KOPPERS INC
COMPLIANCE
MSD007027543
CLOSURE PLAN SPRAY FIELD AI 00876

Koppers Inc

General Information

ID	Branch	SIC	County	Basin	Start	End
876	Energy and Transportation	2491	Grenada	Yazoo River	11/09/1981	

Address

Physical Address (Primary)	Mailing Address
1 Koppers Drive Tie Plant, MS 38960	PO Box 160 Tie Plant, MS 38960

Telecommunications

Type	Address or Phone
Work phone number	(662) 226-4584, Ext. 11

Alternate / Historic AI Identifiers

Alt ID	Alt Name	Alt Type	Start Date	End Date
2804300012	Koppers Inc	Air-AIRS AFS	10/12/2000	
096000012	Koppers, Inc.	Air-Title V Fee Customer	12/11/2006	
096000012	Koppers Industries, Inc.	Air-Title V Operating	03/11/1997	03/01/2002
096000012	Koppers Industries, Inc.	Air-Title V Operating	01/13/2004	03/26/2007
096000012	Koppers Inc	Air-Title V Operating	03/26/2007	01/01/2009
MSR220005	Koppers Industries, Inc.	GP-Wood Treating	09/25/1992	
MSD007027543	Koppers Industries, Inc.	Hazardous Waste-EPA ID	08/27/1999	
HW8854301	Koppers Industries, Inc.	Hazardous Waste-TSD	06/28/1988	06/28/1998
HW8854301	Koppers Industries, Inc.	Hazardous Waste-TSD	11/10/1999	03/26/2007
HW8854301	Koppers, Inc. (Owner)	Hazardous Waste-TSD	03/26/2007	09/30/2009
876	Koppers Industries, Inc.	Historic Site Name	11/09/1981	12/11/2006
876	Koppers, Inc.	Official Site Name	12/11/2006	
MSP090300	Koppers Industries, Inc.	Water-Pretreatment	11/14/1995	11/13/2000
MSP090300	Koppers Industries, Inc.	Water-Pretreatment	09/18/2001	08/31/2006
MSP090300	Koppers Inc	Water-Pretreatment	03/26/2007	02/28/2012
MSU081080	Koppers Industries, Inc.	Water-SOP	11/09/1981	11/30/1985

Regulatory Programs

Program	SubProgram	Start Date	End Date
Air	Title V - major	06/01/1900	
Hazardous Waste	Large Quantity Generator	08/27/1999	
Hazardous Waste	TSD - Not Classified	06/28/1988	
Water	Baseline Stormwater	01/01/1900	
Water	PT CIU	11/14/1995	
Water	PT CIU - Timber Products Processing (Subpart 429)	11/14/1995	
Water	PT SIU	11/14/1995	

Locational Data

Latitude	Longitude	Metadata	S / T / R	Map Links

33 ° 44 ' 3 .00 (033.734167)	89 ° 47 ' 8 .06 (089.785572)	**Point Desc:** PG- Plant Entrance (General). Data collected by Mike Hardy on 11/8/2005. Elevation 223 feet. Just inside entrance gate. **Method:** GPS Code (Psuedo Range) Standard Position (SA Off) **Datum:** NAD83 **Type:** MDEQ	Section: Township: Range:	SWIMS TerraServer Map It

4/3/2007 11:08:47 AM

Mississippi Department of Environmental Quality
Office of Pollution Control

I-sys 2000 Master Site Detail Report

Site Name: Koppers Industries Inc

PHYSICAL ADDRESS	
LINE 1:	Tie Plant Road
LINE 2:	
LINE 3:	
MUNICIPALITY:	Tie Plant
STATE CODE:	MS
ZIP CODE:	38960-

MAILING ADDRESS	
LINE 1:	PO Box 160
LINE 2:	
LINE 3:	
MUNICIPALITY:	Tie Plant
STATE CODE:	MS
ZIP CODE:	38960-

OTHER INFORMATION	
MASTER ID:	000876
COUNTY:	Grenada
REGION	NRO
SIC 1:	2491
AIR TYPE:	TITLE V
HW TYPE:	TSD
SOLID TYPE:	
WATER TYPE:	INDUSTRIAL
BRANCH:	Energy
ECED CONTACT:	
Collier, Melissa	
BASIN:	

AIR PROGRAMS	☑ SIP	☐ PSD	☐ NSPS	☐ NESHAPS	☐ MACT

Mississippi Department of Environmental Quality
Office of Pollution Control

Pemits

PROGRAM	PERMIT TYPE	PERMIT #	MDEQ PERMIT CONTACT	ACTIVE
AIR	TITLE V	096000012	Burchfield, David	YES
WATER	PRE-TREATMENT	MSP090300	Collins, Bryan	YES
HAZ. WASTE	TSD	HW8854301		YES
HAZ. WASTE	EPA ID	MSD007027543		YES
HAZ. WASTE	TSD	HW8854301	Stover, Wayne	YES

Compliance Actions

MEDIA	ACTIVITY TYPE	SCHEDULED	COMPLETED	INSPECTED B
HAZ WASTE	Financial Record Review	1/18/00	1/18/00	Twitty, Russ
WATER	CMI - PRETREATMENT			Whittington, Darryail
WATER	CEI - PRETREATMENT	9/30/00		Twitty, Russ
WATER	CEI - NA	9/30/00		Twitty, Russ
HAZ WASTE	Compliance Evaluation Inspection	9/30/00		Twitty, Russ
AIR	State Compliance Inspection	9/30/00		Twitty, Russ
WATER	CEI - NA	3/2/99	3/2/99	Twitty, Russ
HAZ WASTE	Compliance Evaluation Inspection	3/2/99	3/2/99	Twitty, Russ
AIR	State Compliance Inspection	3/2/99	3/2/99	Twitty, Russ

REPORT OF FINDINGS
SPRAY FIELD CHARACTERIZATION

KOPPERS COMPANY, INC
GRENADA, MISSISSIPPI SITE

Submitted to:
MISSISSIPPI DEPARTMENT OF NATURAL RESOURCES

Prepared by:
KEYSTONE ENVIRONMENTAL RESOURCES, INC.
Monroeville, Pennsylvania

April 23, 1987

Reviewed by K.G.
July 20, 1987

KEYSTONE
ENVIRONMENTAL RESOURCES, INC.

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ENVIRONMENTAL RESOURCES, INC.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF PHOTOGRAPHS

REPORT OF FINDINGS
SPRAY FIELD CHARACTERIZATION

1.0 INTRODUCTION

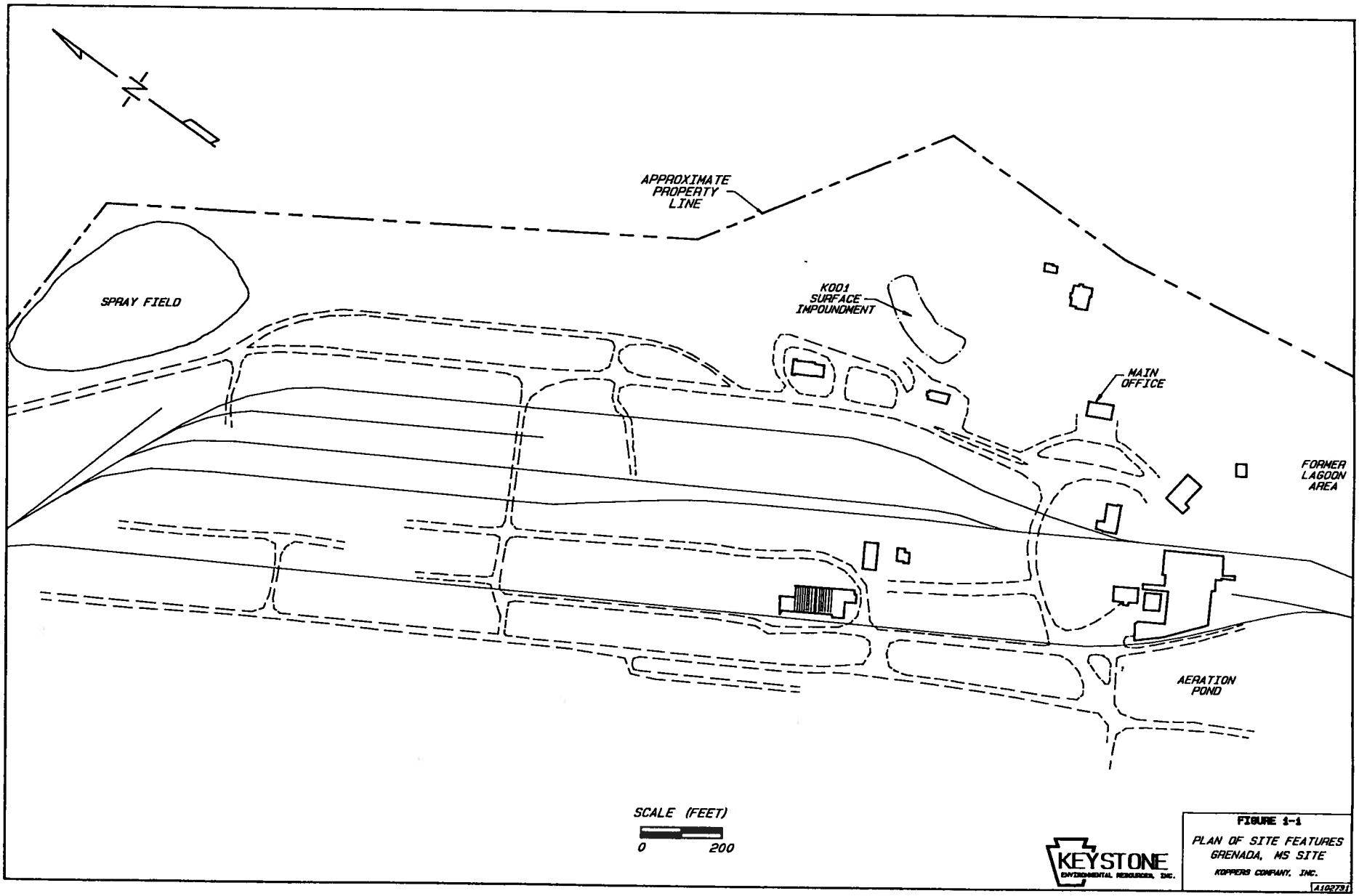
This document has been prepared by Keystone Environmental Resources, Inc., (Keystone) on behalf of Koppers Company, Inc. (Koppers) for their wood treating facility located near Grenada, Mississippi. This document contains the findings of an investigation conducted at the Grenada spray field during February and March, 1987. The work scope for this investigation was submitted by Keystone to the Mississippi Department of Natural Resources, Bureau of Pollution Control (MBPC) on February 13, 1987. The work scope was modified as per discussions with the MBPC and approval was granted to proceed on February 19, 1987.

This submittal is in compliance with item No. 2 of the Mississippi Commission of Natural Resources Order No. 1208-87. The extension for submittal from April 15 to April 24, 1987 was granted by the MBPC (letter from Mr. Gary Payne, MBPC to Mr. Ronald Morosky, Keystone, dated April 16, 1987).

1.1 Background

Koppers presently operates a wood treatment plant located near Grenada, Mississippi. The facility conducts wood treatment activities using creosote and pentachlorophenol preservatives. Wastewater generated at the plant is managed using product recovery techniques and also a surface impoundment and spray irrigation field. The plan locations of these two units are shown on Figure 1-1.

The surface impoundment is a RCRA-regulated unit (EPA I.D. No. MSD007027543) because it contains hazardous waste no. K001, "bottom sediment sludge from the treatment of wastewaters from wood preserving processes that use creosote and/or pentachlorophenol" (CFR 40, 1985). Treated wastewater is pumped as necessary to the spray field from the surface of the impoundment using a pump that has a floating intake. The frequency of pumping depends on water levels in the impoundment and climatic conditions.


N
APPROXIMATE PROPERTY LINE
SPRAY FIELD
K001 SURFACE IMPOUNDMENT
MAIN OFFICE
FORMER LAGOON AREA
AERATION POND
SCALE (FEET)
0
200
KEYSTONE
ENVIRONMENTAL RESOURCES, INC.
FIGURE 1-1
PLAN OF SITE FEATURES
GRENADA, MS SITE
KOPPERS COMPANY, INC.
A102791

1.2 Study Purpose

This investigation was conducted for the purpose of documenting that the Grenada plant spray field is not a regulated hazardous waste unit under RCRA. Koppers continues to assert that the spray field is not a regulated hazardous waste unit and completion of this investigation shall not be considered or deemed to be an admission by Koppers that the spray field is an RCRA hazardous waste unit. However, during a project status meeting on February 3, 1987, the MBPC proposed to Koppers and Keystone that a properly conducted demonstration would be acceptable evidence that the spray field is not a RCRA hazardous waste unit. The necessary goals of the demonstration (as stated in the MBPC-approved work plan) are:

- K001 bottom sediment sludge is not being applied to the spray field by pumping from the surface impoundment;
- there has not been an accumulation of K001 sludge during the length of time the unit has been operational; and
- concentrations of K001 constituents (Appendix VII) are not appreciably greater in the top 6 inches of the spray field soils than in the wastewater.

The study purpose was reiterated in Administrative Order No. 1208-87 (Item 2) which states that Koppers must demonstrate conclusively whether or not K001 sludge has been applied to or has accumulated on its spray field.

If, following regulatory review of this demonstraton, the spray field is determined to be a hazardous waste unit, Koppers expressly reserves its rights to appeal that determination.

2.0 METHODS OF INVESTIGATION

A summary of characterization data previously collected at the Grenada spray field is provided in Section 2-1. Remaining portions of this chapter detail the investigative methods employed to meet the project objectives. Keystone personnel were on-site to initiate the study on February 24-25, 1987.

2.1 Summary of Previous Work

A wastewater characterization study of the Grenada plant wastewater management system was conducted during 1985. Grab samples were collected at various locations to generate data necessary to upgrade the existing wastewater treatment system. Included in this sampling program were the spray field influent water and four surficial soil samples from within the spray field. Analytical results for these five samples are presented in Table 2-1.

Examination of Table 2-1 indicates that in general, concentrations of phenols and polynuclear aromatic hydrocarbons (PAHs) are less in the soil samples than in the wastewater sample. These data are provided for comparison to data generated during this investigation.

2.2 Process Inspection

A process inspection of the Grenada plant surface impoundment was conducted to determine the possibility of K001 sludge in the surface impoundment being pumped and applied to the spray field. This inspection included development of process flow diagrams, interviews with plant personnel concerning spray field operating conditions and intervals, and inspection of the pump intake location. Diagrams and descriptions of the wastewater flow processes are provided in Section 3.1 of this report.

2.3 Sampling

2.3.1 Bottom Sediment Sludge (K001)

In order to determine the chemical and physical characteristics of the surface

TABLE 2-1

1985 CHARACTERIZATION STUDY
ANALYTICAL RESULTS
KOPPERS COMPANY, INC.
GRENADA, MISSISSIPPI SITE

Parameter	INFLUENT TO SPRAY FIELD(1)	SPRAYFIELD SOILS (2) 1	2	3	4
Naphthalene	650	< 0.2	< 0.2	< 0.2	< 0.2
Acenaphthylene	12	< 0.2	< 0.2	< 0.2	< 0.2
Acenaphthene	67	< 0.2	< 0.2	< 0.2	21
Fluorene	65	< 0.1	< 0.1	< 0.1	< 0.1
Phenanthrene	300	< 0.1	< 0.1	< 0.1	< 0.1
Anthracene	27	< 0.1	62	< 0.1	< 0.1
Fluoranthene	270	< 0.1	130	23	21
Pyrene	170	< 0.1	250	20	19
Benz(a)anthracene	39	< 0.02	69	10	6.9
Chrysene	46	< 0.02	81	16	11
Benzo(b)fluoranthene	16	16	650	78	30
Benzo(k)fluoranthene	8.4	3.1	94	17	6.2
Benzo(a)pyrene	13	6.2	540	32	9.3
Dibenzo(a,h,)anthracene	0.70	< 0.02	51	6.1	2.7
Benzo(g,h,i)perylene	4.0	22	1100	100	29
Indeno(1,2,3-c,d)pyrene	4.1	22	1200	110	29
Phenols(3)	153	2.0	1.0	1.0	3.4
Pentachlorophenol (3)	0.58	0.08	0.80	0.19	0.35

(1)Test results in micrograms/liter (ppb) unless otherwise noted, for phenols & PCP.
(2)Results in ug/kg (ppb)
(3)Results in mg/L or mg/Kg (ppm); Phenols Test Method - EPA 420.2 or EPA 9066
PCP Test Method - Koppers A2056

impoundment bottom, a grid system was developed to locate 10 sampling points within the surface impoundment. The locations of the grid and the ten K001 sampling points (AD-1 to 5 and BC-1 to 5) are shown on Figure 2-1. Nearby monitoring wells are also shown on this figure. A transit was used to accurately survey the location of reference points and a base line to existing wells R-8 and R-9. String was lined perpendicular and parallel to the base line to develop the remainder of the grid. Intersection points of these string lines identified sampling locations.

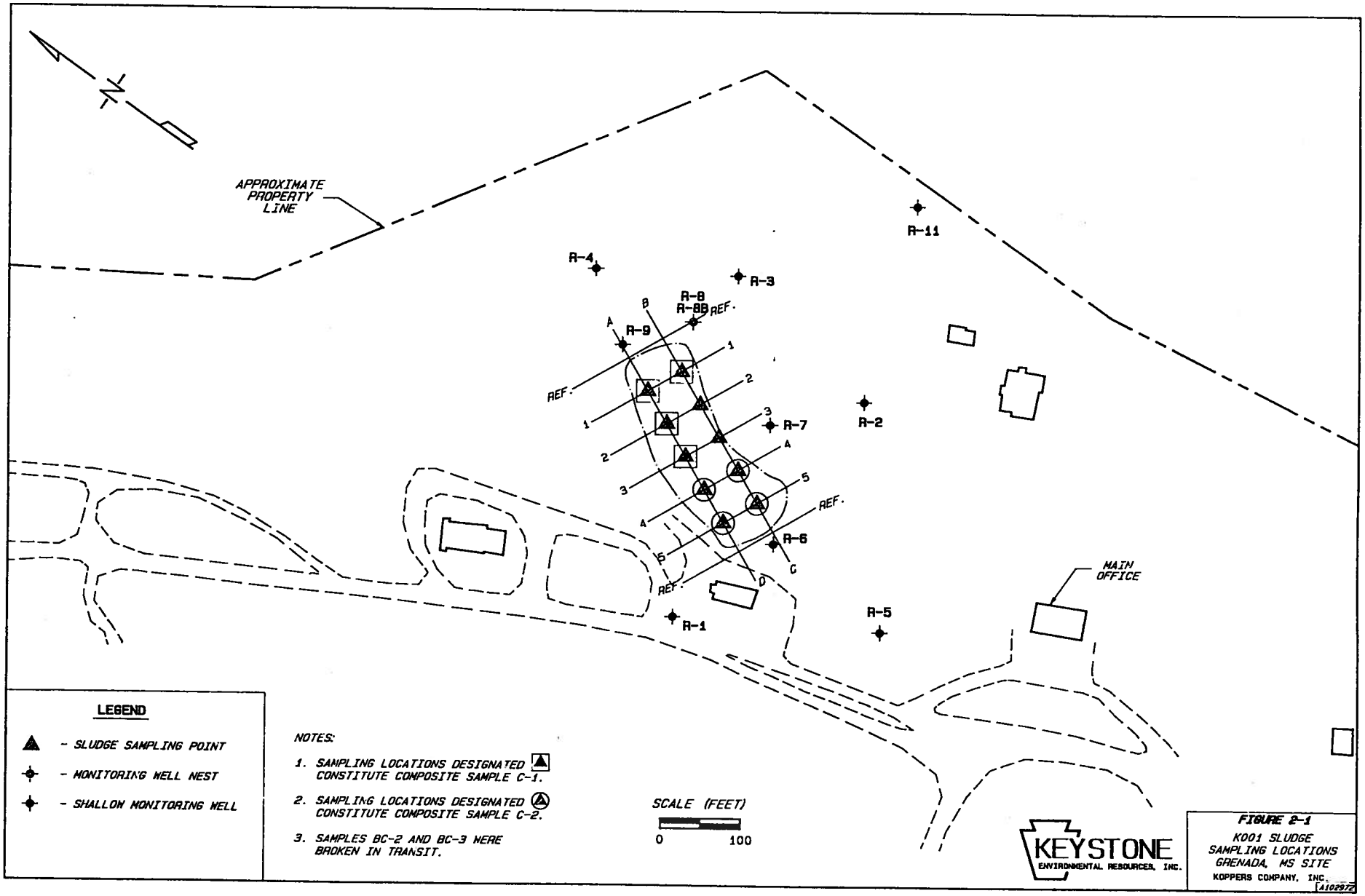
K001 sludge samples were collected on February 25, 1987. At each sampling location the depth to the bottom and sludge thickness was measured. Data are contained in Appendix A. A ponar clamshell sampling device was then lowered from the boat to the impoundment bottom. A representative portion of the bottom material was removed from the ponar sampler, physically described, and placed in new one gallon glass jugs which were labeled according to the grid reference lines. All ten samples were placed on ice in coolers and shipped to Keystone's Spectrix-Monroeville laboratory. Two samples (BC-2 and BC-3) were broken during transport. The remaining eight samples were composited into two samples C-1 (northern half) and C-2 (southern half) which were submitted for laboratory analysis as detailed in Section 2.4. Two composite samples were generated instead of the one, as proposed in the work plan, to account for any variability along the impoundment bottom.

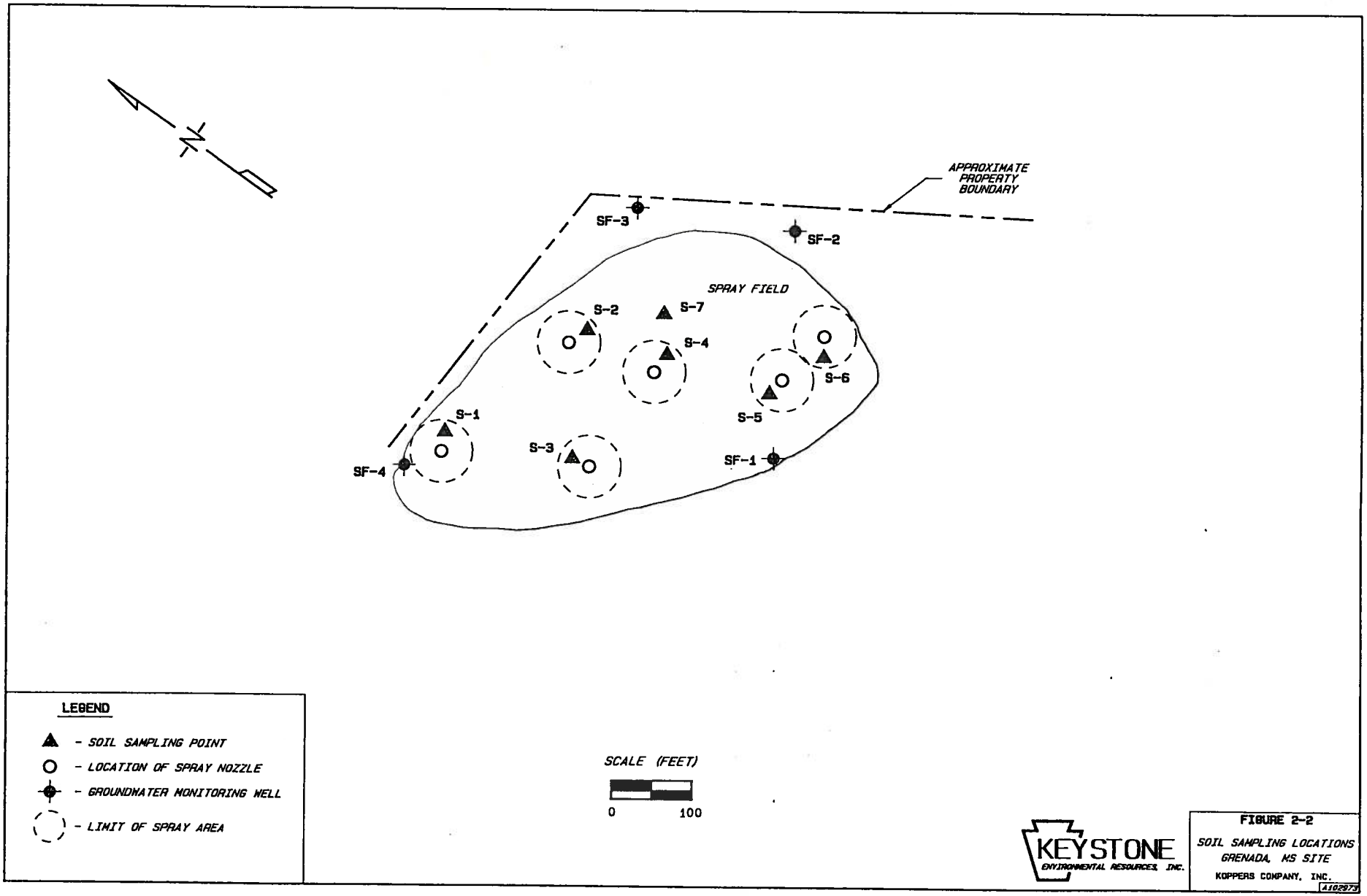
2.3.2 Treated Wastewater

Treated wastewater was collected from the surface impoundment effluent line prior to discharge to the spray field on February 24, 1987. Wastewater samples of equal volume were collected four times during an 8-hour period. A representative of the MBPC received duplicates of all four wastewater samples. Keystone personnel composited their wastewater samples. It was then placed on ice in a sealed cooler and shipped to the Spectrix-Monroeville laboratory.

2.3.3 Spray Field Soil

Surficial soils within the spray field were sampled on February 24, 1987 at the seven locations shown on Figure 2-2. The work plan detailed sampling at six


APPROXIMATE PROPERTY LINE
R-4
R-3
R-8
R-8B
REF.
R-9
A
B
1
2
3
REF.
R-11
R-7
R-2
A
5
REF.
R-6
C
D
REF.
R-1
R-5
MAIN OFFICE
LEGEND
- SLUDGE SAMPLING POINT
- MONITORING WELL NEST
- SHALLOW MONITORING WELL
NOTES:
1. SAMPLING LOCATIONS DESIGNATED CONSTITUTE COMPOSITE SAMPLE C-1.
2. SAMPLING LOCATIONS DESIGNATED CONSTITUTE COMPOSITE SAMPLE C-2.
3. SAMPLES BC-2 AND BC-3 WERE BROKEN IN TRANSIT.
SCALE (FEET)
0
100
KEYSTONE
ENVIRONMENTAL RESOURCES, INC.
FIGURE 2-1
K001 SLUDGE SAMPLING LOCATIONS
GRENADA, MS SITE
KOPPERS COMPANY, INC.
A102972


N
APPROXIMATE PROPERTY BOUNDARY
SF-3
SF-2
SPRAY FIELD
S-2
S-7
S-4
S-6
S-5
S-1
S-3
SF-4
SF-1
LEGEND
- SOIL SAMPLING POINT
- LOCATION OF SPRAY NOZZLE
- GROUNDWATER MONITORING WELL
- LIMIT OF SPRAY AREA
SCALE (FEET)
0
100
KEYSTONE
ENVIRONMENTAL RESOURCES, INC.
FIGURE 2-2
SOIL SAMPLING LOCATIONS
GRENADA, MS SITE
KOPPERS COMPANY, INC.
A102973

locations within the influence of known operating spray nozzles. It was decided at the time of sampling to add a control location (S-7) in an area which was not subject to sprayed wastewater application. Spray field soils were saturated at many locations on February 24 because of heavy rainfalls in the area during the previous week.

After each soil sampling point was located and flagged, a hole approximately 18 inches deep was hand dug at each location using a shovel. The side of the excavation was scarified and soil samples from the surface to a depth of 6 inches were collected using dedicated stainless-steel trowels. Each soil sample was field-classified according to the Burmeister system with special attention given to any visible evidence of contamination before being placed in new labeled glass jars. A split of each sample was provided to the MBPC representative at the time of sample collection. Samples were then placed in coolers and shipped to the Spectrix-Monroeville laboratory. After sample collection, each hole was backfilled using the excavated soil. The material was then tamped, the grass replaced, and each site was tamped again.

2.3.4 QA/QC and Chain-of-Custody

In order to insure the integrity of the sampling and analysis program, all sampling equipment and bottles were laboratory-prepared for organic sampling in accordance with Keystone's standard procedures. A new shovel was used to dig the soil sampling holes and was wiped clean between each use.

All sample shipment was in accordance with Keystone's standard operating procedures for sample chain-of-custody.

2.4 Laboratory Analysis

A total of seven soil samples, one composited wastewater sample and two composited K001 samples were submitted for laboratory analysis for the parameters listed in Table 2-2. These parameters represent the Appendix VII waste specific parameters for waste K001 (CFR 40, 1985). Analysis was in accordance with the EPA methods also listed in Table 2-2.

TABLE 2-2

ANALYTICAL PARAMETERS AND TEST METHODS
KOPPERS COMPANY, INC.
GRENADA, MISSISSIPPI

PARAMETER	TEST METHOD
Polynuclear Aromatic Hydrocarbons	EPA-8100 soil EPA 610 water
Phenols	EPA-8040 soil EPA 604 water

3.0 DISCUSSION OF RESULTS

3.1 Wastewater Management Considerations

The surface impoundment/spray field process inspection was conducted to assess the possibility of K001 being applied to the spray field. The Grenada plant wastewater stream involves in series a surge tank, two oil/water separators, the surface impoundment, and finally the spray field. A schematic diagram of this process is presented as Figure 3-1. The amount of water discharged to the surface impoundment is variable due to the volume of wood treated and the amount of run-off from various operations areas. It should be noted that evaporation at the impoundment is the primary method of wastewater management and the spray field is used only when necessary. The pump to the spray field is operated manually and thus would be operating only during periods of high water in the surface impoundment.

Wastewater in the surface impoundment is periodically circulated through a series of spray nozzles to increase evaporation rates. These nozzles are situated on the inside banks of the impoundment. If evaporation rates are high enough to maintain the water level in the surface impoundment, then use of the spray field is not necessary. During periods of high evaporation, the surface impoundment will operate for days or weeks at a time between applications of effluent to the spray field.

If influent rates to the impoundment exceed the evaporation rate, the excess treated wastewater is pumped as necessary to the spray field to maintain a suitable water level within the impoundment. The maximum application rate is approximately 120 gallons per minute sprayed in 15 minute periods.

The pump for the surface impoundment discharge to the spray field is located on a floating barge which is located along the western half of the impoundment. The pump intake is set approximately 1.5 to 2 feet below the water level. Measurements taken in the impoundment near the pump indicated that the top of the K001 sludge layer was at least 5 feet below the water level on February 25,

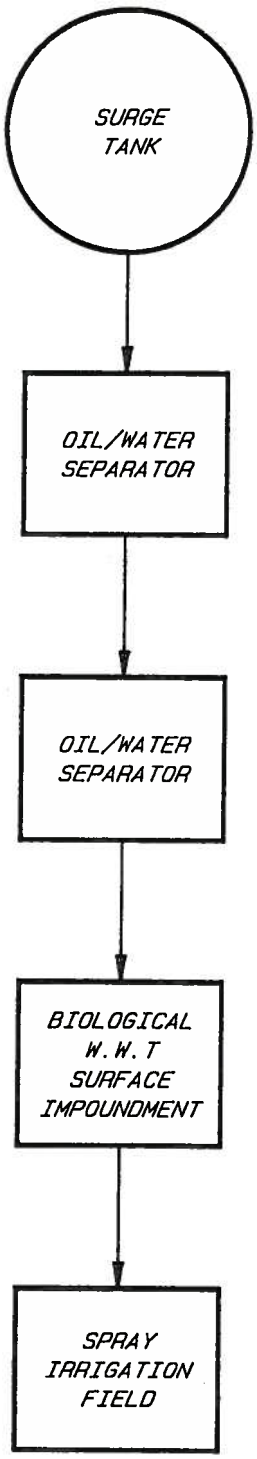
4' to 5' below the east side of impoundment

FIGURE 3-1

KOPPERS COMPANY, INC.

GRENADA, MS SITE

SIMPLIFIED FLOW DIAGRAM



KEYSTONE
ENVIRONMENTAL RESOURCES, INC.

8512154

1987. Therefore, the pump intake does not come into contact with this material. Consequently, it is demonstrated that K001 is not being applied to the spray field.

Probably not true - the pump will probably contain some sludges.

3.2 Sampled Material Descriptions and Chemical Analysis

This section is divided into visual field observations (Section 3.2.1) and laboratory chemical analyses (Section 3.2.2).

3.2.1 Field Observations

K001 on the impoundment bottom was composed of approximately 1 foot of dark soft silt and clay sediments with some organic debris (leaves, twigs, etc.). The oil content of these sediment samples was estimated to be less than 5% with the oil found as discrete droplets.

5% of what - Total Vol. Total Wt.?

The spray field influent wastewater sample was collected at a spray nozzle along the impoundment border by compositing four samples over an 8-hour period. On inspection in the field and at the laboratory, the wastewater sample did not contain any visible oil drops or oil layers.

The spray field is characterized throughout by a thick vegetative (grass) cover which is the first receptor of wastewater being sprayed. Photographs 3-1 and 3-2 show than the vegetation was brown at the time of sampling which is normal for late-February. A dark humus layer was present as would be expected with these conditions. No evidence of visible contamination was observed at the base of the vegetation.

The spray field soils were field-classified according to the Burmeister system. Soil descriptions are presented on Table 3-1. The predominant soil type was a brown silt and clay to clayey silt with a trace of fine sand. Again, no visible contamination was observed while sampling of these soils.

3.2.2 Chemical Analysis

A complete listing of all analytical data generated during this study is found in

PHOTO 3-1

GRENADA SPRAY FIELD OVERVIEW (looking south)

PHOTO 3-2

GRENADA SPRAY FIELD - TYPICAL SAMPLING SITE

TABLE 3-1

SOIL SAMPLE DESCRIPTIONS
KOPPERS COMPANY, INC.
GRENADA, MISSISSIPPI SITE

Sample Number	Description
1	Brown clayey SILT, tr f sand, tr gravel fragments
2	Brown SILT and CLAY, tr f sand
3	Brown SILT and CLAY, tr f sand
4	Brown SILT and CLAY, tr f sand
5	Brown clayey SILT, tr fm sand
6	Brown SILT and CLAY, tr f sand
7	Brown clayey SILT, tr f sand

Notes: 1) Reference Figure 2-2 for sample locations.
2) Soil descriptions are in accordance with the Burmeister system
3) Samples collected from 0 to 6 inches below ground surface.

Appendix B. The data have also been tabulated to simplify review (Table 3-2). The following sections present a discussion of the analytical results for each type of sampled material.

K001

The two K001 samples (C-1 and C-2) showed highly elevated levels of most all PAHs and phenols. Phenanthrene and pentachlorophenol (PCP) were found at the highest levels of any of the individual constituents. Concentrations of other indicator parameters such as naphthalene are typically one to three orders of magnitude lower than PCP levels. In summary, all detectable concentrations were greater than 20,000 ug/Kg; many were at levels greater than 10,000,000 ug/Kg.

Wastewater

Analytical results for the wastewater sample showed considerably lower constituent concentrations than those for the K001 samples. In general, respective levels in the wastewater are four orders of magnitude less. The large variation in concentrations indicates a distinct difference between the K001 and the wastewater in the Grenada surface impoundment. This indicates that K001 is not being applied to the spray field during pumping of treated wastewater from the impoundment.

Only proves that the wastewater is lower in K001 constituents than the sludge does.

Spray Field Soil

Two purposes of collecting and analyzing soils from the spray field were to document that there has not been an accumulation of K001 constituents (or a sludge layer) and that indicator parameter levels in the soils are not appreciably greater than in the wastewater, a condition which could indicate accumulation. It is obvious that K001 (hazardous waste) sample results are very different than the results for the soil sample analyses. For many parameters that were tested, concentrations are at least five orders of magnitude greater in the K001 sludge than in the top six inches of the spray field soils. This indicates that there has not been an accumulation of constituents in the soils that approach concentrations similar to the K001 samples, as a result of treated wastewater application. Additionally, field observation during sampling indicated the absence of any sludge layer or other visual contamination within the limits of

TABLE 3-2

ANALYTICAL DATA SUMMARY
KOPPERS COMPANY, INC
GRENADA, MISSISSIPPI SITE

	Bottom Sediment Sludge (ug/Kg)		Wastewater (ug/L)	Soil (ug/Kg)	
	C-1	C-2	Mean of S-1 through S-6(1)		S-7
PAH:(2)					
*Acenaphthane	1230000	2240000	374	39.3	29.6
Acenaphthylene	581000	755000	41.5	28.9	< 25.0
Anthracene	682000	1700000	126	58.7	97.2
*Benzo(a)anthracene	236000	861000	34.4	<25.0	< 25.0
*Benzo(a)pyrene	183000	457000	25.5	~~25.0~~ 238.5	211
*Benzo(b)fluoranthene	229000	722000	25.5	<25.0	< 25.0
Benzo(g,h,i)perylene	<2500	117000	1.13	51.0	< 25.0
Benzo(k)fluoranthene	<2500	< 2500	< 0.250	<25.0	< 25.0
*Chrysene	445000	846000	36.7	<25.0	< 25.0
*Dibenz(a,h)anthracene	<2500	< 2500	< 0.250	43.2	< 25.0
*Fluoranthene	2450000	6030000	369	160.6	117
Fluorene	1280000	3050000	330	31.2	< 25.0
*Indeno(123-cd)pyrene	58300	132000	3.53	<25.0	< 25.0
*Phenanthrene	5250000	13500000	1015	93.3	156
Pyrene	1640000	3990000	218	100.4	123
Other Polynuclear Aromatic Hydrocarbons Tested:					
*Carbazole	345000	626000	234	< 25.0	< 25.0
Naphthalene	2290000	537000	1707	72.8	98.2
Phenols:(2)					
4-Nitrophenol	< 20000	5144000	469	1864.7	264
*2,3,5,6Tet-Cl-phenol	< 20000	13302000	641	392.3	< 100
2,4-Dinitrophenol	< 20000	10649000	< 11.2	318.5	298
*2,4,6Trichlorophenol	835960	1990800	481	780.8	< 100
4Chloro3methylphenol	1075480	1393700	254	479.2	127
2,4-Dichlorophenol	106420	< 25000	< 6.0	231.5	< 50.0
*2,4-Dimethylphenol	72720	<25000	168	53.2	< 50.0
2-Nitrophenol	67240	56200	25.4	1359.0	8217
*Phenol	122300	153300	< 6.00	217.5	< 50.0
*2-Chlorophenol	20400	< 25000	8.55	< 50.0	< 50.0
*Pentachlorophenol	16107600	12123000	3027	1141.0	593
4,6-Dinitro-o-cresol	< 20000	< 50000	< 11.2	< 100	< 100

Notes: (1) Below detectable levels were considered to be equal to the detection limit for averaging purposes.

(2) * Indicates K001 parameter (CFR 40, Part 264 Appendix VII, 1985).

the spray field.

In order to address the third objective it is necessary to compare wastewater concentrations (ug/L) to soil concentrations (ug/Kg). Soil analytical results for samples S-1 through S-6 are averaged on Table 3-2. Average values calculated for the soils within the influence of the spray nozzles are similar to concentrations found at S-7, which was added as a control location. Wastewater analytical results are also shown on this table. Although the two sets of data are both in parts per billion (ppb) form (ug/L and ug/Kg) direct comparison of the data is approximate due to the different material types. Because of the variance in analytical procedures and detection limits between the two media, it is not appropriate to use parameters that exhibit near detectable concentrations for comparison purposes.

A total of 8 individual PAH constituents were found at concentrations greater than 100 ug/L in the wastewater sample. Of these, naphthalene and phenanthrene were present at concentrations exceeding 1,000 ug/L. Comparison of these parameter concentrations to those for the soil samples shows that values measured in the soils are actually less than in the wastewater sample (on a ppb basis).

Phenols do not display consistent decreases in concentrations as do the PAHs, but many phenols constituents are less or at similar levels in both media. Others are at greater concentrations in the soil than found in this particular wastewater sample. This phenomena may be the result of biodegradation processes whereby selected phenolic compounds degrade within the soil matrix and form other compounds.

Comparison of soil quality data generated during this study to the 1985 data (Table 2-1) shows good correlation. For the most part, 1985 soil constituent concentrations are less than in that particular wastewater sample similarily to what was determined during this study.

3.3 Groundwater Assessment

Currently, there is one upgradient and three downgradient groundwater monitoring wells (SF-1 through SF-4) at the Grenada spray field. Locations of these wells are

shown on Figure 2-2. Groundwater sampling of these wells was initiated in September, 1985 and has continued to date. Analytical results for PAHs and phenols are below laboratory detection level concentrations, indicating spray field operations have not had an adverse impact on local groundwater quality. A more detailed description of the local hydrogeology and groundwater quality is summarized in Keystone's "Report of Findings, Hydrogeologic Investigation," which was submitted to MBPC on January 22, 1987.

4.0 CONCLUSIONS

The spray field manages treated wastewater from the impoundment via microbial activity which biodegrades the organic constituents within the vegetative cover and the soil. The amount of microbial activity is dependent on a number of factors including temperature, moisture, oxygen, and substrate availability. Thus, conducting the soil sampling program in late winter following a heavy rainfall period most likely represented lower microbial activity than during other seasons of the year, i.e. sampling was conducted under worst-case conditions.

In reviewing the objectives of this investigation, the following conclusions can be reached. An inspection of the operating procedures, field observation, and chemical analysis reveals that K001 sludge is not being applied to the spray field. This was concluded since:

(1) The pump intake is located 1.5 to 2 feet below the water level of the impoundment while the top of the K001 sludge layer was found to be 5 feet below the water level. Furthermore, the pump is not operated in periods of low water levels in the impoundment.

(2) The chemical concentrations composition of the K001 was very different than that of the wastewater. Also, visual inspection of the wastewater samples collected on February 24, 1987 showed no evidence of oil.

The second objective of this investigation was to document that a K001 sludge layer has not accumulated over time in the spray field as a result of treated wastewater application. This was conclusively documented by a:

- Visual inspection of the spray field surface which showed no evidence of a sludge layer or other signs of visual contamination at depth.

- Comparison of analytical results of the K001 and the spray field soil samples which shows parameter levels typically 5 orders of magnitude higher in the K001 sludge samples than

in the soils. Only several parameters tested on the soil samples exhbited values in the ppm range. All others were in the ppb range. This indicates that spray field soil quality is not at all similar to the sludge (K001-hazardous waste) quality.

The third objective was to document that spray field soil samples do not contain appreciably greater parameter levels than the wastewater. PAH data indicate that concentrations in the soil are in fact lower than concentrations in the wastewater. Other data indicate that where soil concentrations are greater, the difference is only very slight.

In summary, it is the opinion of Koppers and Keystone that this investigation has successfully demonstrated the objectives set forth in the MBPC-aproved work plan. As a result, it is conclusive that the Grenada spray field shoud not be considered a RCRA-regulated hazardous waste unit.

APPENDIX A

SURFACE IMPOUNDMENT SURVEY MEASUREMENTS

(2-25-87)

SURFACE IMPOUNDMENT STUDY
GRENADA, MS
2-25-87

Base Line: A,-B
Length: 68.5
Position Reference: A, to R-9 18.0 ft
B, to R-8 43.0 ft

Line B-C, Measured 278 ft
Line C-D, Measured 68.5 ft
Line A-d, Assumed 278 ft
All angles 90°

Line A-B Measured from B 48.5 ft
Line C-D Measured from C 48.5 ft
Line A-3 Assumed 278 ft

Point(1)	Depth to Sludge(2) (ft)	Thickness of Sludge(3) (ft)
A-D-1	5	0.8
A-D-2	5	0.8
A-D-3	4.8	1.2
A-D-4	5.0	0.9
A-D-5	4.0	0.8
B-C-1	4.5	0.5
B-C-2	3.6	1.0
B-C-3	2.5	0.0
B-C-4	4.0	0.8
B-C-5	4.2	1.0

(1) Sampling points located along Line A-D and Line B-C with spacing of 47.5 feet between points. Points are referenced to Line A-B.

(2) Measured from water level in impoundment.

(3) Measured to clay bottom of impoundment.

APPENDIX B

1987 Spray Field Characterization Analytical Results

- o K001 (C-1 and C-2)
- o Treated Wastewater Influent to Spray Field (INF)
- o Spray Field Soils (S-1 to S-7)

SPECTRIX MONROEVILLE

TABLE OF CONTENTS — PRODUCED ON 03/24/87 AT 15:28 — PAGE

SAMPLE #	SOURCE	DAT-COL	DATE-REC
87030020	C-1	03/02/87	03/03/87
87030021	C-2	03/02/87	03/03/87

SPECTRIX MONROEVILLE

TABLE 1: SUMMARY OF ANALYTICAL DATA PRODUCED ON 03/24/87 AT 15:28 PAGE

SAMPLE #	RSLT.LNE		SOURCE
pH			
87030020	Soil pH, units :	5.0	C-1
87030021	Soil pH, units :	5.3	C-2
ACID EXTRACTABLES (EPA METHOD 604)			
87030020	4-Nitrophenol..... :	<20000	C-1
	2,3,5,6Tet-Cl-phenol :	<20000	C-1
	2,4-Dinitrophenol... :	<20000	C-1
	2,4,6Trichlorophenol :	835960	C-1
	4Chloro3methylphenol :	1075480	C-1
	2,4-Dichlorophenol.. :	106420	C-1
	2,4-Dimethylphenol.. :	72720	C-1
	2-Nitrophenol..... :	67240	C-1
	Phenol..... :	122360	C-1
	2-Chlorophenol..... :	20400	C-1
	Pentachlorophenol... :	16107600	C-1
	4,6-Dinitro-o-cresol :	<20000	C-1
87030021	2-Chlorophenol..... :	<25000	C-2
	Phenol..... :	153300	C-2
	2-Nitrophenol..... :	56200	C-2
	2,4-Dimethylphenol.. :	<25000	C-2
	2,4-Dichlorophenol.. :	<25000	C-2
	4Chloro3methylphenol :	1393700	C-2
	2,4,6Trichlorophenol :	1990800	C-2
	2,4-Dinitrophenol... :	10649000	C-2
	2,3,5,6Tet-Cl-phenol :	13302000	C-2
	4-Nitrophenol..... :	5144000	C-2
	4,6-Dinitro-o-cresol :	<50000	C-2
	Pentachlorophenol... :	12123000	C-2

The above Acid Extractable results are reported in ug/Kg.
All Acid Extractable identifications are from retention data only.

TABLE 2: SUMMARY OF PAH DATA

Sample: 87030020 Source: C-1

Date Collected: 03/02/87
Date Received: 03/03/87

Acenaphthene	:	1230000
Acenaphthylene	:	581000
Anthracene	:	682000
Benzo(a)anthracene	:	236000
Benzo(a)pyrene	:	183000
Benzo(b)fluoranthene	:	229000
Benzo(g,h,i)perylene	:	<2500
Benzo(k)fluoranthene	:	<2500
Chrysene	:	445000
Dibenz(ah)anthracene	:	<2500
Fluoranthene	:	2450000
Fluorene	:	1280000
Indeno(123-cd)pyrene	:	58300
Phenanthrene	:	5250000
Pyrene	:	1640000

Other Polynuclear Aromatic Compounds tested:

Carbazole	:	345000
Naphthalene	:	2290000

The above results are reported in ug/Kg.

TABLE 2: SUMMARY OF PAH DATA

Sample: 87030021 Source: C-2 S, partly impenetrable

Date Collected: 03/02/87
Date Received: 03/03/87

Acenaphthene	2240000
Acenaphthylene	755000
Anthracene	1700000
Benzo(a)anthracene	861000
Benzo(a)pyrene	457000
Benzo(b)fluoranthene	722000
Benzo(g,h,i)perylene	117000
Benzo(k)fluoranthene	<2500
Chrysene	846000
Dibenz(ah)anthracene	<2500
Fluoranthene	6030000
Fluorene	3050000
Indeno(123-cd)pyrene	132000
Phenanthrene	13500000
Pyrene	3990000

Other Polynuclear Aromatic Compounds tested:

Carbazole	626000
Naphthalene	537000

The above results are reported in ug/Kg.
All PAH identifications are from retention data only.

SPECTRIX MONROEVILLE

TABLE OF CONTENTS — PRODUCED ON 03/24/87 AT 14:57 — PAGE

SAMPLE #	SOURCE	DAT-COL	DATE-REC
87020464	INF	02/25/87	02/25/87

TABLE 2: SUMMARY OF PAH DATA

Sample: 87020464 Source: SPRAY FIELD INF

Date Collected:02/25/87
Date Received: 02/25/87

Acenaphthene	374
Acenaphthylene	41.5
Anthracene	126
Benzo(a)anthracene	34.4
Benzo(a)pyrene	22.5
Benzo(b)fluoranthene	25.5
Benzo(g,h,i)perylene	1.13
Benzo(k)fluoranthene	<0.250
Chrysene	36.7
Dibenz(an)anthracene	<0.250
Fluoranthene	369
Fluorene	330
Indeno(123-cd)pyrene	3.53
Phenanthrene	1015
Pyrene	218

Other Polynuclear Aromatic Compounds tested:

Carbazole	234
Naphthalene	1707

The above results are reported in ug/L .
All PAH identifications are from retention data only.

Springfield Influent

SPECTRIX MONROEVILLE

TABLE 1: SUMMARY OF ORGANIC COMPOUNDS PRODUCED ON 03/24/87 AT 15:48 PAGE

SAMPLE #	TEST #	RSLT.LNE		SOURCE
ACID EXTRACTABLES				
87020464	GC604	4-Nitrophenol.....	: 469	SPRAY FIELD INF
	GC604	2,3,5,6Tet-Cl-phenol	: 641	SPRAY FIELD INF
	GC604	2,4-Dinitrophenol...	: <11.2	SPRAY FIELD INF
	GC604	2,4,6Trichlorophenol	: 481	SPRAY FIELD INF
	GC604	4Chloro3methylphenol	: 254	SPRAY FIELD INF
	GC604	2,4-Dichlorophenol..	: <6.00	SPRAY FIELD INF
	GC604	2,4-Dimethylphenol..	: 168	SPRAY FIELD INF
	GC604	2-Nitrophenol.....	: 25.4	SPRAY FIELD INF
	GC604	Phenol.....	: <6.00	SPRAY FIELD INF
	GC604	2-Chlorophenol.....	: 8.55	SPRAY FIELD INF
	GC604	Pentachlorophenol...	: 3027	SPRAY FIELD INF
	GC604	4,6-Dinitro-o-cresol	: <11.2	SPRAY FIELD INF

The above results are reported in ug/L.
All identifications are from retention data only.

SPECTRIX MONROEVILLE

TABLE OF CONTENTS — PRODUCED ON 03/24/87 AT 16:07 — PAGE

SAMPLE #	SOURCE	DESCRIPT	DAT-COL	DATE-REC
87020408	S-1	SOILS	02/24/87	02/25/87
87020409	S-2	SOILS	02/24/87	02/25/87
87020410	S-3	SOILS	02/24/87	02/25/87
87020411	S-4	SOILS	02/24/87	02/25/87
87020412	S-5	SOILS	02/24/87	02/25/87
87020413	S-6	SOILS	02/24/87	02/25/87
87020414	S-7	SOILS	02/24/87	02/25/87

TABLE 2: SUMMARY OF PAH DATA

Sample: 87020408 Source: S-1
Description: SOILS

Date Collected:02/24/87
Date Received: 02/25/87

Acenaphthene	55.7
Acenaphthylene	48.3
Anthracene	27.6
Benzo(a)anthracene	<25.0
Benzo(a)pyrene	350
Benzo(b)fluoranthene	<25.0
Benzo(g,h,i)perylene	<25.0
Benzo(k)fluoranthene	<25.0
Chrysene	<25.0
Dibenz(ah)anthracene	52.7
Fluoranthene	240
Fluorene	42.7
Indeno(123-cd)pyrene	<25.0
Phenanthrene	131
Pyrene	145

Other Polynuclear Aromatic Compounds tested:

Carbazole	<25.0
Naphthalene	102

The above results are reported in ug/Kg.

TABLE 2: SUMMARY OF PAH DATA

Sample: 87020409

Source: S-2
Description: SOILS

Date Collected:02/24/87
Date Received: 02/25/87

Acenaphthene	50.9
Acenaphthylene	<25.0
Anthracene	45.9
Benzo(a)anthracene	<25.0
Benzo(a)pyrene	<25.0
Benzo(b)fluoranthene	<25.0
Benzo(g,h,i)perylene	<25.0
Benzo(k)fluoranthene	<25.0
Chrysene	<25.0
Dibenz(ah)anthracene	<25.0
Fluoranthene	235
Fluorene	44.7
Indeno(123-cd)pyrene	<25.0
Phenanthrene	54.4
Pyrene	<25.0

Other Polynuclear Aromatic Compounds tested:

Carbazole	<25.0
Naphthalene	103

The above results are reported in ug/Kg.

TABLE 2: SUMMARY OF PAH DATA

Sample: 87020410 Source: S-3
Description: SOILS

Date Collected:02/24/87
Date Received: 02/25/87

Acenaphthene	34.4
Acenaphthylene	<25.0
Anthracene	61.1
Benzo(a)anthracene	<25.0
Benzo(a)pyrene	206
Benzo(b)fluoranthene	<25.0
Benzo(g,h,i)perylene	<25.0
Benzo(k)fluoranthene	<25.0
Chrysene	<25.0
Dibenz(ah)anthracene	79.1
Fluoranthene	124
Fluorene	<25.0
Indeno(123-cd)pyrene	<25.0
Phenanthrene	91.1
Pyrene	79.2

Other Polynuclear Aromatic Compounds tested:

Carbazole	<25.0
Naphthalene	56.3

The above results are reported in ug/Kg.

TABLE 2: SUMMARY OF PAH DATA

Sample: 87020411

Source: S-4
Description: SOILS

Date Collected:02/24/87
Date Received: 02/25/87

Acenaphthene	44.5
Acenaphthylene	<25.0
Anthracene	<25.0
Benzo(a)anthracene	<25.0
Benzo(a)pyrene	800
Benzo(b)fluoranthene	<25.0
Benzo(g,h,i)perylene	181
Benzo(k)fluoranthene	<25.0
Chrysene	<25.0
Dibenz(ah)anthracene	52.6
Fluoranthene	89.5
Fluorene	<25.0
Indeno(123-cd)pyrene	<25.0
Phenanthrene	38.4
Pyrene	67.2

Other Polynuclear Aromatic Compounds tested:

Carbazole	<25.0
Naphthalene	79.9

The above results are reported in ug/Kg.

TABLE 2: SUMMARY OF PAH DATA

Sample: 87020412 Source: S-5
Description: SOILS

Date Collected:02/24/87
Date Received: 02/25/87

Acenapnthene	<25.0
Acenaphthylene	<25.0
Anthracene	35.5
Benzo(a)anthracene	<25.0
Benzo(a)pyrene	<25.0
Benzo(b)fluoranthene	<25.0
Benzo(g,h,i)perylene	<25.0
Benzo(k)fluoranthene	<25.0
Chrysene	<25.0
Dibenz(ah)anthracene	<25.0
Fluoranthene	161
Fluorene	<25.0
Indeno(123-cd)pyrene	<25.0
Phenanthrene	54.6
Pyrene	165

Other Polynuclear Aromatic Compounds tested:

Carbazole	<25.0
Naphthalene	65.8

The above results are reported in ug/Kg.

TABLE 2: SUMMARY OF PAH DATA

Sample: 87020413

Source: S-6
Description: SOILS

Date Collected:02/24/87
Date Received: 02/25/87

Acenaphthene	<25.0
Acenaphthylene	<25.0
Anthracene	157
Benzo(a)anthracene	<25.0
Benzo(a)pyrene	<25.0
Benzo(b)fluoranthene	<25.0
Benzo(g,h,i)perylene	<25.0
Benzo(k)fluoranthene	<25.0
Chrysene	<25.0
Dibenz(ah)anthracene	<25.0
Fluoranthene	114
Fluorene	<25.0
Indeno(123-cd)pyrene	<25.0
Phenanthrene	190
Pyrene	121

Other Polynuclear Aromatic Compounds tested:

Carbazole	<25.0
Naphthalene	29.5

The above results are reported in ug/Kg.

TABLE 2: SUMMARY OF PAH DATA

Sample: 87020414

Source: S-7
Description: SOILS

Date Collected: 02/24/87
Date Received: 02/25/87

Acenaphthene	29.6
Acenaphthylene	<25.0
Anthracene	97.2
Benzo(a)anthracene	<25.0
Benzo(a)pyrene	211
Benzo(b)fluoranthene	<25.0
Benzo(g,h,i)perylene	<25.0
Benzo(k)fluoranthene	<25.0
Chrysene	<25.0
Dibenz(ah)anthracene	<25.0
Fluoranthene	117
Fluorene	<25.0
Indeno(123-cd)pyrene	<25.0
Phenanthrene	156
Pyrene	123

Other Polynuclear Aromatic Compounds tested:

Carbazole	<25.0
Naphthalene	98.2

The above results are reported in ug/Kg.
All PAH identifications are from retention data only.

SPECTRIX MONROEVILLE

TABLE 1: SUMMARY OF ORGANIC COMPOUNDS PRODUCED ON 03/24/87 AT 16:10 PAGE

SAMPLE #	TEST #	RSLT.LNE			SOURCE
ACID EXTRACTABLES					
87020408	GC604	Pentachlorophenol...	:	1740	S-1
	GC604	4,6-Dinitro-o-cresol	:	<100	S-1
	GC604	4-Nitrophenol.....	:	3205	S-1
	GC604	2,3,5,6Tet-Cl-phenol	:	298	S-1
	GC604	2,4-Dinitrophenol...	:	<100	S-1
	GC604	2,4,6Trichlorophenol	:	518	S-1
	GC604	4Chloro3methylphenol	:	1912	S-1
	GC604	2,4-Dichlorophenol..	:	111	S-1
	GC604	2,4-Dimethylphenol..	:	69.0	S-1
	GC604	2-Nitrophenol.....	:	741	S-1
	GC604	Phenol.....	:	417	S-1
	GC604	2-Chlorophenol.....	:	<50.0	S-1
87020409	GC604	2-Chlorophenol.....	:	<50.0	S-2
	GC604	Phenol.....	:	205	S-2
	GC604	2-Nitrophenol.....	:	353	S-2
	GC604	2,4-Dimethylphenol..	:	<50.0	S-2
	GC604	2,4-Dichlorophenol..	:	79.8	S-2
	GC604	4Chloro3methylphenol	:	152	S-2
	GC604	2,4,6Trichlorophenol	:	<100	S-2
	GC604	2,4-Dinitrophenol...	:	<100	S-2
	GC604	2,3,5,6Tet-Cl-phenol	:	183	S-2
	GC604	4-Nitrophenol.....	:	2854	S-2
	GC604	4,6-Dinitro-o-cresol	:	<100	S-2
	GC604	Pentachlorophenol...	:	1113	S-2
87020410	GC604	Phenol.....	:	255	S-3
	GC604	2-Chlorophenol.....	:	<50.0	S-3
	GC604	Pentachlorophenol...	:	1210	S-3
	GC604	4,6-Dinitro-o-cresol	:	<100	S-3
	GC604	4-Nitrophenol.....	:	2011	S-3
	GC604	2,3,5,6Tet-Cl-phenol	:	314	S-3
	GC604	2,4-Dinitrophenol...	:	<100	S-3
	GC604	2,4,6Trichlorophenol	:	2024	S-3
	GC604	4Chloro3methylphenol	:	173	S-3
	GC604	2,4-Dichlorophenol..	:	552	S-3
	GC604	2,4-Dimethylphenol..	:	<50.0	S-3
	GC604	2-Nitrophenol.....	:	490	S-3

The above results are reported in ug/Kg.
All identifications are from retention data only.

SPECTRIX MONROEVILLE

TABLE 1: SUMMARY OF ORGANIC COMPOUNDS PRODUCED ON 03/24/87 AT 16:10 PAGE

SAMPLE #	TEST #	RSLT.LNE			SOURCE
ACID EXTRACTABLES					
87020411	GC604	2-Chlorophenol.....	:	<50.0	S-4
	GC604	Phenol.....	:	328	S-4
	GC604	Pentachlorophenol...	:	1836	S-4
	GC604	4,6-Dinitro-o-cresol	:	<100	S-4
	GC604	4-Nitrophenol.....	:	2602	S-4
	GC604	2,3,5,6Tet-Cl-phenol	:	272	S-4
	GC604	2,4-Dinitrophenol...	:	<100	S-4
	GC604	2,4,6Trichlorophenol	:	1718	S-4
	GC604	4Chloro3methylphenol	:	294	S-4
	GC604	2,4-Dichlorophenol..	:	544	S-4
	GC604	2,4-Dimethylphenol..	:	<50.0	S-4
	GC604	2-Nitrophenol.....	:	398	S-4
87020412	GC604	2-Chlorophenol.....	:	<50.0	S-5
	GC604	Phenol.....	:	<50.0	S-5
	GC604	2-Nitrophenol.....	:	2362	S-5
	GC604	2,4-Dimethylphenol..	:	<50.0	S-5
	GC604	Pentachlorophenol...	:	506	S-5
	GC604	4,6-Dinitro-o-cresol	:	<100	S-5
	GC604	4-Nitrophenol.....	:	242	S-5
	GC604	2,3,5,6Tet-Cl-phenol	:	<100	S-5
	GC604	2,4-Dinitrophenol...	:	899	S-5
	GC604	2,4,6Trichlorophenol	:	225	S-5
	GC604	4Chloro3methylphenol	:	148	S-5
	GC604	2,4-Dichlorophenol..	:	<50.0	S-5
87020413	GC604	2-Chlorophenol.....	:	<50.0	S-6
	GC604	Phenol.....	:	<50.0	S-6
	GC604	2-Nitrophenol.....	:	3810	S-6
	GC604	2,4-Dimethylphenol..	:	<50.0	S-6
	GC604	2,4-Dichlorophenol..	:	52.0	S-6
	GC604	4Chloro3methylphenol	:	196	S-6
	GC604	Pentachlorophenol...	:	441	S-6
	GC604	4,6-Dinitro-o-cresol	:	<100	S-6
	GC604	4-Nitrophenol.....	:	274	S-6
	GC604	2,3,5,6Tet-Cl-phenol	:	1187	S-6
	GC604	2,4-Dinitrophenol...	:	612	S-6
	GC604	2,4,6Trichlorophenol	:	<100	S-6

The above results are reported in ug/Kg.
All identifications are from retention data only.

SPECTRIX MONROEVILLE

TABLE 1: SUMMARY OF ORGANIC COMPOUNDS PRODUCED ON 03/24/87 AT 16:10 PAGE

SAMPLE #	TEST #	RSLT.LNE		SOURCE
ACID EXTRACTABLES				
87020414	GC604	2-Chlorophenol.....	: <50.0	S-7
	GC604	Phenol.....	: <50.0	S-7
	GC604	2-Nitrophenol.....	: 8217	S-7
	GC604	2,4-Dimethylphenol..	: <50.0	S-7
	GC604	2,4-Dichlorophenol..	: <50.0	S-7
	GC604	4Chloro3methylphenol	: 127	S-7
	GC604	2,4,6Trichlorophenol	: <100	S-7
	GC604	2,4-Dinitrophenol...	: 298	S-7
	GC604	Pentachlorophenol...	: 593	S-7
	GC604	4,6-Dinitro-o-cresol	: <100	S-7
	GC604	4-Nitrophenol.....	: 264	S-7
	GC604	2,3,5,6Tet-Cl-phenol	: <100	S-7

The above results are reported in ug/Kg.
All identifications are from retention data only.

WORK PLAN

SPRAY FIELD CHARACTERIZATION

KOPPERS COMPANY, INC.

GRENADA, MISSISSIPPI SITE

Prepared by:

Keystone Environmental Resources, Inc.

Monroeville, Pennsylvania

February 13, 1987

DIVISION OF SOLID WASTE
REVIEWED BY Jim Hardage + Gary Payne
DATE
COMMENTS

KEYSTONE
ENVIRONMENTAL RESOURCES, INC.

Memo

Re: Spray Field Characterization, Koppers Co. Inc. Grenada, MS. Site

From: Jim Hardage

Prior to Koppers submittal of the work plan for the above referenced scope of work, I contacted Beverly Spagg with EPA Region IV about the proposed project and any suggestions or comments she could offer. Her comments were basically as follows:

Koppers should demonstrate that there is no sludge sprayed on the field and, secondly, that there is no accumulation from entrained sludge in the wastewater.

Ask for discrete samples rather than composite samples.

Sample 0-6".

Check around sprinkler area.

Sample water too, at point of distribution.

WORK PLAN

SPRAY FIELD CHARACTERIZATION

KOPPERS COMPANY, INC.

GRENADA, MISSISSIPPI SITE

Prepared by:

Keystone Environmental Resources, Inc.

Monroeville, Pennsylvania

February 13, 1987

KEYSTONE
ENVIRONMENTAL RESOURCES, INC.

TABLE OF CONTENTS

WORK PLAN
SPRAY FIELD CHARACTERIZATION
KOPPERS COMPANY, INC.
GRENADA, MISSISSIPPI SITE

1.0 INTRODUCTION

This document has been prepared by Keystone Environmental Resources, Inc. (Keystone) on behalf of the Grenada, Mississippi wood treatment plant that is owned and operated by Koppers Company, Inc. (Koppers). The work scope detailed herein presents a plan to characterize the Grenada plant spray field for demonstration that it is not a RCRA-regulated unit. The basis for preparation of the work plan was developed by the Mississippi Department of Natural Resources, Bureau of Pollution Control (MBPC) and the Environmental Protection Agency (EPA) Region IV. It was presented by MBPC to Koppers and Keystone during the February 3, 1987 project status meeting.

The following sections of this chapter present a brief description of background considerations and the study purpose. Subsequent chapters detail the scope of work and project schedule.

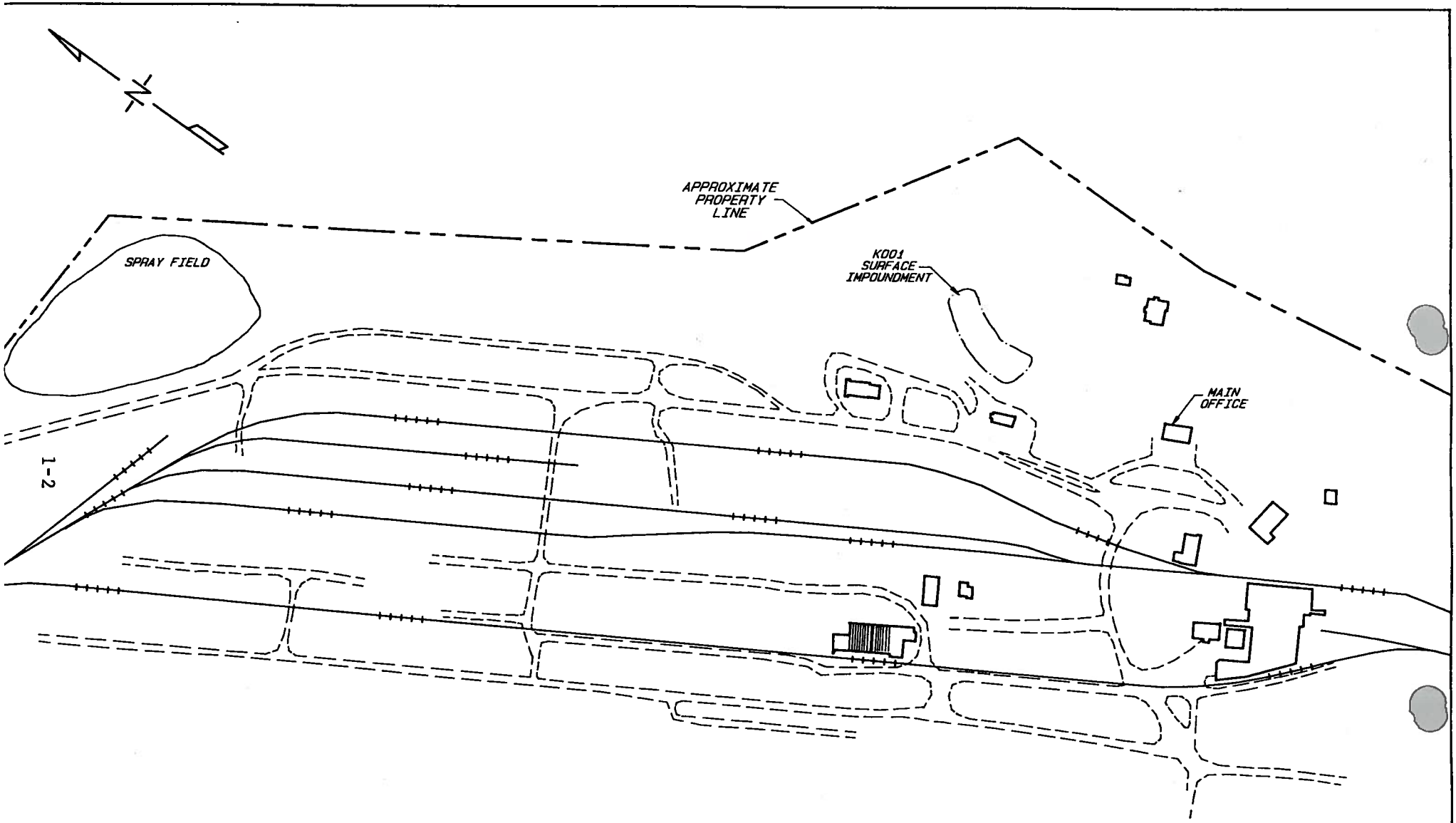
1.1 Background

Koppers presently operates a wood treatment plant located near Grenada, Mississippi. The facility conducts wood treatment activities using creosote and pentachlorophenol preservatives. Wastewater generated at the plant is managed using product recovery techniques and also a surface impoundment and spray irrigation field. The plan locations of these two units are shown on Figure 1.

The surface impoundment is a RCRA-regulated unit (EPA I.D. No. MSD007027543) because it contains hazardous waste no. K001, "bottom sediment sludge from the treatment of wastewaters from wood preserving processes that use creosote and/or pentachlorophenol" (CFR 40, 1985). Treated wastewater is pumped as necessary to the spray field from the surface of the impoundment using a pump that has a floating intake. The frequency of pumping depends on water levels in the impoundment and climatic conditions.

List of Table

List of Figures



KEYSTONE ENVIRONMENTAL RESOURCES, INC.

FIGURE 1

PLAN VIEW
OF SITE FEATURES
GRENADA, MS SITE
KOPPERS COMPANY, INC.

A102905

2.0 SCOPE OF WORK

2.1 Process Inspection

The spray field operation and treated wastewater discharge process will be evaluated at the site. This evaluation will include inspection of the surface impoundment operation, the process of pumping treated wastewater to the spray field, and the locations and operation of the spray nozzles. A conceptual schematic of the process will be completed from this reconnaissance.

2.2 Bottom Sediment Sludge (K001) Sampling

Samples from 10 locations within the surface impoundment will be collected and composited into one representative sample. Approximate sample locations shown on Figure 2 will be accurately determined in the field with the aid of a surveyed grid system. A transit will be used to establish reference points and lines will be run perpendicular and parallel to the long axes of the impoundment. Intersections of these lines identify sampling locations.

Bottom sediment sludge samples will be collected using ponar clamshell or colawasa sampling devices. After an estimation of the depth to bottom and sludge thickness is made, the sampling device will be lowered from a boat to the impoundment bottom. A representative portion of the sludge layer will then be collected, bottled and appropriately labeled. A physical description of the sampled material will also be made.

Upon collection, the samples will be shipped to Keystone Spectrix-Monroeville laboratory for compositing. Strict chain-of-custody procedures will be followed through sample handling.

2.3 Treated Wastewater Sampling

A sample of the treated wastewater will be collected from the surface impoundment line prior to discharge to the spray field. It is anticipated a grab sample will be obtained at the pump bypass line. Wastewater will be collected three times during an 8-hour period and composited into a single sample that will

1.2 Study Purpose

Although Koppers continues to assert that the spray field is not a regulated RCRA-unit, this investigation purpose is to demonstrate that the spray field at the Grenada plant is not a RCRA-regulated unit, for purposes of settling a disputed issue only, by establishing that:

- o K001 bottom sediment sludge is not being applied to the field by pumping of treated wastewater from the surface impoundment;

- o there has not been an accumulation of K001 sludge during the length of time the unit has been operational; and

- o concentrations of K001 constituents (Appendix VII) are not appreciably greater in the top 6 inches of the spray field soils than in the wastewater.

As presented at the February 3, 1987 meeting, successful demonstration of these objectives will provide Koppers the opportunity to appeal any factual determination that the spray field is a RCRA unit. This demonstration, and the results thereof, shall not be considered or deemed to be an admission by Koppers that the spray field is a RCRA-unit.

be shipped to the Spectrix-Monroeville laboratory for analysis. All sample collection and handling will follow Keystone's appropriate standard operating procedures.

2.4 Spray Field Soil Sampling

Soils within the spray field will be sampled at six locations to provide a suitable data base. In order to represent a worst case scenario, the samples will be collected from within spray areas of each nozzle presently known to be operable. The approximate locations of the nozzles, the spray areas, and the proposed sampling points are shown on Figure 3.

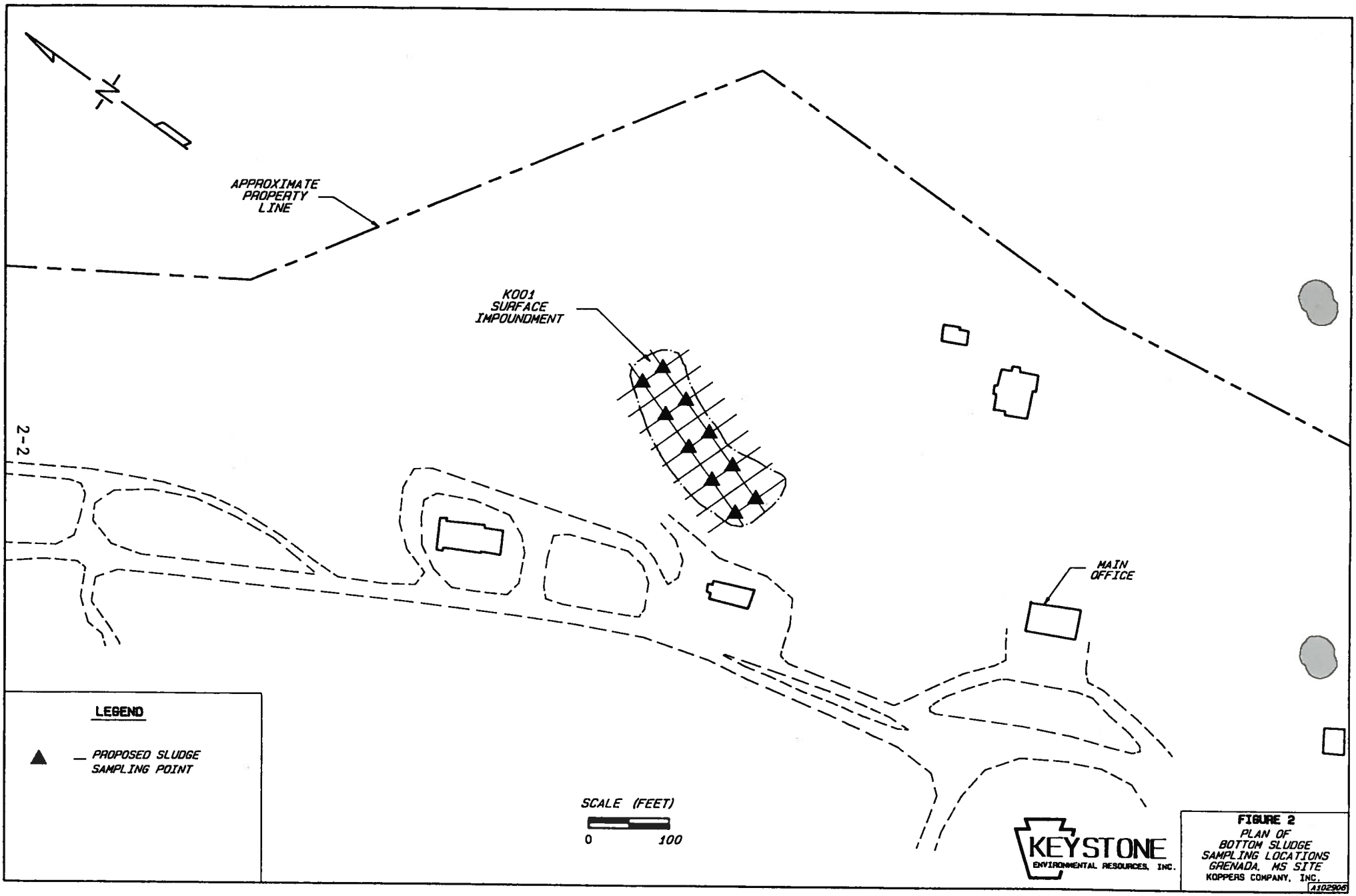
Soil samples will be collected from the interval between the ground surface and a depth of 6 inches at each location using dedicated stainless-steel trowels. Observations for the presence of a surface sludge layer will be made. Each sample will be field-classified and then packaged, labeled, and shipped to the laboratory. Chain-of-custody procedures will be adhered to at all times.

2.5 Laboratory Analysis

Upon receipt, samples will be assigned a laboratory identification number and submitted for analysis. The sludge, water, and soil samples will be analyzed for the Appendix VII waste specific parameters listed on Table 1 (CFR 40, 1985). The pH of the water sample will be measured in the field. Soil pH will be completed in the laboratory. Analysis will be in accordance with the EPA methods listed on Table 1. Resultant data will indicate K001 constituent concentrations for each type of sample collected.

2.6 Quality Assurance/Quality Control

Based upon field experience and review of pertinent guidance manuals and publications, Keystone has developed standard operating procedures for sample collection, handling, and transport. These guidelines are reviewed in detail prior to field mobilization to ensure that correct protocols are followed.


APPROXIMATE PROPERTY LINE
K001 SURFACE IMPOUNDMENT
2-2
MAIN OFFICE
LEGEND
PROPOSED SLUDGE SAMPLING POINT
SCALE (FEET)
0
100
KEYSTONE
ENVIRONMENTAL RESOURCES, INC.
FIGURE 2
PLAN OF
BOTTOM SLUDGE
SAMPLING LOCATIONS
GRENADA, MS SITE
KOPPERS COMPANY, INC.
A102906

Laboratory analyses follow a rigid quality control program consisting of daily instrument calibration, spikes, replicate spikes, and reference standards submitted with each batch of samples. A detailed laboratory QA/QC program is maintained at Spectrix-Monroeville.

2.7 Data Evaluation

All data generated during tasks performed in the field and by laboratory analysis will be evaluated to address the study objectives. Specific attention will be given to determining if K001 bottom sediment sludge has been applied or has accumulated within the spray field area. This will be determined in part by the process evaluation and by observations of the spray field soils.

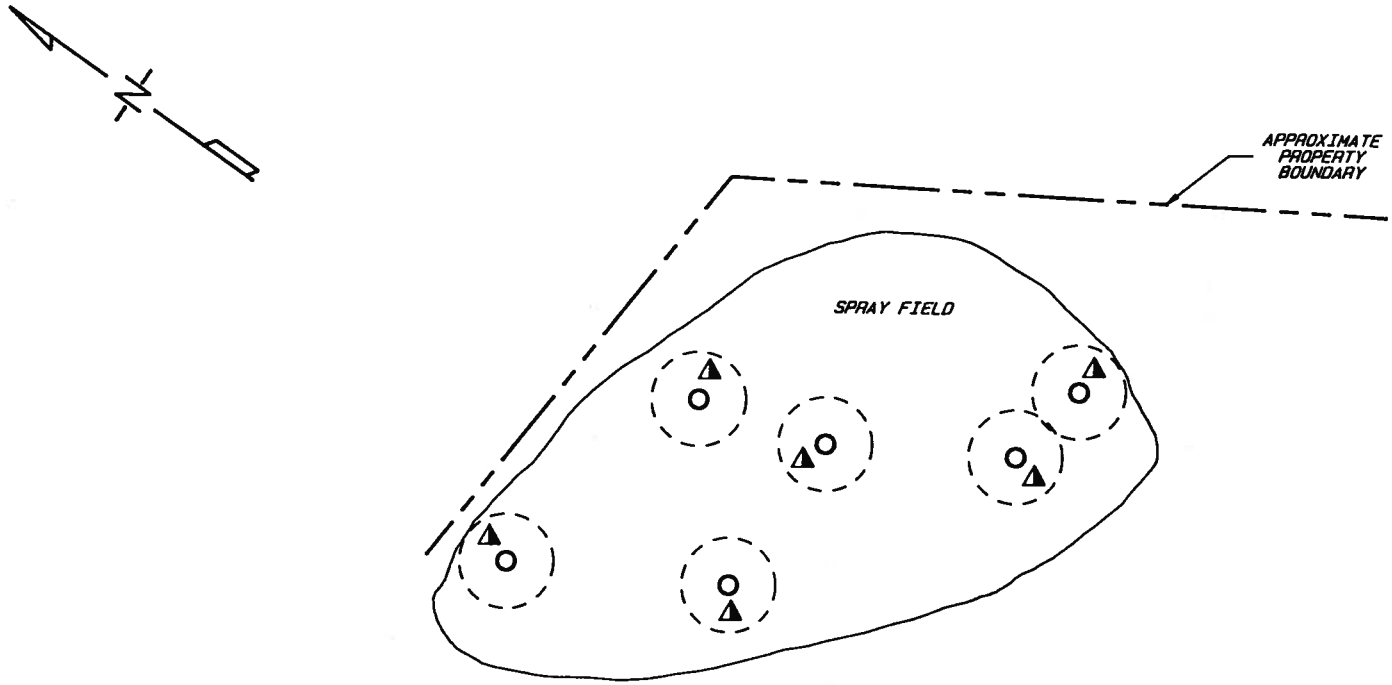
All of the chemical data will be tabulated. Evaluation of these data will enable a comparison to be made of constituent concentrations of representative sludge, treated wastewater and spray field soil samples.

A report will then be prepared which summarizes field activities, analytical results, and the conclusions of the chemical constituent comparison. Plan locations of sampling sites will also be provided.

TABLE 1
ANALYTICAL PARAMETERS AND TEST METHODS

KOPPERS COMPANY, INC.
GRENADA, MISSISSIPPI SITE

PARAMETER	TEST METHOD
pH	EPA-9045 soil EPA-150.1 water
Polynuclear Aromatic Hydrocarbons	EPA-8100 soil EPA 610 water
Phenols	EPA-8040 soil EPA 604 water



LEGEND

- PROPOSED SOIL SAMPLING POINT
- LOCATION OF SPRAY NOZZLES
- INFLUENCE OF SPRINKLER SYSTEM

SCALE (FEET)

0 100

KEYSTONE ENVIRONMENTAL RESOURCES, INC.

FIGURE 3

PLAN OF
SOIL SAMPLING LOCATIONS
GRENADA, MS SITE
KOPPERS COMPANY, INC.

A102907

3.0 PROJECT SCHEDULE

The entire project is expected to be completed prior to April 15, 1987. Sampling will be conducted during February, 1987, upon regulatory concurrence with the scope of work. It is anticipated that sample analysis can be completed in three to four weeks with the summary report to be prepared following receipt of the analytical results. The tasks and dates listed below summarize the anticipated project schedule:

Task	Interval
Work Plan Preparation	Feb. 6-12
Work Plan Submittal	Feb. 13
Regulatory Agency(s) Review and Approval	Feb. 16-20
Field Sampling	Feb. 24-26
Laboratory Analysis	Feb. 27-March 23
Data Evaluation	March 24-April 6
Report Submittal	April 8

STATE OF MISSISSIPPI

DEPARTMENT OF ENVIRONMENTAL QUALITY

RAY MABUS
GOVERNOR

July 8, 1991

CERTIFIED MAIL NO. P 675 195 859

Mr. James A. Werling
Beazer East, Inc.
436 Seventh Avenue
Pittsburg, PA 15219

RE: Comprehensive Groundwater
Monitoring Inspection
Koppers Industries, Inc.
Tie Plant, MS

Dear Mr. Werling:

Enclosed please find a Comprehensive Monitoring Inspection report and checklist completed as a part of the Comprehensive Monitoring Evaluation (CME) conducted December 11, 1990, at Koppers Industries, Inc. in Tie Plant, Mississippi. The Compliance Evaluation Inspection portion of the CME was mailed to Beazer under separate cover.

No violations were observed during the groundwater monitoring inspection. However, on the day of the inspection, monitoring well R-6 was noted to be damaged. This well should be properly plugged and abandoned to prevent possible migration of contaminants to the groundwater. In addition, samples for metals analysis should be analyzed for both total and dissolved constituents, as maximum concentration limits (MCLs) for groundwater are established using total concentrations.

If you have questions concerning this matter, please contact Mr. David Pentecost at (601) 961-5171.

Sincerely,

Thad Hopper By David C. Pentecost

Thad Hopper
Hazardous Waste Division

TH:DP:lfc

Enclosure

cc: Mr. James H. Scarbrough, EPA
Mr. J. D. Clayton, Koppers Industries, Inc. Tie Plant, MS

COMPREHENSIVE GROUNDWATER MONITORING EVALUATION
KOPPERS INDUSTRIES, INC.
TIE PLANT, MISSISSIPPI
DECEMBER 11,1990

AUTHOR: THAD HOPPER

TABLE OF CONTENTS

Comprehensive Groundwater Monitoring Evaluation

LIST OF TABLES

LIST OF FIGURES

INTRODUCTION

On December 11, 1990, Mr. Thad Hopper, Mississippi Department of Environmental Quality - Office of Pollution Control- Hazardous Waste Division, conducted a Comprehensive Groundwater Monitoring Evaluation (CME) and a Compliance Evaluation Inspection (CEI) at the Koppers Industries, Inc. facility located at Tie Plant, Mississippi. The facility was represented by Mr. Gary McClelland, General Yard Foreman. The CME was conducted to evaluate compliance with respect to Mississippi Hazardous Waste Management Regulations (MHWMR) Part 264, Subpart F and Mississippi Hazard Waste Management Permit (MHWMP) HW-88-543-01. The CEI was conducted to determine the facility's overall compliance with applicable MHWMR and MHWMP HW-88-543-01.

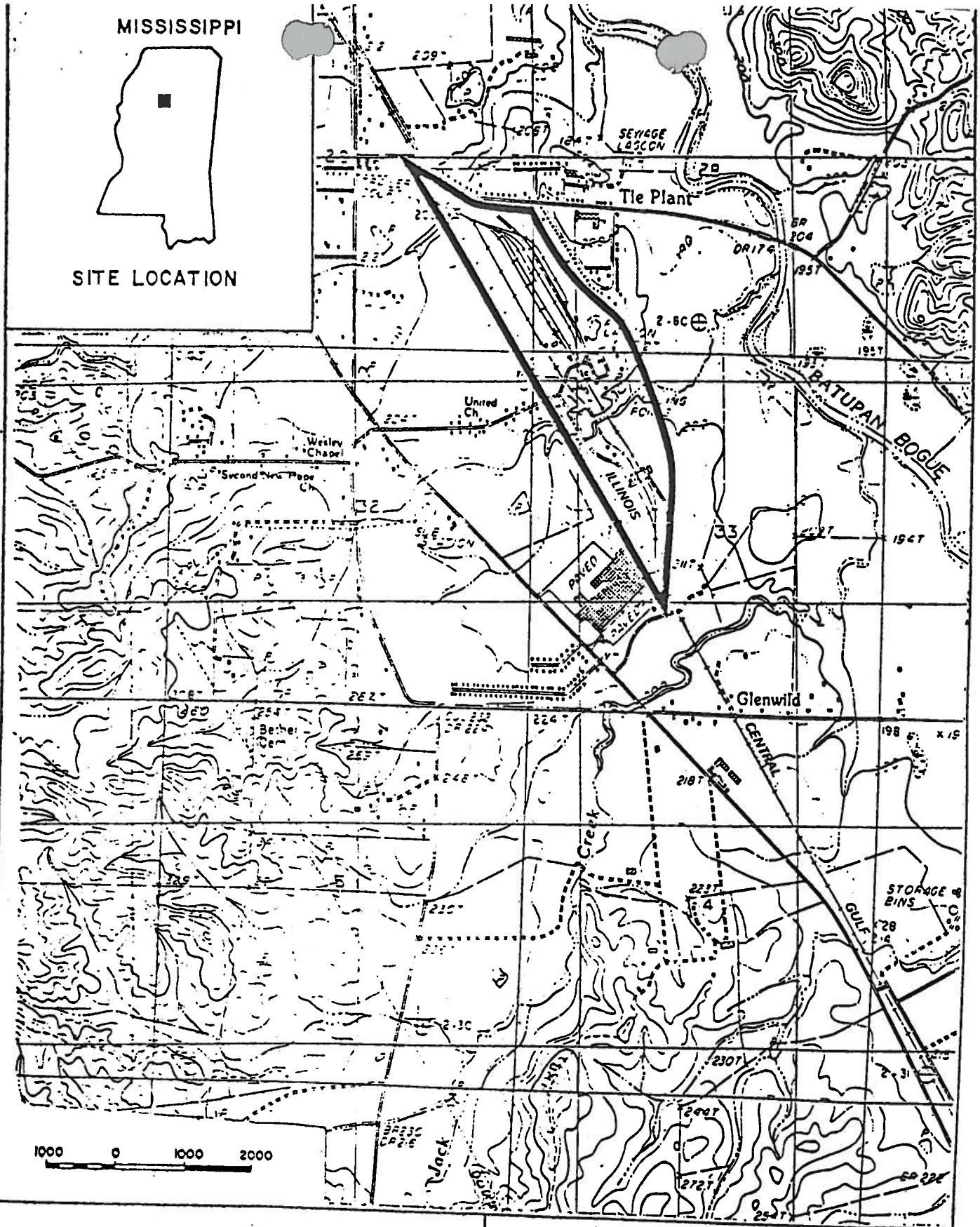
BACKGROUND

Facility/Locale

Koppers Industries, Inc. operates a wood treating facility at Tie Plant, near Grenada, Mississippi. A wood treating plant has been operating at the site since 1904 when Ayer and Lord Tie Company constructed a treatment facility for railroad and cross ties. The deed was transferred to Koppers Company, Inc. on November 9, 1944. Koppers Company, Inc. was acquired by Beazer Materials and Services, Inc. (BMS) on December 28, 1988. BMS sold the division, of which the Mississippi plant was a part, to a separate management group to form Koppers Industries, Inc. (KII). In April, 1990, BMS changed its' name to Beazer East, Inc. (BEI). Beazer East, Inc. provides financial assurance for post-closure care.

Consisting of approximately 171 acres, the wood treating plant is located approximately five miles southeast of Grenada, Mississippi, between State Highway 51 and Bogue Creek (Batupan Bogue). West and northeast of the plant is a small residential community (Tie Plant). Farm lands lie to the southeast, and Lennox Air Conditioning and Refrigeration Company is located to the southwest. The Western boundary of the plant is formed by the Illinois Central and Gulf Railroad. Figure 1 is a facility location map. Figure 2 is a site map of the KII facility. The treatment area, including the cylinders and tank farm is in the center of the plant. Treated materials are stored in both the northern and southern portions of the plant.

KII pressure treats railroad ties, poles, and lumber with creosote and pentachlorophenol. A 60/40 creosote solution, grade one creosote, and pentachlorophenol mixed with number 2 diesel fuel are used as preservatives. The facility operates five retorts. Two of the these are used to treat wood with a 8.5% mixture of pentachlorophenol in #2 diesel fuel, and two use a 60/40 creosote solution or grade one creosote. One retort is used only for steam conditioning of wood products. Untreated material arrives presized and is seasoned by air drying, steaming, or the Boulton process. Once seasoned, the wood undergoes pressure treatment. After the wood has been pressure treated, the preservative is blown back out of the retort to the work tanks. A vacuum is then applied to the retort to minimize the amount of drippage from the wood. The charge is



APPROXIMATE PROPERTY BOUNDRY OF KOPPERS COMPANY, INC.

KOPPERS COMPANY, INC.

Figure 1. Facility Location

SOURCE: USGS TIE PLANT QUADRANGLE

C.C. JOHNSON & MALHOTRA, P.C.

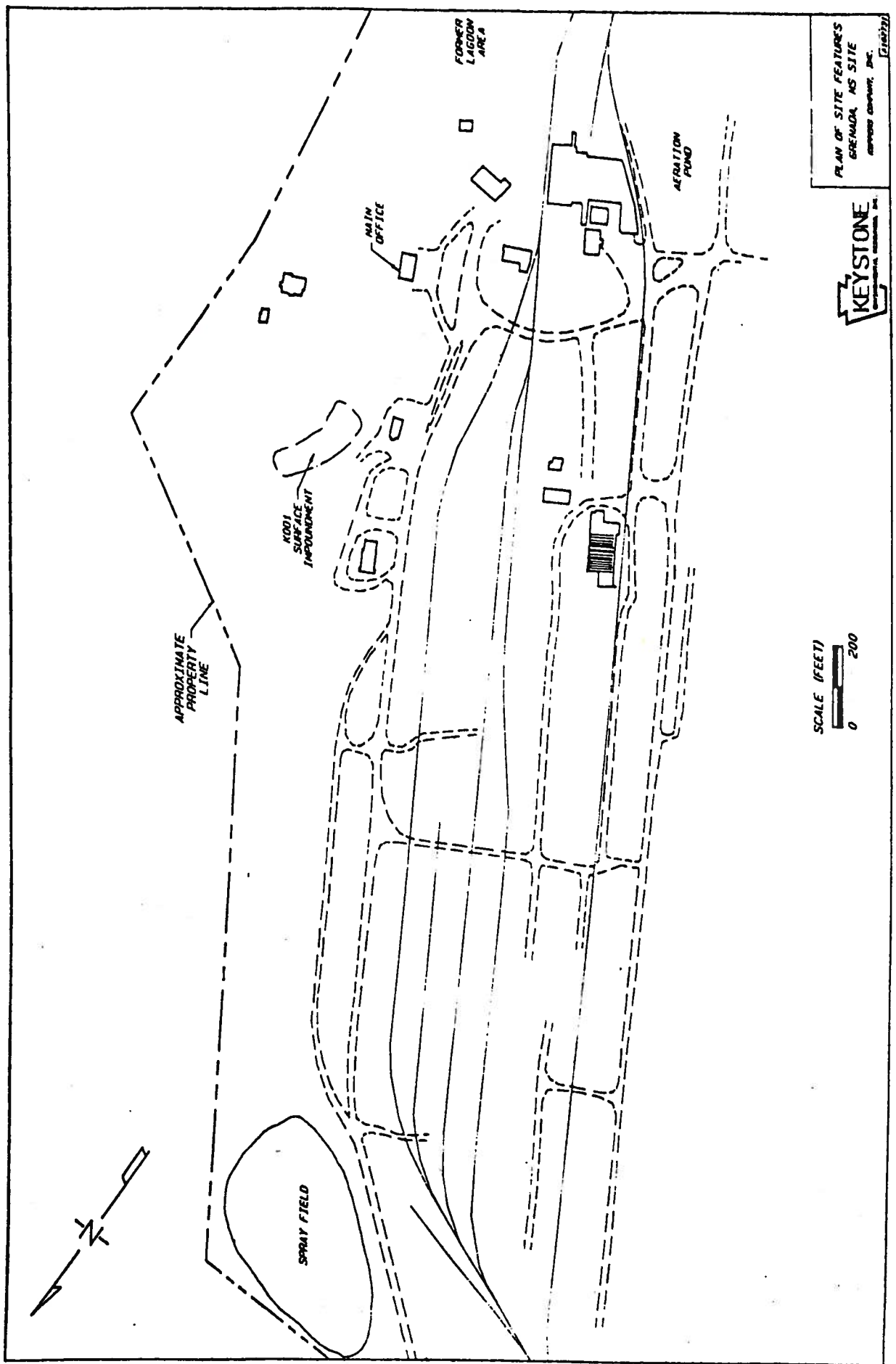

FORMER LAGOON AREA
MAIN OFFICE
AERATION POND
KODI SURFACE IMPOUNDMENT
APPROXIMATE PROPERTY LINE
SPRAY FIELD
N
PLAN OF SITE FEATURES GRENADA, MS SITE
KEYSTONE
SCALE (FEET)
0
200

FIGURE 2.

then pulled and allowed to cool on the drip tracks before being stored in the yard. A concrete-lined basement pit collects creosote or pentachlorophenol left in the retort. Sludges are shoveled into the drums and accumulated in the "Fuel Additive Program" for the plant boiler. On May 22, 1991, KII submitted a notification form as a burner of these sludges, newly regulated (June 6, 1991) hazardous wastes codes F032 and F034.

RCRA Regulated Units

KII is classified as a large quantity generator. The facility generates bottom sediment sludge from the treatment of wastewaters from wood preserving processes that use creosote and/or pentachlorophenol (K001), waste creosote (U051), and waste pentachlorophenol (F027). The facility has five hazardous waste management units: a less than 90 day container storage area, an industrial boiler fueled by hazardous waste, a storage area for hazardous wastes to be used in the boiler, a closed surface impoundment, and a boiler ash landfill. Drums of both hazardous and nonhazardous waste are stored in the container storage area which is the responsibility of KII.

The closed surface impoundment has remained the responsibility of BEI. This unit operated as part of the facility's wastewater treatment system and managed K001 listed hazardous waste from 1975(?) to mid 1985. Hazardous Waste Management Permit (HWMP) HW-88-543-01 was issued on June 28, 1988, for post-closure care and detection monitoring. The unit was certified closed according to the closure plan impoundment approved in the HWMP, January 3, 1990.

A boiler ash landfarm (BALF) received ash produced form the operation of a boiler for the conversion of wood and various wastes into steam. Prior to October, 1986, these included K001, U051, and F027 listed hazardous wastes. The ash generated from this process is a listed hazardous waste. These wastes are no longer used as fuel for the boiler, and ash is now disposed of in the Grenada County sanitary landfill. The BALF was certified closed on June 27, 1990. A groundwater quality assessment is being conducted in the area of the BALF to address off-site contamination. Once the off-site assessment is complete, this unit will be incorporated into the existing permit.

In addition to the five regulated units, ten solid waste management units (SWMUs) are under investigation (Table 1, Figure 3). These are being addressed under the 1984 Hazardous and Solid Waste Amendments (HSWA) portion of the RCRA permit issued on June 14, 1988, by EPA. A RFI Phase II Workplan submitted by KII is was approved on May 26, 1991,by EPA and the State. Submission of the RFI workplan also constitutes compliance with Mississippi Commission of Environmental Quality Order No. 1208-07 requiring investigation of releases from SWMUS. Other permits issued to the facility include Mississippi Air Operating Permit No. 0960-00012 for operation of the plant boiler and Mississippi Industrial Pretreatment permit PT90300 to discharge water into the Grenada POTW.

TABLE 1

SOLID WASTE MANAGEMENT UNITS
KOPPERS COMPANY
GRENADA, MISSISSIPPI

Area of Concern	Period of Operation	Types of Wastes Stored Disposed or Spilled
SWMU 1 OIL/WATER SEPARATOR	At least 1975 to present	Creosote, no. 2 diesel fuel, pentachlorophenol and oil wastes.
SWMU 2 SURFACE LAGOON	Same as 1	Same as 1
SWMU 3 SPRAY IRRIGATION FIELD	Same as 1	Same as 1
SWMU 4 BOILER	At least 1975 to present	Creosote wastes, pentachlorophenol wastes, contaminated soils, bottom sediments, and unreclaimable oil.
SWMU 5 LAND FARM	At least 1979 to 1980 to present	K001 bottom sediments boiler ash.
SWMU 6 PROCESS COOLING PONDS	At least 1970 to present	Unknown.
SWMU 7 CONTAINER STORAGE AREA	1980 to present	Creosote, pentachlorophenol, bottom sediments, contaminated soils, and unreclaimable oil.
SWMU 8 DRIP TRACK AREA	1979 to present	Creosote, no. 2 diesel fuel, pentachlorophenol and oil wastes.
SWMU 9 CHEMICAL UNLOADING AREA	At least 1975 to present	Creosote, no. 2 diesel fuel.
SWMU 10 UNDERGROUND STORAGE TANK	At least 1970 to present	Unknown, possibly creosote, pentachlorophenol contaminated run-off.
SWMU 11 ABANDONED WASTE TREATMENT SYSTEM	At least 1970 to about 1980	Creosote, no. 2 diesel fuel, pentachlorophenol and oil.
SWMU 12 NORTH WASTE PILES (2 Piles)	Unknown	Construction debris, treated and untreated scrap wood, railroad iron, scrap metal, rubber tires, other inert materials.
SWMU 13 SOUTH WASTE PILES (2 Piles)	Unknown	Untreated wood, empty railroad spike drums.

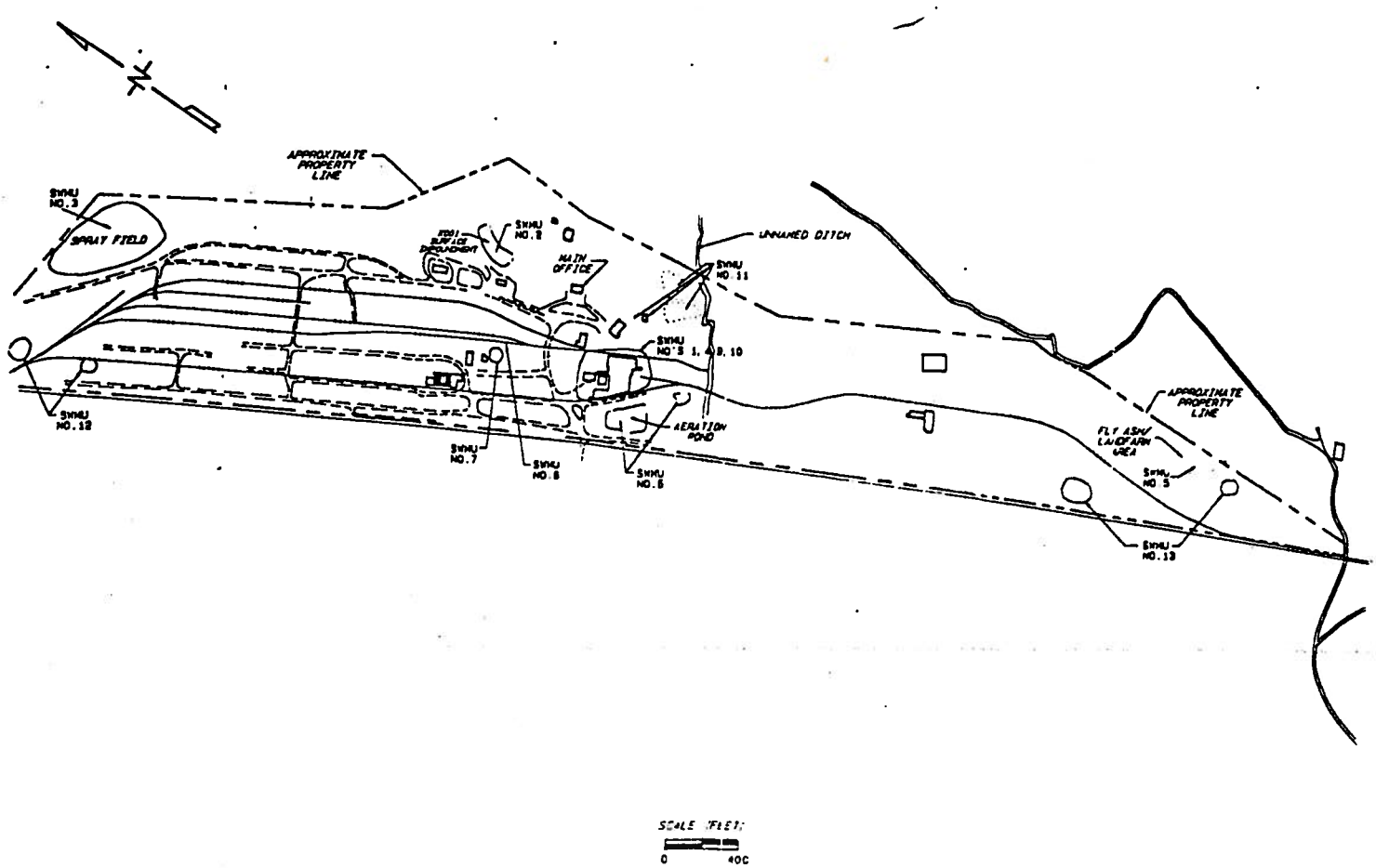


FIGURE 3. Location of SWMUs

Wastewaters from the surface impoundment were irrigated on a 3 acre sprayfield (Figure 2) from 1975(?) to 1988. The sprayfield is designated as SWMU 3, but because the unit did not generate listed KOO1 hazardous waste, by definition, the unit falls outside of the RFI workplan. The sprayfield is undergoing closure as a separate unit. Closure activities began April 1, 1991, and include dismantling of the spray heads and riser, plowing and seeding of to promote vegetative biodegradation, and soil sampling for wood treating constituents 180 days after seeding. A closure report is due 270 days from initiation of closure activities.

Site Geology and Hydrology

The Koppers site is located in Grenada County in north-central Mississippi. Grenada County is drained by the Yalobusha River and its tributaries and can be subdivided into three physiographic areas, trending north-south. From west to east these are the Mississippi River alluvial plain, the loessal hills, and part of the coastal plain east of the hills. The KII site is located in the loessal hills extending through the middle of the county. This area ranges from nearly flat to steep. Local soils are loess derived and silty.

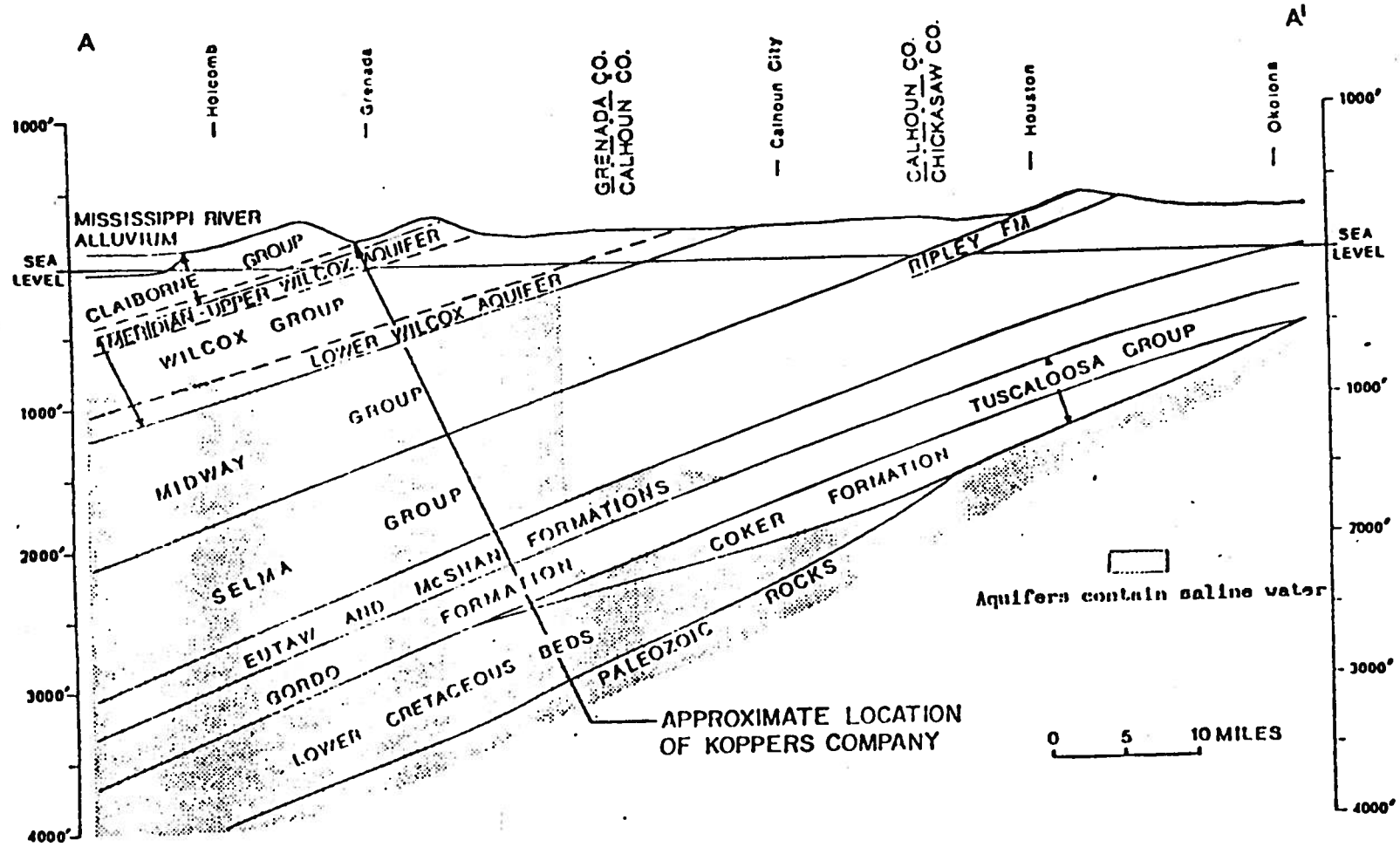
Stratigraphic formations ranging in age from Upper Cretaceous to Holocene age are exposed in the area. Deposits trend north-south and regional dip is westward toward the axis of the Mississippi embayment, the regional controlling structure.

In Grenada County, Tertiary aquifers constitute the primary groundwater supply. In ascending order, these are the Lower Wilcox, Meridian Upper, Wilcox, Tallahatta-Winona, and the Sparta Sand. The upper most aquifer in the Tie Plant area is Tallahatta-Winona aquifer which is part of the Eocene age Claiborne Group (see Figure 4). Regional flow in the Tallahatta-Winona aquifer is westerly toward the Mississippi Alluvial Plain. The Batupan Bogue, located approximately 3/4 mile east of the site, controls surface drainage in the area, and may act as a local groundwater discharge point.

At most drilling locations on the site, clays and silts are present near the surface to depths from 8 to 12 feet below surface. Beneath the surficial deposits is a sand unit containing discontinuous lenses three to five feet thick of clay and silt. Shallow monitoring wells in place at the site are completed within the sand layer at depths varying form 20 to 34 feet. Deep wells adjacent to existing shallow wells are screened ten feet below he bottom of the screen in the shallow well. The deepest boring extends to 145 feet without encountering a confining unit.

The Koppers plant supply well (installed in 1961) has a total depth of 310 feet and was installed in a 510 feet borehole. The driller's log indicates that the sand extends to a depth of 210 and then appears to be underlain by finer grained material. The supply well produces from the Meridian-Upper Wilcox, which extends to a depth approximately 500 feet in Grenada County.

Potentiometric maps produced from groundwater elevation data indicate that groundwater flow is generally east except in the southern portion of the facility where flows are in the northern direction (Figure 5). Well nests, in some cases, indicate significant differences in water levels between



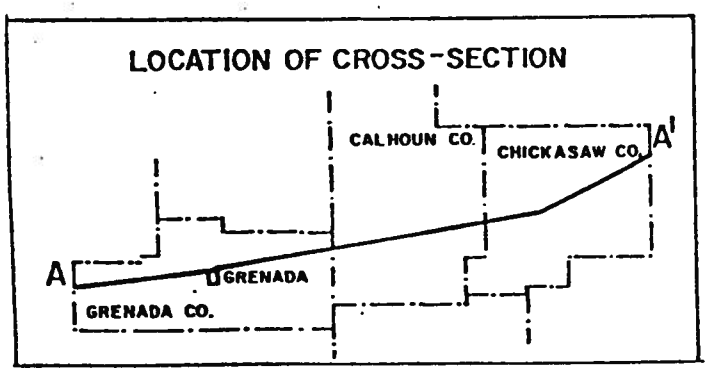


FIGURE 4. Regional Cross Section

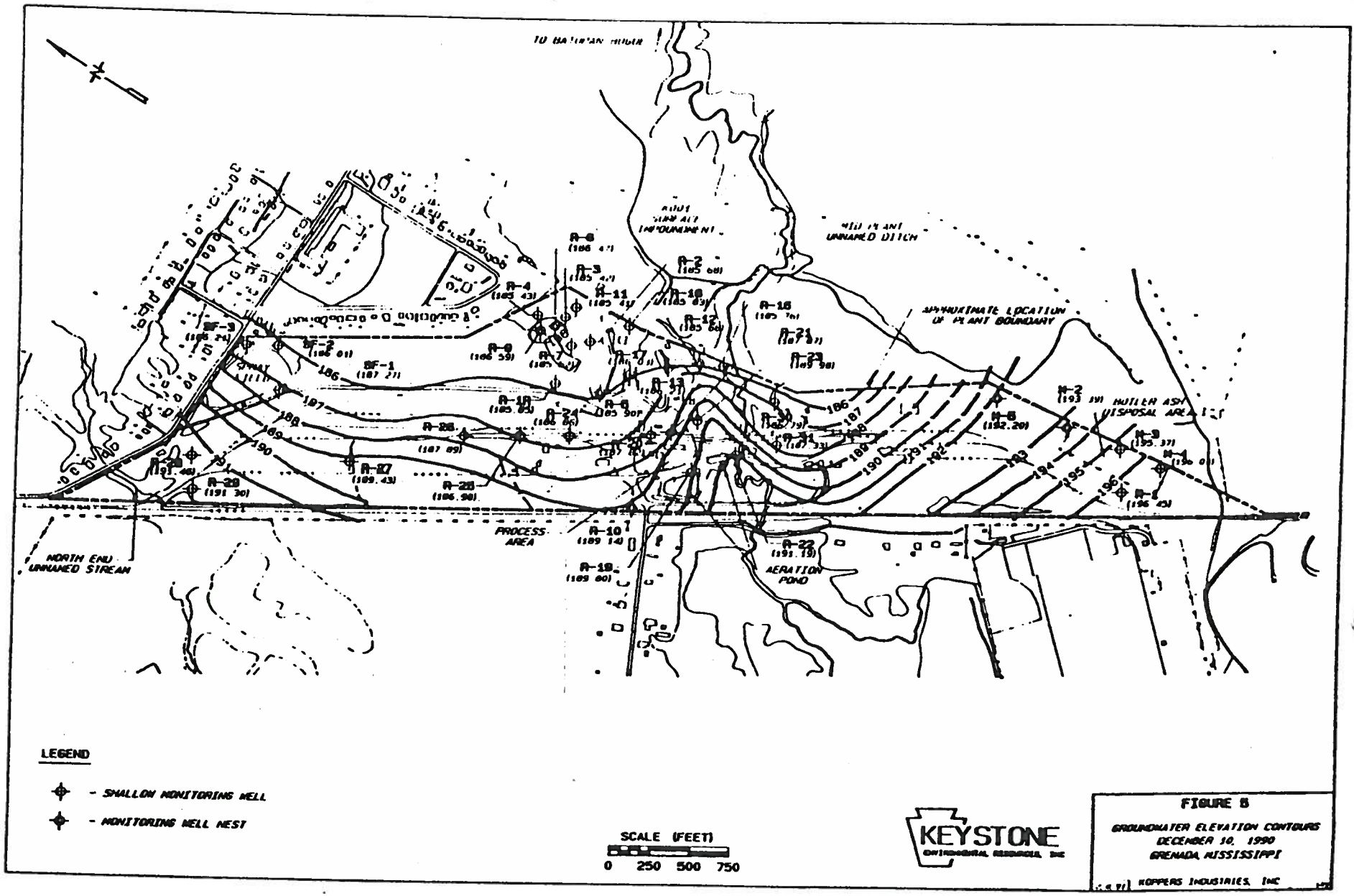


FIGURE 5. 4th Quarter Potentiometric Map

shallow wells and deep wells. Both downward and upward localized vertical gradients are apparent been at the site. Discontinuous clay lenses may cause these localized reversals in gradients.

Slug tests were conducted in nine monitoring wells on December 22, 1986. An average hydraulic conductivity of 2.8 ft/day was calculated from this data. Calculated hydraulic gradients for the north portion and southern portion of the facility are given in Table 2. Using these values and an effective porosity of 30%, the groundwater flow velocity is estimated to be 0.054 feet/day or 20.0 feet/year.

TABLE 2

	Northern Segment (ft/ft)	Southern Segment (ft/ft)
First Quarter	0.0061	0.0065
Second Quarter	0.0072	0.0036
Third Quarter	0.0059	0.0052
Fourth Quarter	0.0060	0.0056
Average	0.0063	0.0052

EVALUATION OF THE GROUNDWATER MONITORING PROGRAM

The following evaluation of the groundwater monitoring program at KII is based on documents submitted by the facility and on the Comprehensive Groundwater Monitoring Evaluation (CME) Inspection. The CME checklist is included as Appendix A to this report. This evaluation addresses the requirements of MHWMR Part 264, Subpart F.

MHWMR 264.97 (a)-(c)
General Groundwater Monitoring Requirements

An interim status monitoring program was instituted for the surface impoundment at KII in 1982. Four groundwater monitoring wells (R-1 through R-4) were installed in March, 1982. Analyses were performed on samples from these wells in 1982 and 1983. In 1984, the Mississippi Bureau of Pollution Control (MBPC) determined that the monitoring program was inadequate to meet regulatory requirements and requested that additional monitoring wells be installed at upgradient and downgradient locations.

During July, 1984, monitoring wells R-6 through R-9 were installed and a bimonthly sampling and analysis program was initiated. Although groundwater flow data indicated that wells R-5 and R-6 were upgradient of the facility, background water quality data was not observed. Therefore, a piezometer investigation was initiated in July, 1986 to define groundwater flow. This study determined that groundwater flow was to the east-northeast. In October and November 1986, five additional monitoring wells were installed. Wells R-10 and R-10B were installed at locations capable of providing ambient groundwater quality data and R-8B was located to provide groundwater quality data at depth, downgradient of the impoundment.

Results of sampling in 1986, indicated elevated constituents parameters present in R-5 and R-6. These elevated levels were attributed to operations upgradient of the surface impoundment. R-10 and R-10B also displayed phenol concentrations above the detection limit.

A RCRA facility assessment (RFA) was conducted in 1987 identifying 13 solid waste management units (Table 2, Figure 3). Three of these units - the surface impoundment (SWMU 2), the spray irrigation field (SWMU 3), and the boiler ash landfarm (SWMU 5) are regulated by the State and are not required to have an RFI performed under the EPA issued HSWA Permit signed June 28, 1988. A revised RFI workplan submitted January 11, 1991, was approved on March 26, 1991, and is currently being implemented.

As of February, 1991, a total of 46 monitoring wells were in place at the site. These include monitoring wells for the surface impoundment, boiler ash landfarm, spray field and solid waste management units. Table 3 gives a summary of well completion data and Figure 6 indicates well locations as of February, 1991. Site related constituents have been detected in both shallow and deep wells (Appendix B).

Installation of monitoring wells has been accomplished by use of both hollow stem auger and mud rotary drilling method. Monitoring wells are constructed of 2-inch inside diameter flush-joint PVC casing and a 10-foot section of 0.010-inch slot 2-inch diameter PVC screen. Medium to coarse grain sand was placed in the annulus around the screen to act as formation stabilizer packing. This sand extends approximately 2-feet above the top of the screened interval. Except in wells R-1 through R-4, a pelletized bentonite seal is above the sand to seal off the screened interval. The annular space overlying the sand packing in wells R-1 through R-4 was backfilled with auger cuttings which extend to within five feet of the surface. The remaining annular space in all wells is sealed with a cement/bentonite grout. At the surface, a protective steal casing with locking cap is in place around the the PVC casing. A sloping cement collar helps prevent water infiltration and ponding near the well casing. During well development approximately three casing volumes of water were purged by airlift method or dedicated bailers. Well completion diagrams are given in Appendix C.

MHWMR 264.97 (d)-(h)
Sampling and Analysis Procedures

During the inspection, sampling of R-7 and R-8, downgradient of the surface impoundment, was observed. The facility's RCRA Permit specifies that samples be collected on a semi-annual basis at the surface impoundment from downgradient wells R-7, R-8, R-8B, R-9, R-9C, R-9D, and upgradient wells R-1R and R-10 (A-series wells are equivalent to non-letter designated wells, i.e. R-8 = R-8A). In 1990, Koppers performed monitoring on a quarterly basis to establish background mean values and variance for indicator parameters. Table 4 lists monitoring parameters specified in the permit. Kopper's consultant, Keystone Environmental Resources, Inc., followed the sampling and analysis plan contained in Appendix E of the Facility's RCRA Permit.

TABLE 3

MONITORING WELL PHYSICAL DATA SUMMARY

KOPPERS INDUSTRIES, INC.
GRENADA, MISSISSIPPI

Well No.	Installation Date	Well Screen Type	Screened Interval Depth-Ft.	Material	PVC Measuring Point Elevation (Ft. above MSL)
R-1	3/82	2" PVC	20-30	Sand	210.81
R-1R	3/89	2" PVC	19.5-20.5	Sand	210.87
R-2	3/82	2" PVC	20-30	Sand	209.26
R-3	3/82	2" PVC	20-30	Sand	206.96
R-4	3/82	2" PVC	20-30	Sand	206.06
R-5	7/84	2" PVC	21-31	Sand	211.84
R-5B	8/88	2" PVC	41-51	Sand/Silty Clay	212.18
R-6	7/84	2" PVC	21-31	Sand/Clay and Silt	213.04
R-7	7/84	2" PVC	21-31	Sand	210.98
R-8	7/84	2" PVC	21-31	Sand	214.53
R-8B	11/86	2" PVC	36-46	Clay and Silt/Sand	208.98
R-9	7/84	2" PVC	21-31	Sand	213.66
R-9C	8/87	2" PVC	50.5-60.5	Sand	216.00
R-9D	8/87	2" PVC	77.2-87.2	Sand	216.07
R-10	11/86	2" PVC	17-27	Clayey Silt/Clay	208.78
R-10B	11/86	2" PVC	37-47	Sand	208.94

NOTES:

(1) Wells R-14 and R-15 which had been proposed for the Phase I RFI (SWMU Investigation) were not installed as off-site access was not permitted.

(2) Well R-1R has replaced well R-1, which was decommissioned in March 1989.

TABLE 3 (Cont'd)

MONITORING WELL PHYSICAL DATA SUMMARY

KOPPERS INDUSTRIES, INC.
GRENADA, MISSISSIPPI

Well No.	Installation Date	Well Screen Type	Screened Interval Depth-Ft.	Material	PVC Measuring Point Elevation (Ft. above MSL)
R-11	11/86	2" PVC	15-25	Sand	203.74
R-12	11/86	2" PVC	10-20	Sand	200.71
R-12B	8/88	2" PVC	31-41	Sand	201.28
R-13	8/88	2" PVC	21-31	Sand	216.69
R-16	8/88	2" PVC	10.5-20.5	Sand/Clayey Silt	199.44
R-17	8/88	2" PVC	19.5-29.5	Sand	213.03
R-18	8/88	2" PVC	21-31	Sand	212.82
R-19	8/88	2" PVC	17-27	Sand/Silt	212.77
R-20	8/88	2" PVC	22-32	Sand	214.10
R-21	8/88	2" PVC	18-28	Sand	211.89
R-22	8/88	2" PVC	18-28	Sand/Clayey Silt	213.19
R-23	8/88	2" PVC	12-22	Sand	205.50
R-24	8/88	2" PVC	22-32	Sand	211.76
R-25	8/88	2" PVC	21-31	Sand	211.54
R-26	8/88	2" PVC	23-33	Sand/Silty Clay	211.85
R-27	8/88	2" PVC	13-23	Sand/Silty Clay	210.05

NOTES:
(1) Wells R-14 and R-15 which had been proposed for the Phase I RFI (SWMU Investigation) were not installed as off-site access was not permitted.
(2) Well R-1R has replaced well R-1, which was decommissioned in March 1989.

TABLE 3 (Cont'd)

MONITORING WELL PHYSICAL DATA SUMMARY

KOPPERS INDUSTRIES, INC.
GRENADA, MISSISSIPPI

Well No.	Installation Date	Well Screen Type	Screened Interval Depth-Ft.	Material	PVC Measuring Point Elevation (Ft. above MSL)
R-28	8/88	2" PVC	17-27	Sand	207.89
R-29	8/88	2" PVC	18-28	Sand	206.78
R-30	8/88	2" PVC	19-29	Sand	210.55
R-31	8/88	2" PVC	24-34	Sand	214.09
M-1	12/87	2" PVC	16-26	Sand	215.00
M-2	12/87	2" PVC	17.5-27.5	Sand	215.28
M-2B	10/89	2" PVC	37.5-47.5	Clay and Silt/Sand	215.25
M-3	12/87	2" PVC	20-30	Sand/Silt to Silt and Clay	216.83
M-4	12/87	2" PVC	17.5-27.5	Sand/Silt and Clay	215.86
M-5	10/89	2" PVC	17.5-27.5	Clay and Silt/Sand	214.37
M-5B	10/89	2" PVC	40-50	Silty Clay/Sand	214.50
SF-1	8/85	2" PVC	17.5-27.5	Sand and Silt	212.74
SF-2	8/85	2" PVC	20-30	Sand and Silt	211.04
SF-3	8/85	2" PVC	16-26	Sand	211.09
SF-4	8/85	2" PVC	20-30	Sand/Silty Clay	212.19

NOTES:

(1) Wells R-14 and R-15 which had been proposed for the Phase I RFI (SWMU Investigation) were not installed as off-site access was not permitted.

(2) Well R-1R has replaced well R-1, which was decommissioned in March 1989.

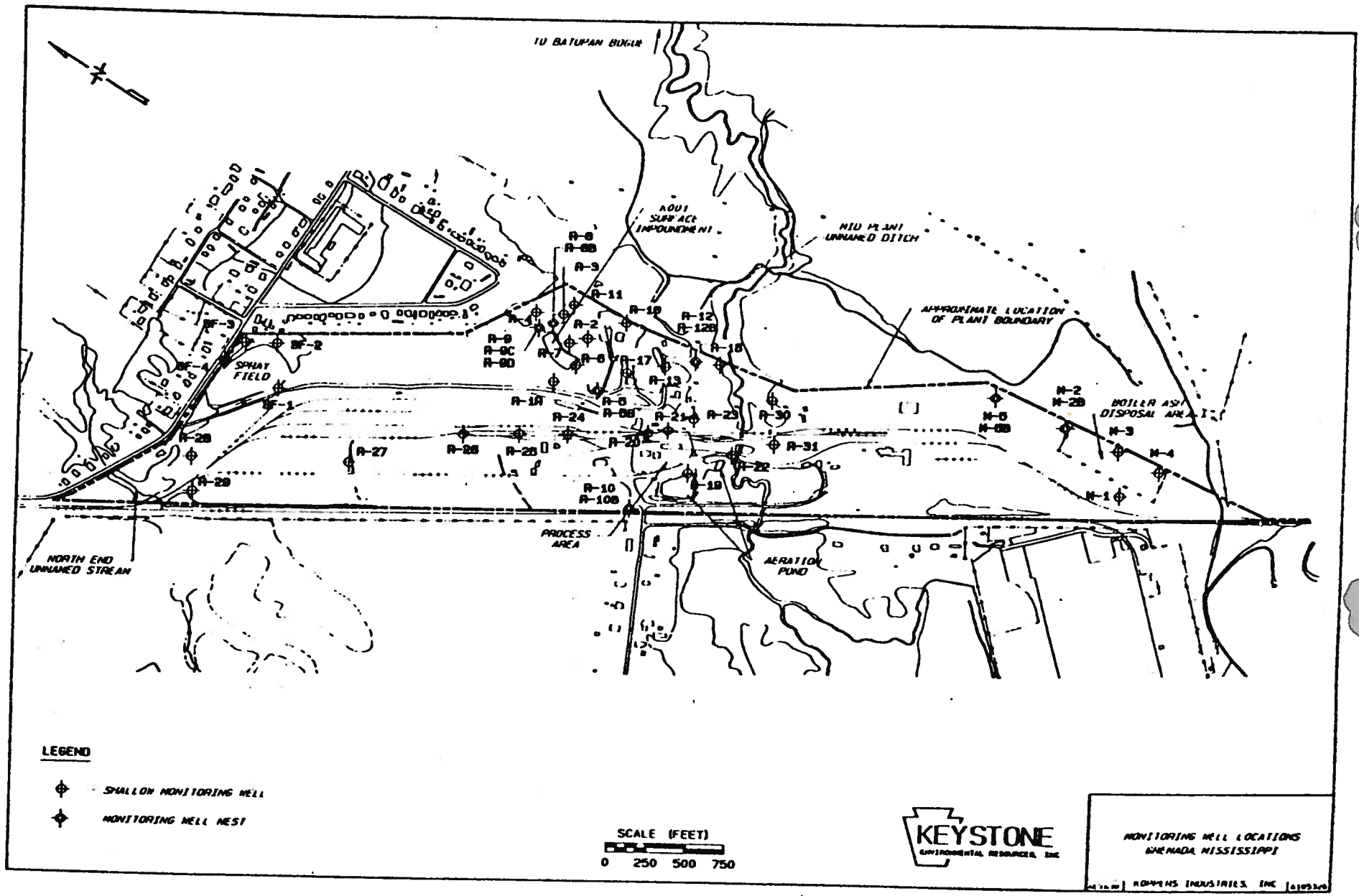


FIGURE 6. Monitoring Well System

TABLE 4 - MONITORED PARAMETERS

Constituents
Napthalene
Acenapthalene
Fluoranthene
Pentachlorophenol
2,4 Dinitrophenol
2,3,4,6-Tetrachlorophenol
2,4,6-Trichlorophenol
2,4-Dichlorophenol
2,4-Dimethylphenol
2-Chlorophenol
2-Nitrophenol
2-Methyl-4,6-Dinitrophenol
4-Nitrophenol
Phenol
Acenaphthene
Benzo(a)anthracene
Benzo(a)pyrene
Benzo(b)fluoranthene
Benzo(g,h,i)perylene
Benzo(k)fluoranthene
Chrysene
Dibenz(a,h)anthracene
Fluorene
Phenanthrene
Ideno(123-cd)pyrene
Pyrene
Bis(2-ethylhexyl)phthalat
Chromium
Mercury

Prior to sample collection static water levels and total well depths were measured in each well using an electronic oil/water interface probe. Water level measurements were recorded to an accuracy of 0.01 foot and well depths were measured to the nearest 0.1 foot. Wells were then purged by removing a minimum of three casing volumes of water. Some wells are purged to dryness before three well volumes are removed according to sampling personnel (R-10A and M-2). Purge water was disposed of in the facility's wastewater treatment system. Laboratory-cleaned, stainless steel bailers were used to sample and purge the wells. QA/QC procedures include requirements for at least one trip blank per sampling event and a minimum of one field blank per day of sampling.

Plastic sheeting was placed around each well before sampling. Collected samples were split for field measurement of pH, temperature and specific conductivity. Sample bottles were provided by the laboratory with appropriate preservatives added. All samples were properly labeled and chain of custody procedures were followed.

Field data sheets are completed for each well (Appendix D). Wells R-16, R-20, and R-25 were noted to contain product at the bottom. Well R-6 is damaged and total depth could not be measured. Compliance wells were in good condition on the day of the inspection.

Data Evaluation

Koppers is currently in a detection monitoring mode. Tables 5, 6, and 7 indicate 1990 Total Acid-Extractable Phenolics, Total Polynuclear Aromatic Hydrocarbons (PAHs), and Volatile Organic Compounds detected in groundwater respectively. Appendix B gives the complete results of the 1990 4th quarter monitoring event. The Behrens-Fisher method of statistical analysis is stipulated by the permit to be used in determination of variance from the background mean values for each parameter. Koppers has submitted an alternate method of statistical analysis as a background mean value can not be established by th Behrens-Fisher method due to the large number of non-detects. The Poisson method was used to compare the concentrations of five parameters (naphthalene, acenaphthalene, fluoranthene, 2,4-dinitrophenol, and pentachlorophenol) in background well R-10 to the concentrations in the six downgradient well for the surface impoundment. Application of this method indicates no evidence of significant difference for any of the compliance wells with respect to the five constituents which Koppers applied to this method. In addition to K001 constituents detected, chromium was detected in wells R-1R, R-8A, R-9A, and R-10A at 78.7 ug/l, 120 ug/l, 89.4 ug/l, and 61.1 ug/l respectively. The MCL for chromium is 50 ug/l.

TABLE 5

1990 TOTAL ACID-EXTRACTABLE PHENOLICS (ug/L)

KOPPERS INDUSTRIES, INC.
GRENADA, MISSISSIPPI

WELL	FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER
SURFACE IMPOUNDMENT				
R-1R	0.64	1.06	2.00 ND* 0.71**	4.29 5.60* 6.10**
R-7	0.63	0.58	2.51 3.52*	3.31 19.67*
R-8	1.07	1.06	2.01 0.88*	10.77 3.73*
R-8B	1.54	0.67	1.97 0.85*	5.49 250.53*
R-9	ND	1.44	45.38 3.20*	7.17 11.53*
R-9C	ND	0.57	70.34 26.94*	18.11
R-9D	0.77	0.63	20.07 10.52*	8.77 7.04*
R-10	ND	1.74	5.90 42.97* 18.97**	3.11 2.36* 2.71**
Field blank	0.74	ND ND	22.55 4.05*	1.09
Trip blank	—	ND	3.80	ND
BOILER ASH DISPOSAL AREA				
M-1	—	305.15	2.25	6.03
M-2	—	122.29	21.00	27.92
M-3	—	2.13	5.23	2.13
M-4	—	69.06	3.95	5.08
Field blank	—	ND	ND	6.04
Trip blank	—	ND	ND	0.95

NOTES:

1) — Indicates no sample collected for RCRA Monitoring.
2) ND - Indicates the parameter was not detected.
3) * - First replicate sample.
4) ** - Second replicate sample.
5) Individual phenolics constituents which were below detection limit were counterd as zero for summation purposes.

TABLE 6

1990 TOTAL POLYNUCLEAR AROMATIC HYDROCARBONS (ug/L)

KOPPERS INDUSTRIES, INC.
GRENADA, MISSISSIPPI

WELL	FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER
SURFACE IMPOUNDMENT				
R-1R	ND	4.80	5.78 2.64* 6.39**	1.94 0.85* 1.18**
R-7	ND	3.26	5.13 51.6*	0.31 0.38*
R-8	ND	ND	2.46 ND*	0.88 2.15*
R-8B	5 06	8.10	2.90 2.84*	5.13 0.63*
R-9	ND	1.77	5.31 1.43*	0.10 0.09*
R-9C	ND	ND	ND ND*	5.08
R-9D	ND	0.23	ND ND*	0.12 0.14*
R-10A	1.09	1.23	0.03 0.10* 0.10**	1.76 1.18* 0.85**
Field blank	ND	7.91	0.07	0.06
Trip blank	—	ND	0.05	1.08
BOILER ASH DISPOSAL AREA				
M-1	—	52.00	0.02	1.28
M-2	—	2.13	2.65	4.6
M-3	—	0.23	0.03	0.68
M-4	—	6.91	0.04	3.73
Field blank	—	ND	ND	0.08
Trip blank	—	ND	ND	0.09

NOTES:

1) — Indicates no sample collected for RCRA Monitoring.
2) ND - Indicates the parameter was not detected.
3) * - First replicate sample.
4) ** - Second replicate sample.
5) Individual PAH constituents which were below the detection limit were counted as zero for summation.

TABLE 7

1990 VOLATILE ORGANIC COMPOUNDS DETECTED IN GROUNDWATER

KOPPERS INDUSTRIES, INC.
GRENADA, MISSISSIPPI

WELLS		M-1	M-2	M-3	M-4
	(UNIT)		2ND QUARTER		
trans-1,2-dichloroethene	ug/L	ND	ND	82.4	306
trichloroethene	ug/L	ND	ND	2750	2030
			3RD QUARTER		
trans-1,2-dichloroethene	ug/L	ND	ND	67	150
trichloroethene	ug/L	ND	ND	2890	3080
			4TH QUARTER		
trans-1,2-dichloroethene	ug/L	ND	ND	80.6	212
trichloroethene	ug/L	ND	ND	2510	4020

CONCLUSIONS

No violations were noted during the observed sampling event at the facility. The sampling and analysis plan contained in the RCRA Permit was followed, and the sampling crew was knowledgeable of proper sampling technique. Samples for metals analysis should be collected and analyzed for both total and dissolved constituents, however. While all wells specified in the permit were in good condition, damaged well R-6 should be properly plugged and abandoned to prevent possible migration of contaminants to the groundwater.

Since four quarters of statistical data are not available for constituents added to the detection monitoring program, as modified by MDEQ on February 3, 1990 (see Table 4), use of the statistical method proposed by Koppers may not yet be approved. However, as contamination appears to be wide spread at this site (as evidenced by constituent levels detected in background wells and free product detected in wells near the process area- R-16, R-20,and R-25) and as groundwater flow direction is from areas of high contamination - toward the regulated unit, the establishment of a site specific groundwater protection standard (GWPS) for each constituent may be more appropriate than applying such statistical comparisons. Analytical method detection limits, MCLs, or maximum constituent concentrations derived from health based risk assessment calculations may be the basis for the GWPS.

Beazer

BEAZER EAST, INC., 436 SEVENTH AVENUE, PITTSBURGH, PA 15219 USA

January 11, 1991

Ms. Gail Macalusa
Mississippi Department of Natural Resources
Bureau of Pollution Control
2380 Highway 80 West
Jackson, MS 39204

Re: SWMU Closure Plan - Sprayfield
Koppers Industries, Inc.
Grenada, MS Facility

Dear Ms. Macalusa:

This letter provides a schedule for initiation of the closure plan for the sprayfield at the above-referenced facility.

As indicated in the closure plan submitted to you on October 9, 1990, closure will be scheduled to coincide with the onset of the active vegetative growing season. These warmer weather conditions are needed to enhance natural biodegradation. Thus, closure activities will be initiated on April 1, 1991.

Please call me at 412/227-2185 if you have any questions or comments.

Sincerely,

Jane M Patarcity

Jane M. Patarcity
Program Manager-Environmental Services

/lpd

cc: J. Clayton - KII
J. Batchelder - KII
R. Haimann- D&M
B. Nolan
T. Hopper - MSDNR

RCRA Inspection Report

1. Inspector and Author of Report

Thad Hopper, Mississippi Office of Pollution Control (OPC)

2. Facility Information

Koppers Industries, Inc. (Beazer East, Inc.)
P.O. Box 160
Tie Plant, Mississippi 38960

3. Responsible Company Official

Mr. J. D. "Rock" Clayton, Plant Manager, Kopper Industries, Inc. (KII)

4. Inspection Participants

Mr. Thad Hopper, OPC
Mr. Gary McLelland, General Yard Foreman, KII

5. Date and Time of Inspection

December 11, 1990 11:00 a.m. CST

6. Applicable Regulations

Mississippi Hazardous Waste Management Regulations (MHWMR) Parts 262, 264, 268, and Mississippi Hazardous Waste Management Permit No. 88-543-01.

7. Purpose of Inspection

A Comprehebsive Monitoring Evaluation (CME) was performed. This report addresses the Compliance Evaluation Inspection (CEI) portion of the CME. The CEI was conducted to determine the facility's overall compliance with applicable Mississippi Hazardous Waste Management Regulations and the facility's Hazardous Waste Management Permit. Evaluation of the facility's comliance with applicable groundwater monitoring requirements of MHWMR Part 264, Subpart F, and MHWMP 88-543-01 will be forwarded under a separate cover letter.

8. Facility Description

KII is a wood treating facility located in Tie Plant, Mississippi, which is approximately five miles southeast of Grenada, Mississippi. The facility uses creosote and pentachlorophenol to treat wood products for railroads, construction industries,

utilities, and others. Ties, poles, and lumber are received mainly by rail and are stored onsite.

Koppers Company, Inc. was acquired by Beazer Materials and Services (BMS) on December 28, 1988. BMS subsequently sold the division, of which the Tie Plant Mississippi plant was a part, to a management group to form Koppers Industries, Inc (KII). In April, 1990, BMS changed its name to Beazer East, Inc (BEI). RCRA regulated units at the faciltiy consist of a closed surface impoundment, a less than 90 day hazardous waste storage area, and a boiler ash landfarm. KII is a generator with a less than 90 day hazardous waste storage area, and owner of the closed surface impoundment and boiler ash landfarm (BALF). BEI is the operator of the surface impoundment and BALF. Beazer East, Inc. provides financial assurances for post-closure.

The facility has been issued a full RCRA permit. The state issued MHWMP No. 88-543-01 on June 28, 1988, for post-closure care of the surface impoundment. EPA issued the 1984 Hazardous and Solid Waste Amendments (HSWA) portion of the RCRA permit June 14, 1988, requiring KII to investigate releases of hazardous waste or hazardous constitiuents from solid waste management units. Other permits issued to the facility include Mississippi Air Operating Permit No. 0960-00012 for operation of the plant's boiler and Mississippi Industrial Pretreatment permit PT90300 to discharge wastewater into the Grenada POTW.

Hazardous wastes which are generated and stored at the facility are bottom sediment sludge from the treatment of wastewaters from wood preserving processes that use creosote and/or pentachlorophenol (KOO1), waste creosote (UO51), and waste pentachlorophenol (FO27). Both hazardous and nonhazardous are stored in the less than 90 day storage area.

The closed surface impoundment was formerly part of the wastewater treatment system and handled KOO1 listed hazardous waste. The unit was certified closed on January 3, 1990 and is now in post-closure. KOO1 constituents have been detected in monitoring wells upgradient and downgradient of the surface impoundment. Wastewater is currently routed through an oil/water separator and an activated sludge treatment system, before being discharged to the City of Grenada POTW.

Prior to October, 1987, KOO1, UO51, and FO27 wastes were burned in a boiler (for thermal conversion of wood and various wastes to steam). The ash from this processs is a hazardous waste. Before October 27, 1987, these ashes were deposited at a boiler ash landfarm (BALF). Waste sludge from two surface impoundments (which closed prior to November, 1980, and are now SWMUS) was also landfarmed at this site. The BALF was certified closed on June 27, 1990, and a groundwater quality assessment is being conducted to address off-site contamination. Once the off-site assessment is complete, the BALF will be incorproated into the existing RCRA permit. KOO1, UO51, and FO27 are no longer burned as fuel for the

boiler. The facility now uses a mixture of process creosote (bottoms from work tanks) referred to as "fuel additive", wood chips and wood debris. The ash is deposited in the county sanitary landfill.

In addition to the regulated units at the facility, 13 SWMUS have been identified. A PHASE II RCRA Facility Investigation (RFI) report submitted by KII to assess the extent of releases from SWMUS is now under review by the state and EPA. Submission of this workplan also constitues compliance with Mississippi Commission of Environmental Quality Order No. 1208-87 requiring investigations of releases from SWMUS.

9. Findings

A visual site inspection, record review, and an evaluation of the groundwater monitoring system (including observation of sampling at monitoring wells R-7 and R-8), were conducted at the facility. Results of the groundwater portion of the CME will be submitted under a separte cover letter.

The less than 90 day storage area contained only bulk, cyrstalline pentachlorophenol product. Appropriate warning signs were in place. The cap of the closed surface impoundment was intact, with no settling or erosion noted, and monitoring wells associatied with the impoundment appeared in good condition. The impoundment area was unfenced, and no facility-wide means of security is provided. Attachment I, Post-Closure plans, requires security to be maintained, and Appendix D to Attachment I, the Post-Closure care checklist, includes a fence and signs to be routinely inspected. Monitoring wells for the BALF were in good condition, and no erosion or settling of the cap was observed. The BALF was also unfenced; however, the approved closure plan did not include security provisions.

Several piles of soil, removed during installation of a new drip track and excavated during remedial activities were noted in the southern portion of the facility. Some of this soil was being stored under a shed, while other piles had been placed on plastic, but were exposed to the elements.

Records reviewed included inspection reports, personnel training, waste manifests, financial and liability assurance documents, closure and post-closure plans, contingency plans, the RCRA permit, and groundwater analytical data. All records were complete and up to date with the exception of post-closure inspection records for the surface impoundment. The inspection schedule currently completed is for an operating surface impoundment and is not the form stipulated in the RCRA permit.

10. Conclusions

The facility was in apparent violation of the following Mississippi Hazardous Waste Management Regulations and Conditions of the facility's RCRA permit:

MHWMR 264.14 and MHWMP 88-543-01 Attachment I (Post-Closure Requirements) and Appendix D. Failure to maintain security devices. No signs posted or fence installed.

MHWMR 264.15 and MHWMP 88-543-01 Attachment I, Appendix D. Failure to follow the Post-Closure inspection form developed for Post-Closure care maintenance.

In addition, a report should be submitted detailing facts concerning the soil piles stored in the southern portion of the facility. This report should include approximate amount of material stored, material source location, and results of analytical testing, length of time material has been stored, and proposed final disposition. If the material has not been analyzed for TCLP characteristics, this test should be performed and the results submitted.

11. Signed

1-23-91

12. Approval

1/23/91

cc: Mr. James H. Scarbrough, EPA
Ms. Jane M. Patarcity, Beazer East, Inc.

RCRA Inspection Report

1. Inspector and Author of Report

Gail Macalusa
Environmental Engineer
Bureau of Pollution Control

2. Facility Information

Koppers Industries, Inc. (Beazer Materials & Services)
P.O. Box 160
Tie Plant, Mississippi 38960

3. Responsible Company Official

Mr. J. D. "Rock" Clayton, Plant Manager
Koppers Industries, Inc. (KII)

4. Inspection Participants

Mr. J. D. "Rock" Clayton, KII
Mr. Gary McClelland, KII
Ms. Gail Macalusa, BPC

5. Date and Time of Inspections

February 22, 1990; 10:00 a.m. CST

6. Applicable Requirements

Mississippi Hazardous Waste Management Regulations (MHWMR) Parts 262, 264, 265, and 268 and Mississippi Hazardous Waste Management Permit No. 88-543-01.

7. Purpose of Inspection

This was a Compliance Evaluation Inspection (CEI) to determine the facility's overall compliance with applicable regulations and the facility's MHWMR Permit.

8. Facility Description

KII is located in Tie Plant, Mississippi, which is approximately five miles southeast of Grenada, Mississippi. The facility is a wood treating facility which uses creosote and pentachlorphenol in the pressure treatment of wood products for railroads, construction industry, utilities, and others. Raw material and product arrive and leave by rail and truck.

Koppers Company, Inc. was acquired by Beazer Materials and Services, Inc. (BMS) on December 28, 1988. BMS sold the division, of which the Grenada, Mississippi plant was a part, to a management group to form Koppers Industries, Inc. (KII).

KII is a generator with a less than 90 day storage area, and owner of the surface impoundment and boiler ash landfarm (BALF). BMS is the operator of the surface impoundment and BALF.

The surface impoundment is permitted and has been modified to reflect KII as owner and BMS as operator. The unit was certified closed on January 3, 1990, and is now in post-closure. K001 constituents have been detected at significant levels in both the upgradient and downgradient wells. The process area has been classified as a SMU, and is located upgradient to the surface impoundment, close to the upgradient well. This area may be the source of contamination. The Mississippi Department of Environmental Quality requested BMS to submit a workplan, in accordance with Mississippi Commission Order No. 1208-87, for a facility-wide assessment to fully characterize the extent of contamination. The workplan was submitted in January, 1990, and is currently under review by MDEQ and EPA.

The BALF is scheduled to be certified closed by June 1, 1990. Currently, a groundwater quality assessment is being conducted, in the area of the BALF, to address off-site contamination. The MDEQ is awaiting the results of the assessment before proceeding to include this unit in the existing permit.

The hazardous wastes which are generated and stored at the facility are bottom sediment sludge from the treatment of wastewaters from wood preserving processes that use creosote and/or pentachlorophenol (K001). Waste creosote (U051) and certain waste pentachlorophenol (F027) are also managed at times. The surface impoundment was formerly operated as a wastewater treatment lagoon and generated the listed hazardous waste K001. Currently, the wastewater is being routed through the wastewater treatment plant, which consists of an oil/water separator and an activated sludge system, before being discharged to the City of Grenada POTW. Prior to October, 1987; K001, U051, and F027 wastes were burned in a boiler (used for thermal conversion of wood and various wastes to steam). The ash from burning these wastes is a hazardous waste. These ashes were deposited at the boiler ash landfarm prior to July, 1987. K001, U051, and F027 wastes are no longer used as fuel for the boiler. Ash from the boiler is now disposed of in the county sanitary landfill. Waste sludge from two impoundments (which closed prior to November 19, 1980, and are now SMU's) was landfarmed at this site prior to the ash disposal. Currently, the boiler ash landfarm is being capped with the waste in place.

9. Findings

A record review was conducted at the facility. Records reviewed included inspection reports, personnel training, waste manifests on received and shipped wastes, financial and liability assurance documents, closure and post-closure plans, the facility contingency plan, and the permit. All records appeared to be complete and up-to-date, with the exception of the groundwater

data. Records of monitoring, testing, and analytical data are not maintained at the facility. According to Mr. Clayton, groundwater data is retained by BMS. This is an apparent violation of Permit Condition IV.H.1. and MHWMR 265.73(b)(6).

A visual site inspection of the storage area, the landfarm, and the capped surface impoundment was conducted. The less than 90 day container/drum storage area contained only non-hazardous waste (bottom creosote sludge from the work tanks at the Little Rock, Arkansas plant) at the time of inspection. Warning signs were visible from every approach. The fence surrounding the landfarm has been removed for closure activities. The monitoring well that had been damaged during closure of the surface impoundment (R-8B) has been repaired.

10. Conclusions

The facility is in apparent violation of Permit Condition IV.H.1., and MHWMR 265.73(b)(6) - failure to maintain monitoring, testing, and analytical data at the facility.

11. Signed

Wm Stephen Spencer for/Gail Mansbach — 3/20/90
Date

12. Approval

Wm. Stephen Spencer — 3/20/90
Date

GM-23:lr

Beazer Materials and Services, Inc.
A Member of THE BEAZER GROUP
Environmental Services
436 Seventh Avenue, Pittsburgh, PA 15219
Phone: 412-227-2500 Fax: 412-227-2950

Beazer

November 8, 1989

Ms, Gail Macalusa
Mississippi Department of
Natural Resources
2380 Highway 80 West
P.O. Box 10385
Jackson, MS 39209

Re: RCRA Closure Schedules
Koppers Industries, Inc.
Grenada, Mississippi Facility
MSD 007 027 543

Dear Ms. Macalusa:

As requested by MSDNR, Beazer Materials and Services, Inc. (BM&S) has prepared the following summary of schedule information associated with the closure of the surface impoundment and boiler ash landfarm at the above-referenced facility. I apologize for not sending this information to you sooner.

Surface Impoundment - On June 28, 1988, Koppers Company, Inc. (Koppers), now BM&S, was issued a hazardous waste management permit (No. 88-543-01) which included an approved closure plan and estimated schedule. The schedule for closure estimated a total duration of 435 days from initiation. Although the upgraded wastewater pretreatment system did not become fully operational until March 1989, the facility ceased the continued use of the impoundment on or about August 7, 1988 in advance of the land disposal prohibition of EPA hazardous waste K001. At about that time, Koppers had initiated the removal of K001 sludge resident in the impoundment. Assuming that August 8, 1988 coincides with "Day 0" of the schedule, completion of closure was therefore expected on or before September 6, 1989. Certain events have transpired which have delayed the project as outlined below. In addition, a chronological history of the closure through September 21, 1989 was sent to your attention on October 6, 1989.

1. Closure Plan Modification - A letter dated April 13, 1989 was sent by BM&S to MSDNR requesting a Class I modification incorporating a change in the closure cap configuration which was better engineered and protective than the original. On June 9, 1989, BM&S received notice from MSDNR that the modification had been approved. During this time period a significant quantity of rainwater had accumulated in the

Writer's Direct Dial 412-227-2952

impoundments which required pumping to the Grenada POTW (under a limited hydraulic loading rate) over a time period of approximately 30 days before closure activities could be resumed. This down-time was not anticipated in the original closure schedule.

Total delay: Modification approval = 57 days
Pumping rainwater = 30 days
Total Delay = 87 days

2. Closure Execution: Due to the characteristics of the borrow material, bentonite was added to the soil to obtain a permeability of less than 1 x 10^{-7} cm/sec. Field placement and subsequent permeability tests for the first soil-bentonite life failed these minimum permeability requirements and necessitated removal of the lift, modification to soil-bentonite mix ratios and replacement of the first lift. The total delay caused by this activity was approximately 14 days. Weather conditions during September and October 1989 have not been ideal for soil working activities resulting in additional delays of undetermined duration. The final seeding of the completed cap occurred during the week ending November 3, 1989 corresponding with the completion of field activities.

Total delay: 14 days (plus undetermined weather delays)

Therefore, the total determined delays amount to approximately 101 days (excluding undetermined weather delays), which changes the anticipated date of final closure from September 6, 1989 to December 16, 1989. Closure activities remaining involve the final survey of the closed impoundment and preparation of survey plat and deed restriction package and preparation of a thorough construction documentation report which will include the engineers and owner/operator certifications, and as-built drawings. BM&S anticipates that this report will be submitted to MSDNR on or before December 16, 1989, dependent upon the timely submittal of the final survey for inclusion in the construction documentation report. BM&S has strived to execute this important project in an expeditious and technically sound manner.

Boiler Ash Landfarm - The closure plan for the boiler ash landfarm was submitted to MSDNR in December 1987 in satisfaction of amended Agreed Order 1280-87. The closure plan stipulated closure of the unit as a landfill. On June 9, 1989, BM&S received notice from MSDNR that the closure plan had been approved by the Mississippi Natural Resources Permit Board. The

approved closure plan included an estimated schedule of approximately 8 months. This schedule assumed approval of the closure plan on April 3, 1988 in its development. Because the closure plan was not approved until June 9, 1989, the modified estimated completion date for closure activities is February 9, 1990.

BM&S is currently in the process of finalizing the construction specifications for bidding the project. The actual letting of the contract is expected by late November 1989. Construction activities are estimated to take approximately three months and preparation of the final construction report including certifications another month for a total of four months. BM&S is therefore requesting an extension of the completion date for closure activities from February 9, 1990 to April 15, 1990. This new projected closure completion date is contingent upon suitable weather conditions and/or other factors that may cause delays. BM&S will promptly notify MSDNR of any changes to this schedule attributable to delays. BM&S believes that the additional time is necessary to perform the closure project under strict adherence to the approved closure plan.

I trust that this information satisfies your needs at this time. Please do not hesitate to call if you should have any questions.

Sincerely,

Matthew C. Plautz, P.E.
Program Manager-Environmental Services

MCP/cr
cc: B. Nolan
J. D. Clayton (KII)
J. Batchelder (KII)
S. Spengler (MSDNR)
M. Bollinger (Keystone)

Beazer Materials and Ser s, Inc.
A Member of THE BEAZI ROUP
Environmental Services
436 Seventh Avenue, Pittsburgh, PA 15219
Phone: 412-227-2500 Fax: 412-227-2950

Beazer

September 21, 1989

Mr. William Stephen Spengler, P.E.
Coordinator, RCRA TSD Branch
Hazardous Waste Division
Mississippi Department of
Natural Resources
2380 Highway 80 West
Jackson, MS 39309

Re: RCRA Issues
Koppers Industries, Inc.
Tie Plant, MS Facility

Dear Mr. Spengler:

I would like to take this opportunity to bring you up to date with several activities either underway or planned for the above referenced facility. The following constitutes a brief summary of these activities.

- Surface Impoundment - The final cap components for closure of the surface impoundment are currently being placed. Closure activities were severely delayed by heavy rains in late spring/early summer and subsequently by the field contractor's ability to process the accumulated rainwater based on the City of Grenada POTW capacity and operating constraints. I have asked Keystone Environmental Resources (Keystone), our engineer on the project, to develop a history and will forward this to you upon completion.

  We have not as yet received the Appendix IX results from the groundwater sampling round completed in June, 1989 and will submit those to you when available. At that time we will also submit a permit modification to initiate a compliance monitoring program, as necessary. A new upgradient monitoring well was installed in March, 1989.

- Boiler Ash Landfarm - We are currently finalizing a construction bid package to initiate closure of the boiler ash landfarm in accordance with the approved closure plan. Closure will commence in the near future.

The Groundwater Quality Assessment is scheduled to begin in October, 1989 pending receipt of appropriate access agreements for construction of wells on off-site property locations.

As discussed above, we have not as yet received the Appendix IX results from the groundwater sampling round completed in June, 1989 and will submit those to you when available.

o Groundwater Treatment Residuals - It has been recently brought to my attention that the following shipments of non-hazardous wastes were burned at the Grenada boiler (copies of shipping documents attached):

Date	#Drums
1/17/89	76
2/6/89	61

These manifests were included with the ones sent to Kalal (MBK) on May 3, 19 They were analyzed for these

These wastes originated at a closed wood preserving site previously operated by Koppers Company, Inc. in Nashua, New Hampshire. Beazer Materials and Services, Inc. (BM&S) is conducting an environmental site remediation at the facility pursuant to an Administrative Order with the State of New Hampshire. The remediation program consists, in part, of pumping of contaminated groundwater and subsequent treatment in a groundwater treatment system. The groundwater treatment residuals generated from this system met the specifications for the boiler Fuel Additive Program and therefore were shipped to the Grenada boiler as detailed above. The characterization of these materials has been raised as an issue by the State of New Haqmpshire. BM&S has therefore decided to discontinue future shipments to Grenada. In any event, the materials in question were processed during the time frame in which BM&S and MSDNR were negotiating on Agreed Order (No. 1598-89) finalized on June 23, 1989 which resolved the oil/water separator characterization issue and obligated BM&S to assess the impacts, if any, from placing the boiler ash at the Grenada County Landfill.

wastes in the June 23, 1989 agreed order.

BM&S is making a concerted effort at being responsive to regulatory compliance issues at both the state and federal levels. If you should have any questions, please do not hesitate to call.

Sincerely,

Matthew C. Plautz, P.E.
Program Manager-Environmental Services

MCP/cr
cc: Gail Macalusa (MSDNR)
B. Nolan
S. Craig
D. Calland, Esquire (Babst/Calland)
J. Batchelder (KII)
J. D. Clayton (KII)

SHIPPING DOCUMENT
For Tracking Purposes

Shipper's Name & Mailing Address
Koppers Co INC.
Hillsberry Road
NASHUA, N.H. 03061
Phone: (603) 880-8345

Mailing Address
Koppers Co INC
P.O. Box 3485
NASHUA, N.H.
03061

Transporter Company Name
FRANKLIN AMBULANCE SERVICE INC.
P.O. BOX 617
INDUSTRIAL ROAD
WRENTHAM, MA. 02093
Phone: (508) 384-6151

Designated Facility Name and Site Address
Koppers Co INC
TIE PLANT ROAD
TIE PLANT, MS 38960
Phone: (601) 226-4584

U.S. DOT DESCRIPTION (INCLUDING PROPER SHIPPING NAME, HAZARD CODE, AND ID NO.)	CONTAINERS NO.	CONTAINERS TYPE	TOTAL QUANTITY	UNIT WT/VOL
a. NONHAZARDOUS process waste containing used creosote	76	DRUMS 17-H	76	40,000
b.				
c.				

Addition Descriptions for Materials Listed Above
RQ HAZARDOUS SUBSTANCE, (solid) N.O.S. ORM-E
NA 9188 (contains creosote)

Special Handling Instructions gloves + goggles

SHIPPER ACKNOWLEDGEMENT OF RELEASE OF MATERIALS

Print/Type Name	Signature	Month	Day	Year
Paul S. Kilchenstein	Paul S. Kilchenstein	01	17	89

TRANSPORTER ACKNOWLEDGMENT OF RECEIPT OF MATERIALS

Print/Type Name	Signature	Month	Day	Year
Ron McGrath	R. McGrath	01	17	89

FACILITY ACKNOWLEDGEMENT OF RECEIPT OF MATERIALS

Print/Type Name	Signature	Month	Day	Year

SHIPPING DOCUMENT
For Tracking Purposes

Shipper's Name & Mailing Address
Koppers Company Inc
Hillsterry Road
NASHUA, N.H. 03061
Phone: (603) 880-8345

MAILING Address: Koppers Co INC
P.O. Box 3485
NASHUA N.H.
03061-3485

Transporter Company Name
FRANKLIN PUMPING SERVICE INC.
P.O. Box 617
INDUSTRIAL ROAD
WRENTHAM, MA. 02093
Phone: (508) 384-6151

EPA ID # MADO 84814136

Designated Facility Name and Site Address
Koppers Co INC
TIE PLANT ROAD
TIE PLANT, MS 38960
Phone: (601) 226-4584

EPA ID # MSD 007027543

U.S. DOT DESCRIPTION (INCLUDING PROPER SHIPPING NAME, HAZARD CODE, AND ID NO.)	CONTAINERS NO.	CONTAINERS TYPE	TOTAL QUANTITY	UNIT WT/VOL
a. NON HAZARDOUS process waste containing used creosote	61	DRUMS 17-H	61	Approx 30,000 lbs
b.				30,640 2-8-89 gtm
c.				

Addition Descriptions for Materials Listed Above
RQ HAZARDOUS Substance, (solid) N.O.S. ORM-E
NA-9188 (CONTAINS CREOSOTE)

Special Handling Instructions
When handling, wear protective equipment such as impervious gloves and eye protection NON-HAZARDOUS WASTE - For tracking purposes only

SHIPPER ACKNOWLEDGEMENT OF RELEASE OF MATERIALS

Print/Type Name	Signature	Month	Day	Year
Paul S. Kirchenstein	Paul S. Kirchenstein	10	2	06:89

TRANSPORTER ACKNOWLEDGMENT OF RECEIPT OF MATERIALS

Print/Type Name	Signature	Month	Day	Year
RON McGRATH	R McGrath	10	2	06:89

FACILITY ACKNOWLEDGEMENT OF RECEIPT OF MATERIALS

Print/Type Name	Signature	Month	Day	Year

Ltr. Beazer

Beazer Materials and Services, Inc.
A Member of THE BEAZER GROUP
Environmental Services
436 Seventh Avenue, Pittsburgh, PA 15219
Phone: 412-227-2500 Fax: 412-227-2042

Beazer

May 3, 1989 FEDERAL EXPRESS

Mr. Kaleel Rahaim
Mississippi Department of Natural Resources
Bureau of Pollution Control
Hazardous Waste Division
2380 Highway 80 West
Jackson, MS 39204

Re: RCRA Issues
Koppers Industries, Inc. Facility
Grenada, Mississippi
MSD 007027543

Dear Mr. Rahaim:

The following information, together with the enclosed materials, constitutes our response to several outstanding RCRA issues for the Koppers Industries, Inc. facility at Tie Plant, Mississippi. These issues include:

- Formal notification that the surface impoundment may be affecting groundwater quality.
- Formal notification that the boiler ash landfarm may be affecting groundwater quality.
- Compilation of all waste manifests for drums received from off-site facilities for use as fuel additive in the boiler at the Grenada facility from January 1987 to date.
- Chronological history related to the disposition of the EPA Hazardous Waste Code U051 drums.
- Requested process information specific to the operation of oil/water separator units of all off-site facilities sending process wastes to Grenada for processing in the facility boiler.

The following paragraphs discuss each issue in greater detail.

Surface Impoundment Groundwater Monitoring Program - In accordance with MHWMR 294.98(h)(i), Beazer Materials and Services, Inc. (BMS) has determined that the surface impoundment may be affecting groundwater quality. This notification relates specifically to the first and second quarters of 1988. Subsequent sampling events confirmed the basis of this

Writer's Direct Dial 227-2952

determination. The surface impoundment received a RCRA Part B operating permit on June 28, 1988 which contained provisions to conduct a detection monitoring program. The statistically significant increases and a groundwater quality summary for other monitored constituents for 1988 were provided to MSDNR in the annual report submitted March 1, 1989.

Pursuant to the conditions of the operating permit and in accordance with MHWMR 264.98, BMS will perform the following activities at the specified schedule:

	Activity	Regulatory Citation	Date
1.	Agency Notification	MHWMR 264.98(h)(1)	Upon Agency Receipt
2.	Appendix IX Sampling	MHWMR 264.98(h)(2)	+30 days
3.	Application for Permit Modification (Compliance Monitoring)	MHWMR 264.98(h)(4)	+90 days
4.	Engineering Feasibility Study for Necessary Corrective Action	MHWMR 264.98(h)(5)	+180 days

The components of the compliance monitoring program will meet the requirements of MHWMR 264.99; any warranted corrective action program will meet the regulatory requirements of MHWMR 264.100.

The surface impoundment is currently undergoing closure, with final closure activities scheduled for initiation upon approval of MSDNR of minor modifications to the closure plan.

Boiler Ash Landfarm Groundwater Monitoring Program - In accordance with MHWMR 265.93(d)(1), BMS has determined that the boiler ash landfarm may be affecting groundwater quality. The landfarm is currently operating under a groundwater monitoring program under interim status. A closure plan and post-closure application were previously submitted to MSDNR and are currently under review.

BMS will submit a Groundwater Quality Assessment Plan (GWQAP) in response to this notification, within 15 days as required under MHWMR 265.93(d)(2). The GWQAP will expand upon the groundwater quality assessment outline previously presented to MSDNR and included in this submittal as Attachment A. BMS, however, would like to reserve the right to later incorporate the groundwater quality assessment program in the RFI/CMS process.

Boiler Feed Waste Manifests - As requested in your letter dated April 21, 1989, BMS has provided copies of all manifests for drums received at the Grenada facility from off-site facilities since January 1987. These are included as Attachment B. In addition, the following is a listing of typical wastes generated on-site during that same period and used as fuel additive:

- o process cylinder residuals
- o work tank sludges
- o door pit sludges

U051 Drums - Koppers Company, Inc. submitted a check on November 21, 1988 in the amount of $6,000 in settlement per the Agreed Order No. 1478-88, which included the storage of U051 drums for longer than 90 days. Attachment C provides a chronological summary of actions taken since that date prepared by Rollins Chempak, Inc. (Rollins). Rollins held a national contract with Koppers Company, Inc. during this time frame and was charged with responsibility for disposing of this material. Also, on April 26, 1989, I gave you a copy of our supplemental response to EPA IV's request for additional information regarding our original Soft Hammer Certification/Demonstration Information letter which highlights some of our efforts to locate a proper TSDF for identical wastes. This initial letter was received by Region IV on November 4, 1988.

Oil/Water Separator Process Information - I have attempted to track down useful information relative to the operation of oil/water separators at the wood treating facilities which sent nonhazardous process waste to Grenada, Mississippi. My efforts have not been entirely successful due to the fact that many of these facilities are extremely old (eg. Carbondale ca. 1902) and working engineering prints are not available. BMS requests that additional time be provided for us to better respond to your request. I will keep you abreast of the status of this effort.

We trust that this information satisfies your requirements at this time. As a peripheral issue, I will let you know when the next monitoring sampling event is scheduled so that MSDNR can prepare to conduct a Comprehensive Monitoring Evaluation.

If you should have any questions or comments, please do not hesitate to contact me.

Sincerely,

Matthew C. Plautz, P.E.
Program Manager-Environmental Services

MCP/CR
Attachments
cc: J. H. Scarbrough (US EPA IV)
W. S. Spengler (MS DNR)
J. R. Batchelder (KII) [w/o attachments]
R. G. Hamilton (BMS) [w/o attachments]
B. S. Nolan (BMS) [w/o attachments]
R. J. Anderson (Keystone)
J. D. Clayton (KII)

RCRA SITE INSPECTION

1) Inspector and Author of Report

Karen McKinney
Environmental Engineer

2) Facility Information

Koppers Company, Inc.,
MSD 007 027 543
P.O. Box 160
Tie Plant, MS 38960

3) Responsible Official

J.D. (Rock) Clayton, Plant Manager

4) Inspection Participants

Karen McKinney, USEPA
Leo Romanowski, USEPA
Dave Bockelmann, MSDNR
J.D. (Rock) Clayton, Koppers

5) Date and Time of Inspection

December 12, 1988 - 9:15 a.m. CST

6) Applicable Regulations

Mississippi Hazardous Waste Management Regulations (MHWMR) Sections 262, 264, and 265 (adopted by reference and therefore cited herein as 40 CFR).

7) Purpose of Inspection

This inspection was a USEPA Compliance Evaluation Inspection (CEI) to determine the facility's overall compliance with the applicable regulations.

8) Facility Description

The Koppers Tie Plant facility is located about five miles southeast of Grenada, Mississippi. The facility uses creosote and pentachlorophenol-in-oil in the pressure treatment of wood products for railroad ties, utility poles and pilings. The hazardous wastes produced by this facility are K001, U051, and F027 and consist of bottom sediment sludge from the treatment of wastewater from wood preserving processes that use creosote and/or pentachlorophenol (K001), and waste creosote (U051), or certain waste pentachlorophenol (F027). The regulated waste management units at the facility are a drum storage area, a

surface impoundment, an ash landfarm, and a sprayfield. The facility has an operating permit issued by the Mississippi Commission for the use of the surface impoundment. The surface impoundment is in the process of closure.

The surface impoundment was used as a wastewater treatment lagoon. It is about one-half acre in size and had a maximum operating depth of about seven feet. The surface impoundment generated K001 (bottom sediment sludge from the treatment of wastewaters from wood preserving processes using creosote or pentachlorophenol). The surface impoundment was preceded by a mechanical oil/water separator and flow equalization which recaptures product and minimizes the amount of creosote which flows into the impoundment and becomes waste. Wastewater from the impoundment was pumped to a sprayfield for treatment. The facility is in the process of closing the impoundment. The impoundment has been dewatered and has had 3,032 tons of soil and sludge removed. Koppers is awaiting test results for clean closure.

The wastewater from the treating process is now pumped into two 10,000 gallon railcar tanks equipped with heating coils. The water is evaporated by the heating coils and any sludge generated is recycled back into the process.

Effluent from the surface impoundment was periodically pumped to the sprayfield. The sprayfield is located on the north-northwest section of the property. It is about four acres in size and surrounded by a low berm that controls run-on/run-off. The field is covered with non-food-chain vegetation. The frequency of pumping depended upon water levels within the surface impoundment and climatic conditions. Spraying did not occur during rainfall.

Koppers operates a boiler at its facility for the conversion of thermal wood and various wastes into steam. These wastes included the listed hazardous wastes K001, U051, and F027. The ash generated from the operation of the boiler was placed on a landfarm until 1987. The landfarm had been used, prior to November 19, 1980, for the disposal of wood treating process wastes which came from old surface impoundments that had been closed. The ash is a listed hazardous waste thereby making the ash landfarm a regulated land disposal unit. Koppers stopped burning the hazardous waste in July of 1987. The facility still burns non-hazardous waste in the boiler which comes from the process areas (cleaning of the treatment cylinders and door pit areas, etc.) and disposes of the ash at a local landfill.

The facility operates a less than 90-day storage building located in the process area. Koppers previously had interim status for a storage area located near the holding tanks. This area was used only once and is no longer in use. It has been certified closed. The building stores drums containing the non-hazardous waste which is used in the boiler and hazardous waste which is stored until it is shipped off-site.

9) Findings

A record review of the inspection logs, personnel training records, manifests, closure plans, groundwater monitoring records, and the contingency plan was conducted. Records were kept back to 1981. The inspection logs were kept in proper order. Inspections were conducted at the sprayfield, surface impoundment, ash landfarm, and the drum the storage building. The personnel training records were maintained for three years or more. Closure plans and the contingency plan were kept at the facility. Financial assurance and liability records were inspected and found to be in compliance. The closure cost estimate for all regulated units was updated in March of 1988. It was suggested that the cost estimate be broken out by units instead of a lump sum.

In reviewing the manifests and waste analysis records, it was discovered that Koppers had received hazardous waste (K001) from another Koppers facility and had burned it in the boiler. The ash was sent to a local landfill. The waste was classified as non-hazardous on the manifest and was received on July 29,1988 and August 15, 1988. The sludge came from creosote blowdown tanks, PCP separators, and something referred to as basement sediment and is therefore considered K001.

The groundwater monitoring records were reviewed. The records were kept for three years for the surface impoundment and sprayfield. Groundwater monitoring began at the ash landfarm in February of 1988.

An inspection of the operating area and regulated units followed the record review. The first area looked at was the less than 90-day storage area. Six drums of hazardous waste (U051) were being stored at the time of the inspection. Four of the drums have been stored since November 18, 1987 and two since March 10, 1988. The storage of these drums exceed the 90 days allowed in 40 CFR Part 262.34. This was noted as a violation at the May 16, 1988 inspection. The facility has had an adequate amount of time to dispose of the drums. The facility has therefore operated a storage facility without having an operating permit or interim status and must close the unit.

The next area seen was the process area which includes the treatment cylinders, creosote tanks, and the boiler. An area inside the concrete wall surrounding the creosote tanks used to be the facility's interim storage area. This area was used only once since it became too difficult to lift the drums over the wall to store and remove them. The facility has since closed out this unit. Additionally the concrete pad near the boiler was used to store hazardous waste before it was burned. It has since been cleaned and decontaminated.

The ash landfarm is a land disposal unit and is therefore subject to the landfill regulations (Subpart N of 40 CFR). The unit is surrounded by a three-strand barb-wire fence which is inadequate security for a landfill. There is plastic sheeting covering the ash landfarm that is being used for wind dispersal control. There was

ponding on top of the plastic, bare patches not covered by the plastic, and the plastic did not extend to all sides. Additionally, soils from cleanup activities around the plant were placed on top of the plastic. There are four groundwater monitoring wells for the ash landfarm.

The facility has begun closure at the surface impoundment. The impoundment has been dewatered and had soils and sludges removed. Closure activities began in July of 1988. Closure has been halted until results from soil testing are received. The front portion of the fence had been removed during closure operations. During periods of inactive closure the fence needs to be reinstalled. There are eight groundwater monitoring wells for the surface impoundment.

The sprayfield has four groundwater monitoring wells and is surrounded by a three-strand barb-wire fence. The gate was locked but held on the post by one strand of wire. The gate needs to be better secured to the fence posts. More signs are needed around the sprayfield so that they can be seen from any approach. The sprayfield ceased receiving wastewater from the impoundment in July, 1988 and has had all spray nozzles removed. There is still brownish-black soils and dead vegetation surrounding the area where the nozzles were. There is a berm surrounding the sprayfield for run-on/run-off control.

10) Conclusions

Koppers has violated the following requirements of the applicable regulations:

40 CFR Part 262.12(c) - The facility must not offer his hazardous waste to transporters or to treatment, storage, or disposal facilities that have not received an EPA identification number.

40 CFR Part 262 Subpart B - The Manifest
40 CFR Part 262 Subpart C - Pre-transport Requirements
40 CFR Part 262 Subpart D - Recordkeeping and Reporting

These four violations address the disposal of hazardous waste boiler ash (K001) at a local landfill when sludge from the separator and blowdown tank was burned in the boiler.

40 CFR Part 264.14 - Security - The front portion of the fence surrounding the surface impoundment had been removed to implement closure. However, at the time of the inspection, closure activities had been suspended for several months. Therefore, a temporary fence should be placed there to prevent unknowing entry to the surface impoundment until closure activities are resumed.

40 CFR Part 265.14 - Security - There needs to be more signs located around the sprayfield so as to be seen from all approaches. Additionally, the gate to the sprayfield needs to be repaired.

40 CFR Part 265 Subpart G - Closure and Post-closure Care - The facility has failed to close the sprayfield.

The state has addressed this violation with an Administrative Order which is under appeal.

40 CFR Part 265.302 - General Operating Requirements - The facility has failed to provide adequate run-on/run-off control and wind dispersal control systems for the ash landfarm.

Section 3005 - Solid Waste Disposal Act - Permits for Treatment, Storage, or Disposal of Hazardous Waste - The facility has operated a storage area without having a permit or interim status. The facility must close this unit in accordance with the regulations.

Additionally, the facility has operated the sprayfield without having interim status or a permit. This violation has been addressed by the state and is currently under appeal.

11) Recommendations

Koppers needs to break out their closure and post-closure cost estimates into specific units instead of lump sum. This would ensure that all unit cost estimates are updated accordingly.

Koppers is fast approaching the 180 days allowed for closure of the surface impoundment and needs to either meet the deadline or request an extension.

Koppers needs to provide documentation as to where the waste is coming from that is being burned in the boiler. This is to ensure that only non-hazardous waste is being burned. The facility may need to conduct analysis or certifications of all wastes received.

12) Signed

Karen McKinney
Inspector

Jan 26 '89
Date

13) Concurrence

for Doyle T. Brittain, Chief
West Compliance Unit

01/27/89
Date

Approval

Allan E. Antley, Chief
Waste Compliance Unit

1/30/89
Date

JUL 12 1988

4WD-RCRA

Mr. Steve Spengler
Hazardous Waste Division
Mississippi Department of Natural
Resources
Bureau of Pollution Control
P. O. Box 10385
Jackson, Mississippi 39209

RE: Closure Plan for Sprayfield
Koppers Company, Inc. - Grenada, Mississippi
EPA I.D. No. MSD 007 027 543

Dear Mr. Spengler:

EPA has reviewed the RCRA closure plan for the sprayfield at the referenced facility. This closure plan was transmitted to the Mississippi Department of Natural Resources (Mr. James Hardage) via a June 10, 1988, cover letter. Based on this review, EPA has determined that the closure plan is inadequate and lacks sufficient detail. Additional information must be submitted to satisfy the requirements of 40 CFR 265.

Reviews comments are enclosed (Attachment A).

If you have any questions on this matter, please contact Mr. Leo Romanowski, Jr., at (404)347-3433.

Sincerely yours,

Beverly J. Foster
Chief, AL/MS Unit
Waste Engineering Section

Enclosure

bc: David Bockelman, MSDNR
Hugh Hazen, WCS w/enclosure
Allan Antley, WCS w/enclosure

LJROMANOWSKI/ldgooden:7/1/88:3433:Romanowski #1, Doc 26

ROMANOWSKI FOSTER

ATTACHMENT A

Technical Adequacy Review Comments
for Sprayfield Closure Plan
Koppers Company (Grenada), Inc.
EPA I.D. No. MSD 007 027 543

Location in Closure Plan	Review Comments
Section II.	1. Koppers should specifically indicate the U.S.EPA and applicable state regulations to which their closure plan applies. Closure and post-closure of land treatment units must be conducted according to 40 CFR 265, with particular emphasis on continued ground-water monitoring (Subpart F), post-closure care (Subpart G), and unsaturated zone monitoring (Subpart M).
Section V.C. and V.D.	2. It is recommended that the spray irrigation system shall temporarily remain functional throughout the closure period. Potable water application using this system may be necessary to provide adequate soil moisture during drought periods. Appropriate moisture control in the zone of aeration, as determined by lysimeters or other moisture analyses (40 CFR 265.278), will maximize the degradation and transformation of wastewater constituents during land treatment.
Section V.E. and Attachment (2)	3. Thorough justifications for closure periods greater than 180 days must be provided according to 40 CFR 265.113(b). Also, estimate the expected year of closure.

Location in Closure Plan	Review Comments
Section V.E.	4. Soil sampling at only four locations is inadequate. At a minimum, soil samples should be collected from four or five locations within each of the six spray nozzle distribution areas. A background soil sample should also be composited and analyzed.
Section V.E.	5. All sample locations shall be specifically described and rationale given for the number of samples, location and frequency. Include a map of sample locations. Also, indicate the specific QA/QC sampling procedures and whether the soil from the 0 - 1.5 feet sampling depth will be composited.
Section V.E.	6. The initial concentration of K001 constituents must also be determined at all sample sites. These data will provide Koppers a basis for determining the estimated maximum initial hazardous waste inventory, and the % of removal, rate of degradation, and half-life of the parent waste constituents from the waste-soil matrix with time. Koppers must demonstrate acceptable land treatment to obtain clean closure. Koppers should indicate the contaminant levels used to determine that waste constituents are above human health or environmental concern. What procedures will be used when contaminant "hot spots" are located?

Location in Closure Plan	Review Comments
Section V.E.	7. Koppers must consider three methods in addressing the closure and post-closure care objectives of 40 CFR 265.280: a. removal of contaminated soils; b. placement of a final cover and; c. monitoring of groundwater.
Sections V.E. & IX	8. Koppers must continue groundwater monitoring for K001 constituents on a quarterly basis until final clean closure of the sprayfield (40 CFR 265.90). In addition, Koppers must continue unsaturated zone monitoring, maintain run-on control and run-off management, control wind disposal of particulate matter, conduct inspections and maintain security during the closure period (40 CFR 265.280(d)).

MISS[illegible] DEPARTMENT OF NATURAL R[illegible]CES
Bureau of Pollution Control
P. O. Box 10385
Jackson, Mississippi 39209
(601) 961-5171

Permit[illegible] file

MEMORANDUM

TO: Koppers File

FROM: Dave Bockelmann

Through: Karen McKinney, EPA, Leo Romanowski, EPA

DATE: July 1, 1988

REFERENCE: June 15, 1988, meeting between Mississippi Department of Natural Resources personnel and personnel from Koppers Company, Inc. and Keystone Environmental Resources, Inc.

ATTENDEES: Sam Mabry, MSDNR
Art Prestage, MSDNR
Steve Spengler, MSDNR
Dave Bockelmann, MSDNR
Robert Anderson, Keystone
Dave King, Keystone
J. D. "Rock" Clayton, Koppers

DIVISION OF SOLID WASTE
REVIEWED BY _____
DATE _____
COMMENTS Sent to EPA July 14, 1988 SJR

A copy of the meeting agenda is attached. The following items were addressed during the meeting:

1. Surface Impoundment

   a. Koppers submitted an updated schedule for the completion and hook-up of their pretreatment system to the city POTW. A copy of this is attached and has been included in the permit.

   b. MSDNR requested Koppers to submit an updated closure schedule for the surface impoundment. An updated schedule as well as a revised closure plan was received on June 13, 1988, and was forwarded to EPA on June 24, 1988.

   c. An order will be issued requiring Koppers to submit a contingency plan for closure of the surface impoundment if their pretreatment system is not completed or permitted by November 8, 1988. Additionally, Koppers was informed that if the Land Ban Regulations are adopted as is, they will have to cease use of the surface impoundment on August 8, 1988. Koppers said that if this happened they would shut the plant down

until their pretreatment system is permitted and completed.

2. Boiler Ash Landfarm

   a. Koppers did not have their groundwater sampling results; however, they did say that the results showed that there is groundwater contamination in this area. This is consistent with EPA sampling results from a CDEI performed on May 2 to 5, 1988.

   b. An order will be issued requiring Koppers to submit an updated Part A which includes the boiler ash landfarm and a Part B which addresses compliance monitoring and corrective action. MSDNR will move to review and public notice the existing closure plan and close this unit under interim status.

3. Spray Irrigation Field

   a. After reviewing the existing data on the spray field, Koppers was informed that both the Bureau and EPA considered it a RCRA regulated hazardous waste management unit.

   b. An order will be issued requiring Koppers to submit an updated Part A which includes the spray field and a Part B which includes post-closure care. Additionally, Koppers was informed that they would have to cease using the spray field on August 8, 1988, if Land Ban restrictions for K001 are adopted as proposed.

4. Unnamed Ditch

   a. Reviewed existing data on the contamination in and adjacent to this unit.

   b. An order will be issued requiring Koppers to place absorbent booms across the stream to prevent the off-site movement of contamination in the surface water. Additional assessment will be performed during the RFI.

5. RFA/RFI

   a. Discussed EPA letter of June 10, 1988, and the comments contained in that letter. MSDNR and Koppers agreed that the well recommended in comment number 5 was not necessary. MSDNR will send a letter to Koppers addressing the RFI, EPA comments and items 6 and 7 of Commission Order 1208-87.

6. Boiler and Boiler Ash

a. Koppers will submit a more detailed schedule of events concerning the switch-over from burning hazardous to non-hazardous waste in the boiler.

DB:lr

SCHEDULE FOR WASTEWATER
PRETREATMENT SYSTEM
KOPPERS COMPANY, INC.
TREATED WOOD PRODUCTS
GRENADA, MISSISSIPPI

Begin Construction	July 23, 1988
Finish Construction	October 13, 1988
Process Start-up (cease using surface impoundment)	October 19, 1988
Full Operation	November 2, 1988

MEETING AGENDA

Koppers Company, Inc.

June 15, 1988

1.) Surface Impoundment Permit.

   a.) Submittal of schedule for completion of pretreatment system and hook-up to POTW.

   b.) Submittal of updated schedule for closure.

   c.) Contingency plan for closure if pretreatment system is not permitted or completed by November 8, 1988.

2. Boiler Ash Landfarm.

   a.) Review groundwater sampling results.

   b.) Closure & Post-Closure requirements.

      1) Submittal of updated Part A.

      2) Submittal of Part B.

3. Spray Irrigation Field

   a.) Review existing data.

   b.) Closure & Post-Closure requirements.

      1) Submittal of updated Part A

      2) Submittal of Part B

4. Unnamed Ditch

      a.) Review existing data.

      b.) Discuss interim measures for remediating contamination.

5. RFA/RFI for Solid Waste Management Units.

      a.) EPA letter and comments

6. Boiler & Boiler ash

KEYSTONE
ENVIRONMENTAL RESOURCES, INC.

Phone: 412/227-2694 436 Seventh Avenue, Suite 1940, Pittsburgh, PA 15219 Fax: 412/227-2436

June 10, 1988

CERTIFIED MAIL
Return Receipt
Requested

Mr. James Hardage
Mississippi Department of Natural Resources
Bureau of Pollution Control
2380 HGW 80 West
Jackson, MI 39204

Re: Koppers Company, Inc.
Grenada, Mississippi
#MSD007027543

Dear Mr. Hardage:

I have enclosed a copy of a RCRA closure plan for the spray irrigation system at the referenced plant. Please be advised that Koppers Company, Inc. continues to take the position that spray irrigation fields at wood treating plants are not regulated hazardous waste units under the Resource Conservation and Recovery Act, as amended ("RCRA"), and similar state statutes. Although Koppers is submitting this plan which addresses the sprayfield, we expressly reserve all rights to contest the classification of the sprayfield as a RCRA unit. This submission shall not be construed, or deemed to be, an admission by Koppers that the referenced sprayfield is subject to RCRA.

Please feel free to call me if you have any questions or comments concerning this closure plan.

Yours truly,

Robert J. Anderson
Staff Program Manager
Koppers Treated Wood Products

DIRECT DIAL #
412-227-2683

RJA/cr
Enclosure

cc: J. Batchelder
J. D. Clayton
MC Central Files
J. Blundon (w/o enclosure)

DIVISION OF SOLID WASTE
REVIEWED BY _____
DATE _____
COMMENTS sent to EPA 6-24-88

CLOSURE PLAN
TREATED WASTEWATER SPRAYFIELD
KOPPERS COMPANY, INC.
GRENADA, MISSISSIPPI

I. FACILITY/CONTACT INFORMATION

OWNER/OPERATORS NAME:	Koppers Company, Inc.
EPA FACILITY ID#:	MSD007027543
ADDRESS:	P.O. Box 160 Grenada, MS 38960
PHONE NUMBER:	(601) 226-4584

CONTACTS:

Koppers Grenada, Mississippi Plant Contacts

J. D. Clayton, Plant Manager
(601) 226-4584

Keystone Environmental Resources Department Contacts

Robert J. Anderson, Staff Program Manager
(412) 227-2683

II. GENERAL

This closure plan is being submitted in accordance with U.S. EPA and applicable state regulations. Koppers Company, Inc. takes the position that spray irrigation fields at wood treating plants are not regulated hazardous waste units under the Resource Conservation and Recovery Act, as amended ("RCRA"), and similar state statutes. Although Koppers is submitting this plan, which addressed the sprayfield at the plant, we expressly reserve all rights to contest the classification of the sprayfield as a RCRA unit. This submission shall not be construed, or deemed to be, an admission by Koppers that the sprayfield is subject to RCRA.

III. BACKGROUND INFORMATION CONCERNING THE SPRAYFIELD

The sprayfield covers an area of approximately 6 acres, and is vegetated with natural grasses. (See Attachment (1) for location). Historically, the sprayfield was used as a final treatment step for pretreated wastewater; hazardous waste was never applied to the sprayfield. The sprayfield was listed as a hazardous waste unit handling K001 sludge as a protective filing as part of Koppers' Part B permit

application at the direction of U.S. EPA. As a result, the constituents of interest are those listed in 40CFR261, Appendix VII, for K001 hazardous waste.

IV. RATIONALE FOR CLOSURE OF THE SPRAYFIELD

Because the sprayfield was operated to biodegrade any remaining organic constituents in pretreated wastewater, and did not receive hazardous wastes *per se*, the closure process will entail ceasing use of the sprayfield and allowing natural biodegradation to reduce concentrations of residual organic constituents to levels below levels of human health or environmental concern, pursuant to 53FR9944. The achievement of this goal will demonstrate that clean closure has been accomplished.

V. METHOD OF CLOSURE

A. Following surface impoundment closure, use of the sprayfield will be discontinued.

B. A source of potable water will be connected to the spray irrigation system, and the sprayfield will be operated for eight hours to flush any residual wastewater from the distribution lines and spray heads.

C. The spray irrigation system will be disassembled.

D. The sprayfield will be fertilized as necessary and mowed periodically to promote vegetative growth and biodegradation of residual organic constituents. If necessary, the field will be plowed and disced to further promote biodegradation.

E. After 180 days of operation, soil samples will be collected from 0 to 1.5 feet in depth at four locations within the sprayfield. These samples will be analyzed for Appendix VII K001 constituents following SW-846 methods. Results will be evaluated to determine if K001 constituents are present at or above levels of human health or environmental concern. This evaluation will be presented as part of the engineer's certification of closure. In the event that clean closure cannot be certified at that time, Koppers will submit an amended closure plan specifying either 1). continued activities necessary to accomplish clean closure, or 2). activities necessary for closure with waste constituents in place.

VI. DECONTAMINATION AND SAFETY PROCEDURES

A. All workers shall observe the safety procedures for handling K001 hazardous waste as presented in the plant's Contingency Plan and Personnel Training

documentation, as included in the Part B permit application, and in accordance with the applicable regulations. At a minimum, workers will wear coveralls, gloves, and boots. Due to the method of closure, no activities requiring equipment decontamination will be conducted.

VII. DOCUMENTATION

Certification of closure will be submitted to the state and U.S. EPA by Koppers and the state-registered professional engineer within 60 days of conmpletion of closure. Certification will include a report of the findings from the subsoil quality investigation.

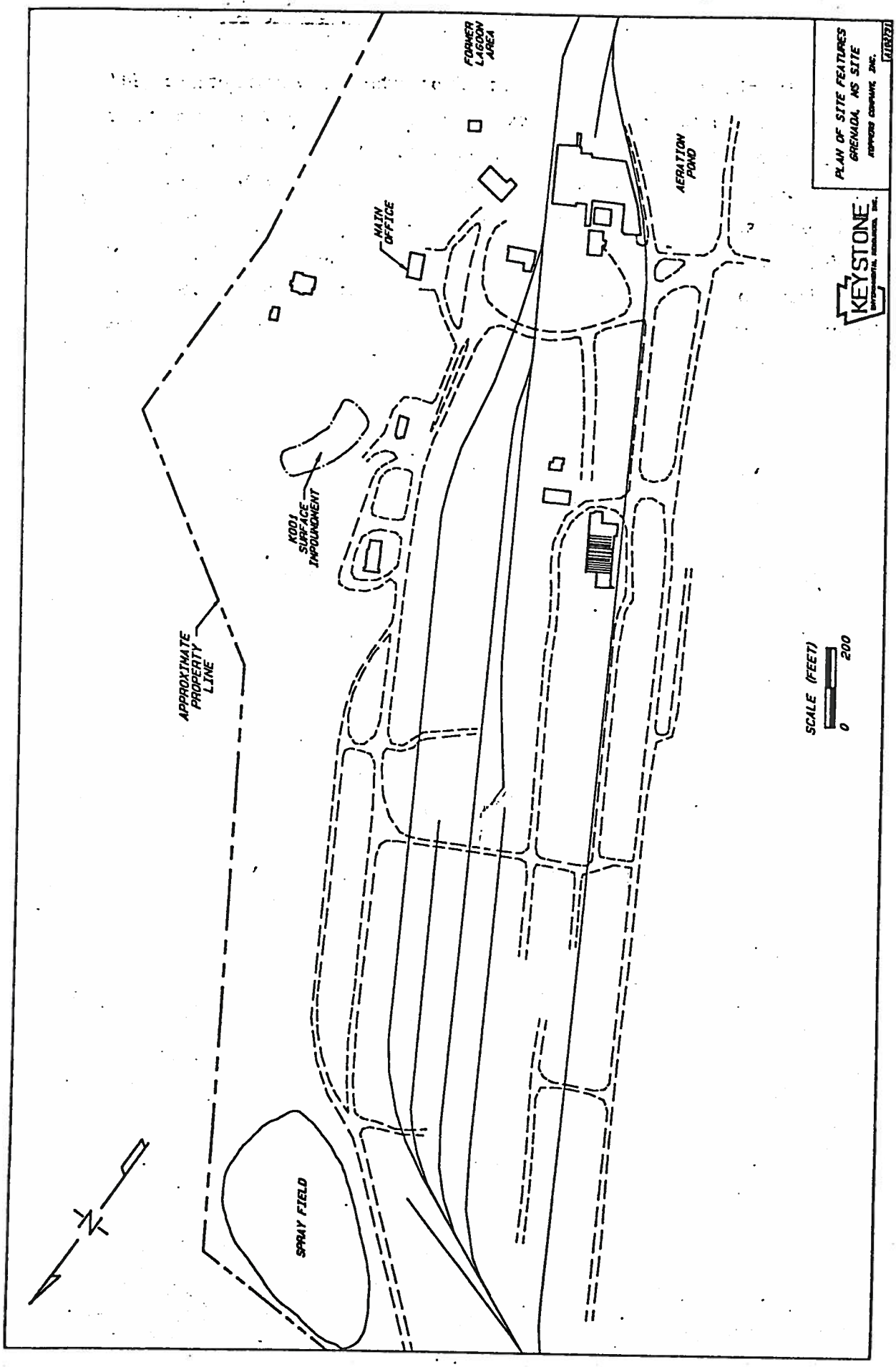
VIII. SCHEDULE

A. Schedules of closure activities and related activities are detailed in Attachment (2). Attachment (2) includes in the schedule the final closure of the surface impoundment system; sprayfield closure cannot be initiated until this activity is completed.

IX. CLOSURE COST ESTIMATE

1.	Potable water connection, labor and materials	$ 400
2.	Flush irrigation system 1 day @ $200	200
3.	Dismantle irrigation system; 30 man-days @ $200	6,000
4.	Fertilize and periodic mowing	400
5.	Soil sampling; 1 man-day @ $300	300
6.	Soil analysis; 4 @ $750	3,000
7.	Data evaluation; 16 hrs @ $60	960
8.	Engineer's certification; 16 hrs @ $100	1,600
	Subtotal	$12,860
	Administration Costs (10%)	1,290
	Contingency Costs (10%)	1,290
	TOTAL ESTIMATED COST	$15,440

ATTACHMENT (1) - LOCATION MAP



ATTACHMENT (2)

SPRAYFIELD CLOSURE SCHEDULE

Activity	Completion Day
Completion of Impoundment Closure	-0-
Flush irrigation system with potable water	+ 10
Dismantle irrigation system	+ 30
Fertilize/Mow periodically	+179
Sample soil	+180
Receive analytical results	+240
Certify closure	+300

RCRA INSPECTION REPORT

1. Inspector and Author of Report

   David J. Bockelmann
   Environmental Scientist

2. Facility Information

   Koppers Company, Inc.
   MSD007027543
   P. O. Box 160
   Tie Plant, Mississippi 38960

3. Responsible Company Official

   J. D. "Rock" Clayton, Plant Manager
   Dave King, Environmental Coordinator - Keystone

4. Inspection Participants

   Dave Bockelmann, MSDNR
   Karen McKinney, USEPA
   J. D. "Rock" Clayton, Koppers
   Dave King, Keystone

5. Date and Time of Inspections

   May 16, 1988 - 9:15 a.m. CST

6. Applicable Regulations

   Mississippi Hazardous Waste Management
   Regulations 262 and 265.

7. Purpose of Inspection

   This was a Compliance Evaluation Inspection to determine the facility's overall compliance with the applicable interim status regulations.

8. Facility Description

   Koppers Company, Inc. is located in the Town of Tie Plant which is approximately 5 miles southeast of Grenada, Mississippi. The facility uses creosote and oil borne pentachlorophenol in the pressure treatment of wood products for railroads, utilities and others. The primary product is treated railroad cross-ties. Raw materials and treated products arrive and leave by rail and truck.

The hazardous wastes which are generated, treated, stored, and/or disposed of at the facility are bottom sediment sludge from the treatment of wastewaters from wood preserving processes that use creosote and/or pentachlorophenol (K001), waste creosote (U051), and certain waste pentachlorophenol (F027). The facility has four hazardous waste management units which are a less than 90 day container/drum storage area, a surface impoundment, a spray irrigation field, and a boiler ash landfarm. At the time of this inspection a permit for the operation of the surface impoundment was under review and was subsequently issued on June 28, 1988. Orders requiring the submittal of Part B permit applications for the spray irrigation field and the boiler ash landfarm were also issued on July 22 and 29, 1988.

The facility currently operates a surface impoundment which is approximately 0.78 acres in size and has an operating depth of about 6-7 feet. The surface impoundment is operated as a wastewater treatment lagoon and generates the listed hazardous waste K001. Treatment of wastewater in the surface impoundment is preceded by a flow equalization tank, a pentachlorophenol and oil separator where pentachlorophenol and oil are recovered and recycled, a creosote separator where creosote is recovered and recycled, and flocculation. Closure of the surface impoundment will begin on or before November 8, 1988.

The spray irrigation field is the final stage in the facility's wastewater treatment system. It is approximately four acres in size and is surrounded by a low berm for run-on/run-off control. The spray irrigation field receives effluent from the surface impoundment which is land applied via six spray irrigation nozzles. The field is covered with non-food chain vegetation and is operated as a land treatment unit for the biodegradation of effluent from the surface impoundment.

The facility operates a boiler for the thermal conversion of wood and various wastes into steam. Prior to October of 1986 these wastes included the listed hazardous wastes K001, U051, and F027. The ash generated from this process is a listed hazardous waste and, prior to July, 1987, was land disposed on the boiler ash landfarm located in the southern portion of the facility. The facility still operates the boiler, burning wood and non-hazardous wastes which come from the process areas (cleaning of the treatment cylinders and door pit areas, etc.) and disposes of the ash at a local landfill. Prior to November 19, 1980, two old surface impoundments located in the central portion of the facility were closed and the waste sludge removed during closure was disposed of at the boiler ash landfarm area.

The facility operates a less than 90 day container/drum storage building located near the process area. The building is used to store drums of non-hazardous waste which is burned in the boiler and drums of hazardous waste prior to being shipped off-site.

9. Findings

An inspection and review of the facility's records was conducted. These records included inspection logs, personnel training records, waste manifests, groundwater monitoring records, financial assurance and liability insurance records, closure plans and a facility contingency plan. Records at the facility were kept back to 1981.

Waste manifests, financial assurance and liability insurance records, closure plans and the facility contingency plan were reviewed and found to be in compliance.

A review of the groundwater monitoring records for the surface impoundment and the spray irrigation field found that these records were kept for 3 years and were up-to-date. Groundwater monitoring at the boiler ash landfarm began in February, 1988. Results of this monitoring were not yet available.

A review of the personnel training records found that they were kept for 3 years and were up-to-date for all employees with the exception of Mr. Monroe Harper who had not received a training review in 1987. Mr Harper needs to receive a training review and have his training record updated.

A review of the inspection logs found that they were up-to-date and kept in proper order. However, it is recommended that the following additions be included in the inspection logs. The inspection log for the surface impoundment should include notations for inspecting the fence and signs. The inspection log for the less than 90-day container/drum storage building should include notations for inspecting the conditions of the drums and should note when no drums are being stored. The inspection log for the boiler ash landfarm should be more specific and include notations for inspecting the fence, signs, evidence of releases (from run-off or wind dispersal) and comments on general site conditions.

Following the record review a visual site inspection of the facility was conducted. The site inspection included the less than 90-day container/drum storage building, the facility process area, the boiler ash landfarm, the surface impoundment and the spray irrigation field.

The less than 90-day container/drum storage building contained 6 drums of hazardous waste (U051). Hazardous waste labels were attached to the drums; however, no accumulation dates were recorded on the drums. The storage building also contained 74 drums of non-hazardous waste which is burned in the facility's boiler.

The next area inspected was the facility process area which includes the treatment cylinders, process tanks and the boiler. A concrete pad adjacent to the boiler feed hopper contained drums

of non-hazardous waste which is fed into the boiler and burned along with scrap wood chips. Prior to October, 1986, this pad was operated as a less than 90-day container/drum storage area for hazardous waste which was burned in the boiler. There was no record of this pad having been cleaned-up or decontaminated after the facility ceased storing hazardous waste drums on the concrete pad. This area needs to be closed in accordance with Mississippi Hazardous Waste Management Regulation (MHWMR) 265.111 and 265.114 and the closure procedure documented. In addition, there were no records available to document the clean out or decontamination of the boiler in changing over from burning hazardous waste to burning non-hazardous waste. However, in subsequent conversations and meetings with Mr. Rob Anderson (Keystone Environmental Resources, Inc.) and Mr. Rock Clayton (Plant Manager, Koppers Company, Inc.) the following information concerning the boiler change over was presented. Koppers stopped receiving and stopped burning hazardous waste in the boiler in October, 1986. The boiler was shut down at 3:00 p.m. on April 13, 1987. The boiler fire box was cleaned out and all the fire brick within the fire box was replaced. The ash collection system and the ash collection bins were emptied and cleaned out. The boiler started back up burning non-hazardous waste on May 7, 1987. In July, 1987, the facility stopped placing ash on the boiler ash landfarm and began disposing of it at a local landfill.

The facility's Part A listed an area within a concrete wall which surrounds the process tanks as an interim status container/drum storage area. However, Mr. Dave King (Keystone Environmental Resources, Inc.) and Mr. Rock Clayton (Plant Manager, Koppers Company, Inc.) explained that this area was never actively used because of the difficulty in placing and retrieving drums over the concrete wall which is approximately 3 feet high. The facility needs to document that this area was never actively used, that no spills from containers/drums occurred, and that the area was effectively closed by the removal of any containers/drums that were originally placed there.

The boiler ash landfarm is located in the southern portion of the facility and has not been used since July, 1987. Prior to July, 1987, it was operated as a hazardous waste landfill and as such is subject to the regulations governing landfills (Subpart N of Part 265 of the Mississippi Hazardous Waste Management Regulations - MHWMR). The boiler ash landfarm is not managed to control run-on/run-off or the dispersal of the ash by wind. Some of the ash from the unit could be seen on a facility road running along the outside of the unit. Additionally, the unit is surrounded by a three-strand barbed wire fence which is inadequate security for a landfill. Additional signs are needed and the gate at the northern part of the unit did not have a lock to prevent entry. The unit has one background and three downgradient monitoring wells.

The surface impoundment is located in the east central portion of the facility and is surrounded by a fence on all sides.

Additional signs are necessary so that they can be seen from all approaches. The facility has received an operating permit for the surface impoundment and will be required to close the surface impoundment on or before November 8, 1988. The unit has two background and six downgradient monitoring wells.

The spray irrigation field is located at the northern end of the facility and consists of six spray irrigation nozzles and is surrounded by a low berm to control run-on/run-off. Access is controlled by a three-strand barbed wire fence which is in poor condition near the sprayfield gate. The fence near the gate has apparently been knocked down due to the placement and removal of material from a scrap pile which is located within the sprayfield fence. The fence in this area needs to be repaired and it is recommended that the scrap pile be removed. The northern portion of the sprayfield perimeter is bounded by a public road and a residential area. The fence along the northern perimeter of the sprayfield is inadequate security because of the proximity of the public road and residential area. Extra signs are also needed so that they can be easily seen from all approaches. The unit has one background and three downgradient monitoring wells.

Koppers contends that the spray irrigation field is not a regulated unit and has operated it without having interim status. Subsequent to this inspection, an Administrative Order has been issued to Koppers requiring them to submit a complete Part B post-closure permit application for the spray irrigation field.

10. Conclusions

Koppers is in apparent violation of the following requirements of the applicable regulations:

1. MHWMR Part 262.34 - Accumulation Time - Koppers operates a less than 90-day container/drum storage building. Six drums of hazardous waste were being stored at the time of the inspection. These drums contained hazardous waste labels but no accumulation dates were recorded on the labels as required.

2. MHWMR Part 265.14 - Security - The facility has inadequate fencing surrounding the boiler ash landfarm. Since the boiler ash landfarm is not located within the operating portion of the facility it needs to have better security to prevent unknowing entry. Additionally, there is no lock on the gate at the boiler ash landfarm.

   That portion of the fence that extends along the northern perimeter of the spray irrigation field and is adjacent to the public road and residential area is inadequate security to prevent unknowing entry to the

unit. Additional signs are also needed so that they can be easily seen from all approaches to the unit.

3. MHWMR Part 265 Subpart G - Closure and Post-Closure Care - The facility has not documented the closure of the original interim status container storage area (located within the concrete wall that surrounds the process tanks). The facility has not closed the less than 90-day container/drum storage area that was located on the concrete pad adjacent to the boiler feed hopper (this area is presently being used for non-hazardous storage). The facility has not closed the spray irrigation field (still being operated) or the boiler ash landfarm.

   Subsequent to this inspection Administrative Order 1440-88 has been issued, which contains a closure schedule for the spray irrigation field.

4. MHWMR Part 265 Subpart N - Landfills - The facility's boiler ash landfarm has been operated as a landfill and therefore must comply with the landfill requirements. The facility has not provided run-on/run-off control or means to control wind dispersal of the ash.

5. Section 3005 Solid Waste Disposal Act - Permit for Treatment, Storage, or Disposal of Hazardous Waste - The facility has operated the spray irrigation field without ever having interim status. The original Part A submitted in 1980 did not include the spray irrigation field and the facility has not submitted a Part B permit application to operate this unit.

   Subsequent to this inspection, Administrative Orders 1438-88 and 1440-88 have been issued requiring the facility to submit Part B permit applications for both the spray irrigation field and the boiler ash landfarm.

11. Signed

Inspector

DIVISION OF SOLID WASTE

REVIEWED BY _____

DATE _____

COMMENTS _____

12. Approval

cc: Mr James H. Scarbrough, EPA

Leo's comments on top page + my comments on Leo's comments

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IV
345 COURTLAND STREET
ATLANTA, GEORGIA 30365

MAR 1 8 1988

4WD-RCRA

Mr. Charles Estes, P.E., Coordinator
Hazardous Waste Division
Mississippi Department of Natural
Resources
Bureau of Pollution Control
P. O. Box 10385
Jackson, Mississippi 39209

RE: Draft Operating Permit (Surface Impoundment)
Koppers Company, Inc., Grenada, Mississippi
EPA I.D. Number MSD 007 027 543

Dear Mr. Estes:

EPA has completed its review of the Mississippi Department of Natural Resources (MDNR) draft RCRA operating permit for Koppers' surface impoundment. This draft operating permit was transmitted to EPA via a February 25, 1988, cover letter by Mr. David Bockelman of the MDNR. Based on this review, EPA has determined that certain clarifications of the submittal are required.

In addition to requesting a few missing maps and figures, major review comments (Attachment I) require discussion within the draft permit of the following eight (8) items:

- Justification for selecting site specific indicators for the detection of groundwater contamination
- Regulatory status and groundwater monitoring of the sprayfield
- Closure plan for the ash pile
- Koppers delisting petition for their boiler ash
- Quantity of K001 hazardous waste sludge and size of the surface impoundment to be regulated by this permit
- Possible revision of the Part A Application
- Anticipated closure date for the surface impoundment
- Written certification of both Part A and Part B documentation and attachments by a responsible Koppers corporate officer

EPA anticipates that a response to these review comments can readily be prepared for inclusion into the draft permit. Therefore, the MDNR should proceed, as agreed, with a joint State of Mississippi/EPA public notice (of permit issuance) by March 31, 1988. The HSWA (EPA) portion of the permit is currently being prepared for your review prior to joint public notice.

If you have any questions on this matter, please contact Mr. Leo Romanowski, Jr., at (404)347-3433.

Sincerely yours,

James H. Scarbrough

James H. Scarbrough, P.E.
Chief, RCRA Branch
Waste Management Division

Enclosure

ATTACHMENT I

Technical Adequacy Review Comments
for Draft Operating Permit
Koppers Company, Inc.
EPA I.D. Number MSD 007 027 543

Location in MDNR Permit		Review Comments
Part I - Standard Conditions		
Front Cover, I.D.3., I.D.7., etc.	1.	Identify the relationship between the Director, Executive Director, and the Director, Bureau of Pollution Control, MDNR. ✓ Done
I.A.	2.	The regulated unit needs to be specifically identified very early within the permit dialogue. Provide the approximate size, location, and waste loading (cubic feet of K001 sludge). ✓ Done ↑ N/A
Part II - General Facility Conditions		
II.F.1.	3.	Referenced section F-3a does not exist. Need to clarify. ✓ Included
Part III - Storage and/or Treatment in the Surface Impoundment		
III.A.1.	4.	Clarify this statement to indicate that the regulated K001 wastes are listed in Attachment A. ✓ Done
III.A.2.	5.	The maximum quantity of waste, 2500 pounds, which may be stored/treated in the surface impoundment is very much less than the quantity of K001 sludge which Koppers estimates to be present. Koppers estimated (Maximum Waste Inventory, Section VI 3.0 of the Closure Plan) that the surface impoundment currently contains 10 inches of bottom K001 sludge with a total estimated volume of 650 yd^3. Assuming a sludge density of 100-130 lb/ft^3, the weight of the bottom sludge presently within the surface impoundment is approximately 1,755,000 pounds. This weight exceeds the draft permit maximum quantity of waste by a factor of 700. Please correct this discrepancy by revising the Part A Application (Attachment A). ✓ Done Part A Revised Reworded condition III.A.2

This discrepancy resulted from comparing "dry" vs "wet" sludge volumes + weights.

Location in MDNR Permit		Review Comments
III.D.1.	6.	Add "an uncontrolled and sudden" in front of "drop in the water level". ✓ None
Part IV - Groundwater Protection		
IV.C.1.	7.	Provide a copy of Figure E-1 which was not included. Figure E-1 should be the "Site Topographic Map with Monitoring Well Locations and Showing Point of Compliance." Specifically, identify the upgradient well, the compliance point wells as required by CFR 264.95 and 264.98, and the property boundaries. ✓ Done
IV.E.1.	8.	For a detection monitoring program, the owner/operator must monitor for specific indicator parameters (CFR 264.98(a)). As identified in Section E-5a of the permit, the analytical parameters capable of determining groundwater impact from creosote and pentachlorophenol processes are: ✓ Done pH Specific Conductance Total Dissolved Solids Total Organic Carbon Pentachlorophenol Polynuclear Aromatic Hydrocarbons Total Phenols Total Organic Halogen Provide justification for restricting the groundwater monitoring parameters in Permit Section IV.E.1. to the specific site indicators of napthalene, acenapthalene fluoranthene, pentachlorophenol and 2,4 dinitrophenol. Since the Koppers' plant manager indicated (see March 1987 RFA p. 2-1) a "different chemical process was used in the past (prior to 1970)", it is recommended that groundwater monitoring also include analyses for chromium, arsenic, and copper. ✓ Not Done

A sentence was added to the permit explaining this and the justification was added to the file by memo.

Note: The memo was not forwarded to EPA.

The CCA process was never used while the present surface impoundment was in use. Monitoring for CCA was addressed in some detail in my SWMU comments. These were sent to EPA by my transmittal letter dated 2-29-88

Location in MDNR Permit		Review Comments
IV.F.1. This is addressed in condition IV. H. 2.b.	9.	Verify that the Director of the Department of Natural Resources is to be notified when groundwater analyses exceed background levels. ✓
IV.H.2.f.	10.	Identify the authority (Executive Director?) to whom the Permittee must successfully demonstrate. ✓ Done
Attachment A - Part A Application		
Page 1 of 5	11.	Verify the Process Design Capacity of 19,545 gallons. Attachment B, page B-3 indicates the surface impoundment has a hydraulic capacity of 748,000 gallons. Additionally, in the Closure/Post-Closure Plan (Attachment I, Section VI.3.0), Koppers has estimated the total yearly sludge collection at 2500 pounds or 312 gallons. Koppers also determined that the current 10 inches of impoundment sludge represents approximately 650 cubic yards. Please clarify the correct estimate of hazardous waste to be regulated in the surface impoundment. Use the Part A Application (Section IV) to describe the currently impounded waste and the estimated annual quantity of waste. ✓ Done Part A Ammend
Figure A-1 No other areal photo available.	12.	This aerial photo is inadequate. Provide a photo of the facility which clearly delineates all existing structures, existing treatment, storage and disposal areas; and sites of future treatment, storage, and disposal (CFR 270.13(k)(9)(1)). ✓ Not Done
Not provided ✗ Fig. E-1 shows surface impoundment + E/W property lines. The only thing that should be necessary for this part of the Permit is the S.I. and nearby property lines. Past TSD areas should have been included in HSWA Permit. The site plan in Attach. I shows S.I., spray field + container storage bldg. and property line for the N + W of facility. Only thing not covered is the ash landfarm. This could be included in addendum to Permit.		Provide a scale drawing of the facility showing the location of all past, present, and future treatment, storage and disposal areas. Indicate the legal boundary of the property on the drawing and/or the aerial photo. ✓

Location in MDNR Permit		Review Comments
Attachment B - Facility Description		
B-1	13.	Clear up any regulatory confusion by providing a historical discussion concerning: ✓
		a. wastewater sprayfield status and groundwater monitoring
		b. closure plan for the ash pile
		c. status of Koppers delisting petition for their boiler ash
Attachment C - Waste Characteristics		
p. 2 This Table was included but was mislabeled.	14.	Section C, Table 2 is missing. Provide this list of facilities which are expected to ship qualified waste to the Koppers (Grenada) plant. ✓ Done
pp. 2 and 15	15.	Reference to Attachment 5 as a QA/QC program appears to be in error. Please correct. ✓ corrected Attachment is correct Attachm
This needs to be done →		Provide a legible copy of Attachment 1 (Section C). not Done
		Table of Contents requires section labels and the page numbers past page 16 need to be corrected. ✓ Done
		Attachments No. 3 and No. 7 are missing and Attachments No. 4 through No. 6 are mislabled in the Table of Contents. ✓ correcte
p. 44	16.	Correctly label this table as Table 3. ✓ correct
Attachment E - Groundwater Monitoring		
Figure E-1	17.	This figure is missing. Provide a site plan map detailing the detection monitoring system. Specifically, indicate the compliance point boundary, background wells, upgradient wells, regulated units and the hazardous waste management area. ✓ Included

Told Leo that this information would be included in the appropriate addendums to the Permit.

Background wells, upgradient + down-gradient wells are defined in Part IV.

Note: The definition of the wells in Part IV could be clearer.

Location in MDNR Permit		Review Comments
Attachment I - Closure/Post-Closure Plans for Surface Impoundment		
Section VI 5.0	18.	The closure schedule and critical flow path project schedule (Attachment 8) indicate that the construction of the pretreatment plant upgrade has been ongoing through 1st - 2nd quarters 1988. Since these schedules were projected almost one year ago, an updated schedule of the construction and start-up dates is required.
Section VI Attachment 8	19.	Identify the anticipated dates (month/yr) for the actual closure and closure certification of the surface impoundment.
Certification	20.	Koppers Company, Inc. should provide written certification by a responsible corporate officer that this document and all attachments (Part A and Part B Applications) are accurate and complete. This certification should conform with the wording as provided in CFR 270.11(d).

At this time (5-17-88) final hook-up to the POTW has not been approved but is very close to being approved. All that remains undecided is where Koppers will tie into the POTW. Anticipated schedule of completion should be close to those dates shown in Attach. 8 - perhaps a month or two later, [redacted] or three.

This is addressed in Conditions II.I and III.G.

My Comments on Leo's Comments GJB

Comment #

✓3 - Find & include Sec F-3A (II.F.1) (Done)

✓4 - III.A.1 - I think this statement is OK (F001 constituents - App. VIII or not listed in Attach F

✓5 - III.A.2 - List max waste in lbs & max. annual application rate of 2500 lbs.

✓6? - III.D.1. (Revised)

✓7 - III.C.1 Included Fig. E.1.
- E & W Property lines are shown
- Monitor Well Locations are shown
- Background & Compliance point wells are defined in Part ~~III~~ of the Permit
- Point of Compliance is shown.

✓8 - IV.E.1 - pH, Spec. Cond., TDS, TOH, TOC are subject to too many variables and therefore, their use results in an excessive number of false & misleading positives. The use of indicator parameters specific to the site will (264.98(d)) ~~give~~ provide a monitoring program that is geared directly to detection of contamination from the S.I. without the negative aspect of having to deal with false positives.
- The use of CCA has never been associated with the surface impoundment and therefore it is not recommended to monitor for CCA. (Should be covered in SWMU Permit)

✓ 9 — IV. F. 1 This verification is listed under Condition IV. H. 2. b of the Permit

✓ 10 — IV. H. 2. F. (Revised)

✓ 11. — Will do (Done)

✓ 12 — Fig A-1 This is the only aerial photo we have - adequately shows surface impoundment. It is not necessary to show all facility sites - this is a permit for the S.I. only.

✓ 12a) — This should be under SWMU permit - Legal boundary shown on Fig E-1 and on Site Plan Map Attach 1 - Sec. III of Attach I

✓ — 13 — Not applicable to the S.I - would probably only cause more confusion as to what is being regulated.

✓ 14 — This Table is included and has been changed to Table 3

15 — Need to change Attach 5 ✓ ← This is now Attach C changed
- Need to provide legible copy of Attach 1
- Need Section Labels + page corrections
- Attach. No. 3 is included Water Treatment Chemical (Flocculant)
- Attach. 7 is included - Sampling Procedures for H.W. Streams.
- Attach 3-6 in Table of Contents are mislabeled

✓ 16 Table 3 Changed

✓ 17 Fig E-1 ~~dated~~ has been included - all H.W.M.U are included, E+W plant boundaries are shown

✓ 18 Why?

✓ 19 Don't know - will cease to be used on or before Nov. 8, 88.

✓ 20 Found & will include

KEYSTONE
ENVIRONMENTAL RESOURCES, INC.

440 College Park Dr., Monroeville, PA 15146

April 14, 1987

Mr. Gary Payne
Mississippi Department of
Natural Resources
2380 Highway 80 West
Southport Center
Jackson, MS 39204

Re: Document Transmittal
Part B Permit Application
Closure and Post-Closure Plans
Surface Impoundment
Koppers Company, Inc.
Grenada, Mississippi Plant
EPA ID No. MSD007027543
Project No. 176900

Dear Mr. Payne:

Enclosed are three copies of each of the two above-referenced documents regarding RCRA requirements for the surface impoundment at the Koppers Company, Inc. Grenada, Mississippi plant. This submittal is in compliance with item No. 1 of the Mississippi Commission of Natural Resources Order No. 1208-87.

Please be advised that one of the Part B Applications is an original, signed by Mr. James Batchelder, Vice President of Koppers. The documents are complete with the exception of Attachments 9 and 10 and Appendix C of the Closure and Post-Closure Plans. These items will be forwarded to you under separate cover on April 15, 1987.

Documents enclosed herein were prepared by Keystone Environmental Resources, Inc., on behalf of Koppers. Guidance was provided by review of the following major items:

Part B Application:

(1) Application Checklist - Provided by EPA Region III (enclosed).

(2) RCRA Facility Assessment Guidance - October, 1986. - Provided by J. Hardage (transmittal dated March 25, 1987).

(3) Grenada Plant Container Storage Building Part B Application.

(4) Grenada Plant Part B Application for the surface impoundment and spray field (revised January, 1986 with recodification).

(5) Specific items relating to groundwater monitoring as detailed in a letter from J. Hardage to R. Morosky dated March 30, 1987.

Closure and Post-Closure Plans:

(6) Items (1) and (2) listed above and pertinent sections of 40 CFR 264.

(7) Grenada Plant Closure Plan submittal (dated November, 1986) for the surface impoundment and spray field.

(8) MBPC technical comments of the Closure Plan (transmittal dated January 23, 1987).

Other references are specified in various sections of the two documents.

Guidance addressed in these documents, plus information obtained by on-site investigative work completed during the last five months, has helped to generate appropriate responses to the regulatory requirements. The majority of this information is in regard to the site hydrogeology (Section E of the Part B Application).

Koppers response to specific items contained in the MBPC closure plan technical review is as complete as technically feasible at the present time. Comments contained in General Closure Requirements (A1.5, 1.7 and 1.8) have not been addressed since it has been determined not to pursue these procedures during closure. The format of the Closure and Post-Closure plans follows a logical progression using 40 CFR 264 as guidance.

If there are any comments or questions regarding the enclosed documents, please advise.

Sincerely,

C. P. Markle/pb

C. P. Markle
Environmental Program Manager

CPM:da
Enclosures:
RCRA Part B Application
Closure and Post-Closure Plans

cc: J. R. Batchelder
C. L. Blalock, MS DNR (w/o enclosures)
J. Blundon
J. D. Clayton
C. A. Cramer
R. M. Morosky

KEYSTONE
ENVIRONMENTAL RESOURCES, INC.

MISSISSIPPI DEPARTMENT OF NATURAL RESOURCES
Bureau of Pollution Control
P. O. Box 10385
Jackson, Mississippi 39209
(601) 961-5171

M E M O R A N D U M

TO: File

FROM: Jim Hardage JH

SUBJECT: Koppers Company, Inc.

DATE: March 5, 1987

On February 24 and 25, 1987, I visited the above referenced facility to observe field work related to the Koppers spray field demonstration. (The demonstration is designed to resolve the question of whether or not the spray field is a RCRA-regulated unit.) Steve Colton and Gene Huth with Keystone Environmental Resources, Inc., performed the field work for Koppers.

Soil samples from seven locations in the spray field were collected and split with me. Samples of wastewater from the surface impoundment line (prior to discharge to the spray field) were collected four times during the day of February 25, 1987. I was given a duplicate of each sample. Sludge samples were also collected from the bottom of the surface impoundment. I did not choose to receive splits of any of these sludge samples.

On February 25, 1987, I inspected an area of the Koppers property near the old, closed-out surface impoundments where a drainage ditch intersects an intermittent creek. Mr. J. D. Clayton, the plant manager, and Steve Colton accompanied me. This area had previously been inspected by members of the EPA Groundwater Task Force (Sharon Matthews, Jeaneanne Gettle, et al.) and the State (Jim Hardage) during a site reconnaissance in 1986.

Mr. Clayton pointed out that (1) any discharge into the creek normally consists of rainwater runoff from the process area, and (2) the rainwater runoff has a slight sheen to it sometimes. He also pointed out that the creek was actually a canal that was dug by the Corps of Engineers some years ago.

The water in the canal was nearly stagnant (not flowing) at the time of my inspection. There was a dull film on the water in the vicinity of the drainage ditch/canal intersection. A few yards downstream of the intersection, there was an iridescent area, about one or two feet in diameter, on the canal bank just above the water line. On the opposite bank, there was an outcrop of black material several inches thick. The black material did not appear to be seeping. In summary, there were indications of a slight release and a potential for seepage. However, there were no indications of gross or pervasive releases at the time of my inspection.

Mr. Clayton indicated that the two ponds in the vicinity of the ditch/canal intersection had been clean-closed, i.e., oil was recovered, bottom sludge was landfarmed, and the sides of the ponds were scraped clean. He also mentioned that clinkers from the boiler had been disposed of in this area and that there had been an asphalt road in the immediate area at one time.

JH:hdb

FILE COPY

January 31, 1987

Mr. J. K. Batchelder
Vice-President and Manager
Technical and Environmental Services
Tar and Wood Products Sector
Koppers Company, Inc.
436 Seventh Avenue
Pittsburgh, Pennsylvania 15219

Dear Mr. Batchelder:

Re: Koppers Company, Inc.
[illegible]
Surface Impoundment and Spray Field
Closure Plan

The Bureau of Pollution Control has completed a review of the above referenced closure plan. Enclosed please find our technical comments, a copy of the checklist used in the review process, and a draft RCRA guidance document on landfill design, liner systems, and final cover.

The revised closure plan must adequately address all of the Bureau's comments. To facilitate our final review, the revised plan should also be in the same format as the checklist.

The date for submittal of the revised plan will be determined after the meeting that is scheduled with Koppers representatives for February 5, 1987.

If you have any questions regarding this matter, please contact me.

Sincerely,

Jim Hardman
Hazardous Waste Division

JH:MB
Enclosure
cc: Mr. Cyrus Rustia
Mr. J. D. Clayton
Mr. Tom Moroski (w/enclosure)
Mr. James Beachbrough, Environmental Protection Agency (w/enclosure)

I. GENERAL CLOSURE REQUIREMENTS

A-1. Steps in the Closure Process

1. Step Three - Dewatering

The plan states that half of the water (approximately 350,000 gallons) will be pumped to the spray field at a rate of 10,000 gpd. More information is needed on (a) the maximum hydraulic loading capacity of the spray field and (b) the effect of this loading rate on the vegetation and the accumulation/mobilization of K001 constituents. Such factors as annual precipitation, seasonal variation in precipitation, soil characteristics, and evapotranspiration and infiltration must be included to support the proposed rate of application.

2. Step Five - Removal of Oils and Sludges

The plan states that fuel oils may be blended with the sludges and oils to adjust their properties. It is not clear whether such blending will occur in the impoundment, in rail tank cars, or temporary holding tanks. More information is needed, including a description of the blending process, the structures/equipment used, precautions to prevent spills, etc.

3. Step Six - Oil Recovery by Centrifuge

The plan states that oil will be recovered by centrifuge as quantity warrants. More information on this process is needed, including a description of the process, the structures/equipment used, precautions to prevent spills, etc.

4. Step Seven - Use of Oil/Sludge as Fuel

The plan states that oil/sludge with HHV >5000 BTU/lb. will be used as fuel in the plant boiler. Storage of K001 waste on-site prior to use as a fuel will require the submittal of a revised permit application if storage exceeds ninety days and the volume of hazardous waste is greater than the volume specified in Koppers December, 1986 Part B permit application for container storage.

5. Step Eight - Processing of Sludges

The plan states that sludges with HHV <5000 BTU/lb. will be processed through a filter press to remove free liquids. Dry filter cake will be sent off-site to a secure disposal facility. More information is needed, including a description of the process, the structures/equipment used, precautions to prevent spills, etc.

6. Step Nine - Washing of Sludges/Soils

The plan states that sludges with an FOG >3% may be washed to reduce fats, oil, and grease. More detailed information on this process (and where it will occur) is needed. Include a description of the process, the structures/equipment used, precautions to prevent spills, etc.

7. Step Ten - In-situ Treatment of Sludges/Soils

The plan states that sludges with FOG <3% will be treated in-situ. A treatability study or other information that demonstrates the feasibility of in-situ biological treatment of K001-contaminated sludges must be provided.

8. Step Eleven - Characterization Study for In-Situ Biological Treatment

The plan states that a characterization study will be performed to determine nutrient requirements, length of time required for degradation, etc. How long does a characterization study take? What parameters are measured? How is the study conducted? Provide additional information.

9. Step Sixteen - Clean Closure

Notification that the unit has been decontaminated must consist of a certification of closure, and documentation supporting the certification.

A-2. Maximum Inventory of Wastes

No comments.

A-3. Closure Schedule

1. Since the proposed closure plan is contingent on installation of a pretreatment facility, the plan must include a schedule for design and construction of the pretreatment facility, including projected dates for completion of major activities.

2. The plan states that Koppers will initiate closure within 30 days after November 8, 1988, in the event that final discharge arrangements with the POTW are not made by then. However, no explanation is provided regarding how closure would proceed under those circumstances. Provide an alternate plan describing in detail how the wastewater from the impoundment will be treated and discharged in the event that final arrangements with the POTW are not made by November 8, 1988.

B. Closure Cost Estimate

State in the narrative that the closure cost estimate will be revised annually.

C. Amendment of Closure Plan

No comments.

D. Revisions to Cost Estimate

No comments.

E. Certification of Closure

1. The closure schedule indicates that certification of closure will be submitted within the required time frame. This item should be addressed in the narrative as well. (Subpart G of Part 265 requires submittal of the certification within 60 days of completion of closure.)

2. State in the narrative that the certification will be signed by the owner/operator and an independent registered professional engineer.

3. State in the narrative that documentation supporting the engineer certification will be furnished upon request.

4. Describe, either in narrative or by checklist, the testing and verification program that will be used to support the certification.

F. Survey Plat

State in the narrative that a survey plat will be submitted no later than the submission of the certification of closure, if clean closure cannot be attained.

II. GENERAL POST-CLOSURE REQUIREMENTS

A. Post-Closure Care and Use of Property

No comments.

B-1. Monitoring Activities

State in the narrative that the following items are not applicable: (1) monitoring of leachate collection/detection system; and (2) gas ventilation system. Provide an explanation.

B-2. Maintenance Activities

State in the narrative that the following items are not applicable: (1) leachate collection/detection equipment; (2) gas collection and control system.

B-3. Post-Closure Contact

The plan must include the name, address, and phone number of the person to contact during the post-closure care period.

C. Post-Closure Cost Estimate

State in the narrative that the post-closure cost estimate will be revised annually.

D. Amendment of Closure Plan

No comments.

E. Revisions to Post-Closure Cost Estimate

No comments.

F. Post-Closure Notices

1. State in the narrative that a record of the type, location, and quantity of hazardous waste disposed of within each unit of the facility will be submitted within sixty days after certification of closure, if clean closure cannot be attained. (Refer to 40 CFR 265.119.)

2. State in the narrative that both (a) a certification that the required notation has been recorded in the deed, and (b) a copy of the document in which the notation has been placed will be submitted within sixty days after certification of closure. (Refer to 40 CFR 265.119.)

G. Certification of Post-Closure (Non-Clean Closure)

1. The plan must state that a certification of post-closure will be submitted upon completion of the post-closure care period.

2. State that the certification will be signed by the owner/operator and an independent registered professional engineer.

3. State that documentation supporting the engineer certification will be provided upon request.

VI. SURFACE IMPOUNDMENTS (Closure by Removal)

A-1. Waste Removal and A-2. Removal/Decontamination of Residues and Equipment

1. A cursory description of the processing alternatives/method of waste removal is provided but additional information is needed. (See comments under I. A-1, General Closure Requirements.)

2. The plan should address the method of controlling wind dispersal, procedures for controlling run-on and run-off, and procedures for protection of surface water and groundwater. Provide an explanation for any of these items that are not applicable.

3. Describe how equipment will be decontaminated (e.g., high-pressure water) and how wash water will be collected.

VII. LANDFILLS (Non-Clean Closure)

A-1. Final Cover Design and Construction

1. The plan must provide for installation of a drainage and filter layer in the final cover, if more than residual contamination is left in the impoundment after treatment/disposal of sludge:

   (a) The impoundment is in a high annual precipitation area. A drainage layer is required to reduce percolation through the low permeability bottom layer. The Hydrologic Evaluation of Landfill Performance (HELP) Model developed by the U. S. Army Waterways Experiment Station, Corps of Engineers, in Vicksburg, Mississippi, may be used to evaluate performance. The technical documents (EPA/530-SW-84-009 and EPA/530-SW-84-010) can be obtained from EPA Headquarters by calling (800) 424-9346 (Hotline) or (FTS) 382-3000 (Hotline). The contact person (for content information only) is Paul Cassidy (382-4682).

   (b) The drainage layer must be designed so that discharge flows freely in the lateral direction to minimize head on and flow through the low permeability layer.

   (c) The plan must provide an additional drawing (cross sections) of the impoundment that illustrates the drainage and filter layers.

   (d) Koppers should propose a level of contamination above which a drainage and filter layer would be required.

2. The top slope of the final cover must be specified. (EPA guidance specifies a final top slope of three to five percent, unless the owner or operator knows that an alternate slope will effectively promote drainage and not subject the closed facility to erosion.)

3. The plan must provide for a perimeter drainage ditch to remove run-off, prevent ponding, etc.

4. The plan should specify the vegetation species and provide assurance that the root system will not penetrate into the low permeability bottom layer.

5. The plan should address the following items or else state that they are not applicable and provide an explanation: (1) potential settlement of the cover; (2) potential for gas generation; and (3) effects of freeze-thaw cycles on the cover.

A-2. Decontamination of Equipment and A-3. Other Activities

See comments under VI. A-2 and VI. A-3.

B-1. Post-Closure Maintenance and Monitoring Requirements

1. Provide checklist of items to be inspected and procedures to undertake if a problem exists.

2. See additional comment under II. B-2.

VIII. CLOSURE OF LAND TREATMENT UNITS

A-1. Control of Migration of Hazardous Constituents to Groundwater

No comments.

A-2. Control of Release of Contaminated Runoff to Surface Waters

See comments under VIII. D-2. and D-3.

A-3. Control of Airborne Particulates

No comments.

A-4. Compliance with Food-Chain Crop Restrictions

The plan should address restrictions or else state that this section is not applicable and provide an explanation, e.g., crops will not be grown.

C-1. Removal of Contaminated Soil

No comments.

C-2. Placement of Final Cover

No comments.

D-1. Unsaturated Zone Monitoring

1. Specify the location of all sampling points and the frequency of sampling. Provide rationale.

2. Specify location of background sampling points. Provide a rationale.

3. Specify methods/devices for sample collection.

4. Specify sample preservation, shipment, and chain-of-custody procedures.

5. Reference SW-846 (or other) methods, including statistical procedures to be used to evaluate data.

LAW ENVIRONMENTAL SERVICES
DIVISION OF LAW ENGINEERING TESTING COMPANY
2749 DELK ROAD, S.E.
MARIETTA, GEORGIA 30067
(404) 952-9005

December 16, 1986

Mr. Charles L. Blalock
Executive Director
Mississippi Department of Natural Resources
2380 Highway 80 West
Jackson, Mississippi 39204

Attention: Mr. Samuel Mabry
Environmental Program Administrator

Subject: Koppers Company, Inc.
Grenada, Mississippi Closure Plan
U.S. EPA I.D.#MSD007027543
LES Project No. EC6353.10

Dear Mr. Mabry:

On November 14, 1986, Law Environmental Services submitted the Closure Plan for the Koppers Company, Inc. surface impoundment and sprayfield. Upon subsequent review, minor revisions were made to both the text and Closure Cost Estimates (Attachments I-5, I-6, and I-7). The revised sections are so noted in the upper right hand corner of each page.

Should you have any questions concerning this revision, please contact Mr. Cyrus Markle, ((412) 227-2000) Room 901, Koppers Building, Pittsburgh, Pennsylvania 15219.

Sincerely yours,

LAW ENVIRONMENTAL SERVICES

J. Brad Peebles, Ph.D.
Environmental Scientist

James L. Studer, P.E.
Senior Geotechnical Engineer

JBP:JLS:bfw

cc: U.S. EPA/James Scarbrough
Mr. Cyrus Markle

LAW ENVIRONMENTAL SERVICES
DIVISION OF LAW ENGINEERING TESTING COMPANY
2749 DELK ROAD, S.E.
MARIETTA, GEORGIA 30067
(404) 952-9005

November 14, 1986

Mr. Charles L. Blalock
Executive Director
Mississippi Department of Natural Resources
2380 Highway 80 West
Jackson, Mississippi 39204

Attention: Mr. Samuel Mabry
Environmental Program Administrator

Subject: Koppers Company, Inc.
Grenada, Mississippi Closure Plan
U.S. EPA I.D.#MSD007027543
LES Project No. EC6353.10

Dear Mr. Mabry:

In compliance with the Commission on Natural Resources' Amendment to Order No. 1040-86 Law Environmental Services on behalf of Koppers Company, Inc., herewith submits the Closure Plan for the facilities surface impoundment and sprayfield.

Should you have any questions concerning this submission, please contact Mr. Cyrus Markle, ((412) 227-2000) Room 901, Koppers Building, Pittsburgh, Pennsylvania 15219.

Sincerely yours,

LAW ENVIRONMENTAL SERVICES

J. Brad Peebles, Ph.D.
Environmental Scientist

James L. Studer, P.E.
Senior Geotechnical Engineer

JBP:JLS:lsm

cc: U.S. EPA/James Scarbrough
Mr. Cyrus Markle

Addendum Re: Spray Field

EPA has indicated that this unit is a "regulated" RCRA unit. Koppers has contested this interpretation from the beginning and are apparently prepared again to legally contest this interpretation if a penalty should be applied. However, they have agreed that it is a solid waste management unit (SWMU), and they would be willing to address it in the present closure plan for the impoundment and the post closure Part B application as appropriate if directed by us.

Site inspection by my staff indicate the spray irrigation site is completely vegetated and has no visible sludge accumulation on the top several inches of soil. Previous sampling indicates K001 contaminants in very small measurable quantities. We will therefore direct Koppers to address this spray field as a RCRA unit in the post closure Part B application and the closure plan for the impoundment.

this was part of an information package sent to EPA during negotiations with Koppers in the fall of 1986.

GH

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IV
345 COURTLAND STREET
ATLANTA, GEORGIA 30365

SEP 11 1986

4WD-RM

Mr. Sam Mabry, Director
Division of Solid/Hazardous
Waste Management
Post Office Box 10385
2380 Highway West
Jackson, Mississippi 39209

Re: Koppers Company, Grenada, Mississippi

Dear Mr. Mabry:

Reference is made to the conference call between EPA and Mississippi on September 9, 1986 regarding Koppers Company, Grenada, Mississippi. Specifically, you requested EPA's written interpretation of the regulatory status of the Koppers Company if they submit a closure plan and withdraw their Part B application.

If Koppers intends to close in lieu of maintaining active status of their surface impoundment, they should be advised to submit a formal letter of intent to close the unit. The closure plan should be submitted within a reasonable time; and the hazardous waste application should be revised to a post-closure application. If the closure plan is submitted within a reasonable timeframe, the facility could continue to manage hazardous waste in the unit until the State approved the closure plan. Approval of the closure plan is generally accomplished within 180 days from submittal by the facility.

The facility would retain interim status unless the State terminates interim status as provided in §270.10(e)(5). Failure to furnish a requested Part B application on time, or to furnish in full the information required by the Part B application, is grounds for termination of interim status under Part 124. The owner or operator would then be required to submit a closure plan no later than 15 days after termination of interim status under §265.112(c)(1).

The second item discussed by the State during the call was the tentative schedule being implemented in a Commission Order under development for Koppers. The schedule stipulated that the closure plan would be submitted December 15, 1986; and the post-closure application would be submitted January 1988. Although this was a tentative schedule, sixteen months is an excessive length of time for revising the current Part B application to a post-closure application. Three months would be an appropriate time-frame to revise the application. The delay in submittal of the closure plan should also be evaluated by the State.

Lastly, the sprayfield at Koppers is a regulated unit under the State's hazardous waste regulations. The decision made on the Brown Wood case does not apply to other facilities; Mississippi has previously received the legal interpretation on this.

If you have questions or comments in this matter, please call me at 404/347-3016.

Sincerely yours,

James H Scarbrough

James H. Scarbrough, P.E., Chief
Residuals Management Branch
Waste Management Division