (who can be reached at 703/683-7932), if you have any questions.

Sincerely,

Gayle Kline

Gayle Kline
Technical Director

Enclosure

cc: A. Pearce, EPA OSW
C. Miron, EPA Contracts
C. Falconer, EPA Region IV
B. Foster, EPA Region IV
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J. Levin
J. Grieve
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D. McNulty
D. LaRusso
L. Rao
W. Rohrer, PRA
L. Goldberg, TETC

4177E-AM

EPA Contract No. 68-01-7038
Work Assignment No. R04-03-75
Kerr-McGee
Columbus, Mississippi

Revision 0
June 8, 1988

SCHEDULE

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07	Final deliverable due to EPA	07/28/88
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A.T. Kearney, Inc.
225 Reinekers Lane
P.O. Box 1405
Alexandria, Virginia 22313
703 836 6210

Management
Consultants

ATKEARNEY

May 31, 1988

Mr. Jeffrey H. Bull
Kerr-McGee Chemical Corporation
123 Robert S. Kerr Avenue
Oklahoma City, OK 73102

Reference: EPA Contract No. 68-01-7038; Work Assignment No. R04-03-75; Visual Site Inspection Notification for Kerr-McGee Chemical Corporation, Columbus, MS (MSD 990 866 329)

Dear Mr. Bull:

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4308E

ATTACHMENT I

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KERR-MCGEE CHEMICAL CORPORATION
COLUMBUS, MISSISSIPPI

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  - Schematic showing location of all monitoring wells
  - Sampling results

ATTACHMENT I (continued)

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