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 Industries, Inc.	Air-AIRS AFS	10/12/2000	
096000012	Koppers Industries, Inc.	Air-Title V Fee Customer	03/11/1997	
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	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	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
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	
	PT CIU - Timber Products		

Water	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

12/20/2006 12:16:40 PM

Koppers Industries Inc

General Information

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

Address

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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
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096000012	Koppers Industries, Inc.	Air-Title V Fee Customer	03/11/1997	
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	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	09/30/2009
876	Koppers Industries, Inc.	Official Site Name	11/09/1981	
MSP090300	Koppers Industries, Inc.	Water-Pretreatment	11/14/1995	11/13/2000
MSP090300	Koppers Industries, Inc.	Water-Pretreatment	09/18/2001	08/31/2006
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	Generator, Large Quantity	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	

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		Method: GPS Code (Psuedo Range) Standard Position (SA Off) **Datum:** NAD83 **Type:** MDEQ		

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Koppers AE: 876
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Suite 200
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Grenada County
Shanks

August 4, 2006
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DEPT OF ENVIRONMENTAL QUALITY
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AUG 07 2006

RCRA Programs Branch
Waste Management Division
U.S. Environmental Protection Agency
61 Forsyth Street SW
Atlanta, Georgia 30303

Attn: Mr. Jon D. Johnston
Chief, RCRA Programs Branch
Waste Management Division

Subject: Corrective Measures Study Workplan
Koppers Inc. Grenada Facility
Grenada, Mississippi
EPA I.D. No. MSD 007 027 543

Dear Mr. Johnston:

On behalf of Beazer East, Inc. (Beazer), this letter transmits two copies of the Corrective Measures Study Workplan for the Koppers Inc. Grenada Facility, in Grenada, Mississippi (Site). This workplan presents Beazer's approach to implementing the Corrective Measures remedy for the Site. Beazer is working cooperatively with the United States Environmental Protection Agency, Region 4 (EPA) to assist the EPA with their stated goal of expeditious selection and implementation of the remaining components of the Site remedy.

If you have any questions regarding this transmittal, please contact Mike Bollinger at (412) 208-8864.

Sincerely,

GeoTrans, Inc.

Jennifer A. Abrahams, P.G.
Associate
Senior Hydrogeologist

Attachments

cc: Lael Butler, EPA
Jerry Cain, MDEQ
Patrick Stark, KI
KI Plant Manger, Grenada Facility
Mike Bollinger, Beazer
Paul Anderson, AMEC

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CORRECTIVE MEASURES STUDY WORKPLAN
KOPPERS INC.
GRENADA FACILITY
GRENADA, MISSISSIPPI

Prepared For:
Beazer East, Inc.
One Oxford Centre
Suite 3000
Pittsburgh, PA 15219

Prepared by:

GeoTrans
10860 Gold Center Drive, Suite 200
Rancho Cordova, California 95670

August 4, 2006

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LIST OF FIGURES

1.0 INTRODUCTION

The objective of this workplan is to describe Beazer East, Inc.'s (Beazer's) approach to implementing the Corrective Measures remedy for the Koppers, Inc. (KI) site in Grenada, Mississippi (Site). Beazer is working cooperatively with the United States Environmental Protection Agency, Region 4 (EPA) to assist the EPA with their stated goal of expeditious selection and implementation of the remaining components of the Site remedy.

The organization of this report includes: a review of the current Site status, including the Site background, the history of the RCRA Facility Assessment (RFA), the RCRA Facility Investigation (RFI) and the corrective actions, and conclusions and recommendations regarding the current site status; identifying the Corrective Action Objectives (CAOs) for the Site; and identifying the remaining actions needed to prepare the Statement of Basis and develop the Corrective Measures Implementation Plan for the Site.

2.0 DESCRIPTION OF CURRENT SITE STATUS

The Site is located approximately one mile southeast of the city limits of Grenada, Mississippi, near U.S. Highway 51 as shown in Figure 1. The Site is located in Tie Plant, Mississippi, a rural town with a small residential community located to the northeast. The 171-acre Site is approximately 1.2 miles long trending northwest to southeast and 0.3 miles wide. The Illinois Central Railroad services the Site and forms its western boundary. Fields and woodlands form the eastern boundary along the southern and central portions of the Site with residential areas at the northern end of the Site. Two streams flow northeast across the Site towards the Batupan Bogue: the Northern Stream in the northern portion of the Site and the Central Ditch in the central portion of the Site. The general features of the Site can be divided into three areas: wood storage in the northern area; wood treating facilities and office buildings in the central area; and wood storage in the southern area.

The following subsections summarize the Site background; the history of the RCRA Facility Assessment (RFA), the RCRA Facility Investigation (RFI) and the corrective actions; and conclusions and recommendations regarding the current Site status.

2.1 Site Background

The facility manufactures treated wood products such as railroad ties, poles, and lumber in pressurized cylinders using various conditioning and treating processes. Wood treating operations involving creosote and pentachlorophenol based preservatives have been conducted at the Site since 1904. The constituents of potential concern identified at the Site from investigation activities include:

- Pentachlorophenol;
- Benzene;
- Polynuclear Aromatic Hydrocarbons (PAHs); and
- Polychlorinated Dibenzo-p-Dioxins/Polychlorinated Dibenzo Furans (PCDDs/PCDFs).

The Site is located on a terrace approximately 10 to 15 feet above the floodplain of the Batupan Bogue. The subsurface stratigraphy can be defined by six generalized lithologic zones, as described below from the shallowest to deepest:

Fill Zone - Thickness ranges from 0 to 10 feet.
Upper Silt Zone - Thickness ranges from 5 to 8 feet.
Upper Sand Zone - Thickness ranges from 5 to 15 feet.
Upper Low-Permeability Zone - Thickness ranges from 0 to 17 feet.
Lower Sand Zone - Thickness ranges from 90 to 165 feet.
Lower Confining Zone - Thickness is at least 150 feet.

Horizontal groundwater flow in the Upper Silt and Sand Zone is generally northeastward toward Batupan Bogue, and is affected by Site topography near the Central Ditch. The Upper Low-Permeability Zone acts as a local partial confining unit above the Lower Sand Zone. The Lower Sand Zone groundwater flows generally north and northeastward across the Site and appears to be relatively unaffected by surface topography and activities. The Lower Confining Zone hydraulically separates the Lower Sand Zone from the deeper regional aquifers.

2.2 RCRA Facility Assessment History

In 1987, the EPA conducted a RCRA Facility Assessment (RFA) of the Site, documented in the report *RCRA Facility Assessment of the Koppers Industries, Inc., Grenada, Mississippi* (EPA, 1987). The RFA identified the following 13 solid waste management units (SWMUs):

SWMU 1	Oil/Water Separator
SWMU 2	Surface Impoundment
SWMU 3	Spray Irrigation Field
SWMU 4	Boiler
SWMU 5	Boiler Ash Landfill
SWMU 6	Process Cooling Reservoir
SWMU 7	Container Storage Area
SWMU 8	Drip Track Area
SWMU 9	Chemical Unloading Area
SWMU 10	Underground Storage Tank
SWMU 11	Former Wastewater Treatment System
SWMU 12	North Waste Piles
SWMU 13	South Waste Piles

The locations of the SWMUs are shown in Figure 2.

On June 14, 1988, the facility began operating under RCRA Part B Post Closure Care Permit No. MSD 007 027 543 issued by EPA Region IV and under Hazardous Waste Management Permit No. 88-543-01 issued by the State of Mississippi Department of Environmental Quality (MDEQ). Certain provisions included in the permits required evaluating the SWMUs identified in the RFA for potential releases of hazardous constituents, and implementing the appropriate corrective action for any such releases.

2.3 RCRA Facility Investigation History

In 1988, Koppers Company, Inc. performed a Phase I RFI of each SWMU identified in the RFA. The findings of this investigation, presented in the report *Soil and Groundwater Investigation of Solid Waste Management Units, Koppers Industries, Inc. Plant, Grenada, Mississippi* (Keystone, 1989), were submitted to the MDEQ with recommendations proposing additional investigations of the SWMUs. This report was accepted as the Phase I RFI Report by the EPA and MDEQ.

In December 1989, the MDEQ concurred that additional investigations were warranted. Subsequently, Beazer prepared the report *Phase II RFI Work Plan, RCRA Facility Investigation (RFI), Koppers Industries, Inc., Grenada, Mississippi* (Keystone, 1990a), to outline the scope of work and the procedures to be implemented during the additional investigations of the SWMUs. Responses to comments by the EPA and the MDEQ on the document were incorporated as revisions titled *Supplemental Work Plan, RCRA Facility Investigation (RFI), Koppers Industries, Inc., Grenada, Mississippi* (Keystone, 1991). In January 1991, the MDEQ and the EPA approved the Supplemental Work Plan and Phase II RFI field activities began in May 1991.

The *Draft Phase II RCRA Facility Investigation, Koppers Industries, Inc., Grenada, Mississippi* (Dames & Moore, 1992) was completed in 1992 and revised in 1994 based on EPA comments. Beazer received a second set of comments on the revised Draft Phase II RFI Report from EPA on June 12, 1996 (EPA, 1996). Beazer submitted a response to the EPA comments on August 30, 1996 (Beazer, 1996). The *RCRA Facility Investigation, Work Plan Addendum, Koppers Industries, Inc., Grenada Facility, Grenada, Mississippi* (*Work Plan Addendum*) (Hydro-Search, Inc. (HSI), 1997) was prepared in accordance with that response. Supplemental field investigations were conducted during May and June 1997.

The 13 SWMUs were investigated in detail during the Phase I and Phase II RFI studies. Most of the SWMUs are located in the central area of the Site as shown in Figure 2. Releases from SWMUs in the Central Process Area, the Drip Track Area, and the Former Wastewater Treatment System were determined to have impacted underlying soil. The Former Wastewater Treatment System was the focus of an Interim Measures investigation conducted in 1996 and documented in the report *RCRA Interim Measure Predesign Investigation Report and Conceptual Design* (HSI, 1996).

The RCRA Permit (MSD 007 027 543) was reissued in September 1998, and four additional SWMUs were identified in the permit, as follows:

SWMU 14	Temporary Storage of Soil
SWMU 15	Two Soil Containment Structures
SWMU 16	Old Oil/Water Separator
SWMU 17	Old South Drip Pad/Track

The RCRA Permit reissued in 1998 also specified that three of the SWMUs, initially identified in 1987, required no further action; these SWMUs are:

SWMU 2	Surface Impoundment
SWMU 3	Spray Irrigation Field
SWMU 5	Boiler Ash Landfill

Beazer submitted the *Revised Final Phase II RCRA Facility Investigation Report, Koppers Industries, Inc., Grenada Facility, Grenada, Mississippi* (Revised Final RFI) (HSI GeoTrans and Ogden, 1998) to the EPA on November 13, 1998. *The Work Plan to*

Complete Phase II RCRA Facility Investigation, Koppers Industries, Inc., Grenada Facility, Grenada, Mississippi (Work Plan to Complete RFI) (HSI GeoTrans, 1999) was submitted in August 1999 to address the EPA's May 20, 1999 comments on the Revised Final RFI. The EPA approved the Work Plan to Complete RFI on March 27, 2000, and activities were implemented from June through September 2000.

In March 2002 the EPA requested Beazer characterize soils in the vicinity of an area referred to as the former "creosote hole". Beazer submitted the *Work Plan to Characterize Soil in the Vicinity of the Former "Creosote Hole", Koppers Industries/Beazer East, Inc., Tie Plant, Mississippi* (GeoTrans, 2002) in June 2002 to the EPA. EPA approved this work plan on January 10, 2003, and sampling and analysis were performed in March 2003. A technical memorandum titled *Results of Soil Characterization, Vicinity of the Former "Creosote Hole", Koppers Industries/Beazer East, Inc., Tie Plant, Mississippi* (GeoTrans, 2003) was submitted to the EPA on April 17, 2003.

Beazer submitted the *Complete Phase II RCRA Facility Investigation Report, Koppers Industries, Inc., Grenada Facility, Grenada, Mississippi* (Complete RFI) (GeoTrans and AMEC, 2003) to the EPA on July 25, 2003, and the *Addendum to the Complete RFI Risk Assessment and Sediment Toxicity Work Plan for Northern Stream Sediments* (AMEC, 2005) were submitted to the EPA on January 28, 2005. On April 29, 2005, the EPA approved the Complete RFI and commented on the Sediment Toxicity Testing Work Plan. The EPA approved the Sediment Toxicity Testing Work Plan on March 30, 2006 and the *Evaluation of Chemistry and Toxicity of Northern Stream Sediments* was submitted to the EPA on June 30, 2006 (AMEC, 2006).

2.4 Corrective Action History

SWMUs in the northern and southern areas of the Site (SWMUs 3, 5, 13, 14, and 15) have either already undergone closure or have been addressed through a direct removal action. The Surface Impoundment (SWMU 2) was taken out of service in mid-1988 and has undergone formal RCRA closure. The State of Mississippi issued Hazardous Waste Management Permit No. 88-543-01 on June 28, 1988, as amended in February 1990 and reissued in November 1999, for post-closure care of the Surface Impoundment. The Spray Irrigation Field (SWMU 3) was taken out of service in mid-1988 and closed in 1991 in accordance with a closure plan approved by EPA in January 1991. The Boiler Ash Landfill (SWMU 5) was closed pursuant to a negotiated Order with the MDEQ and documented in the reports *Final Report, Groundwater Quality Assessment, Boiler Ash Disposal Area* (Chester Environmental, 1993) and *Supplemental Investigation Addendum to Boiler Ash Landfill Groundwater Quality Assessment* (Dames & Moore, 1994).

The South Waste Piles (SWMU 13) consisted of untreated wood and empty railroad spike drums. The South Waste Piles were removed prior to 1989. The Temporary Storage of Soil (SWMU 14), which contained soil excavated from around tank process area, and Two Soil Containment Structures (SWMU 15), which contained

soil excavated from the drip track area (SWMU 8), were removed in the Fall of 1996, in accordance with the *Soil Pile Removal Procedures* (Fluor Daniel GTI, 1996). These activities were documented to the EPA and MDEQ in the *Removal Documentation Report* (Fluor Daniel GTI, 1997). The Old Oil/Water Separator (SWMU 16) was cleaned and backfilled.

The SWMU 11 Interim Measures (IM) were implemented between April 1999 and May 2000. Work was performed in accordance with the *Interim Measures Work Plan, SWMU 11* (HSI GeoTrans, 1999b). Interim Measures at the Former Wastewater Treatment system (SWMU 11) were designed to mitigate further discharge of dense non-aqueous phase liquid (DNAPL) into the Central Ditch, and to eliminate potential exposure pathways to wood treating compounds in the Central Ditch sediment. To accomplish these two objectives the IM activities included:

- Excavating approximately 30,000 cubic yards of impacted sediment from the Central Ditch;
- Relining the ditch with a geosynthetic clay liner, clean import material, and bank armor;
- Consolidating the excavated sediment in the Former Wastewater Treatment System and former wood disposal area, and installing a low-permeability cover with a geosynthetic clay liner over the excavated sediment to reduce the groundwater hydraulic gradient toward the Central Ditch;
- Installing a subsurface vertical containment barrier along the north bank of the Central Ditch, an underdrain beneath the re-lined ditch, and DNAPL recovery wells behind the containment barrier, to contain and collect DNAPL and mitigate continuing seeps into the Central Ditch; and
- Performing on-going DNAPL collection.

The results of the IM activities were presented in the *Interim Measures SWMU 11 Documentation Report* (HSI GeoTrans, 2000a). The EPA approved the Interim Measures SWMU 11 Documentation Report on October 16, 2003.

2.5 Site Status Conclusions and Recommendations

A human and ecological risk assessment was performed for the Site, the results were included in the Complete RFI. The human health risk assessment evaluated potential risks to receptors from potential exposure to constituents in soil, surface water, sediment, and groundwater at the Site. Hazard indices associated with all the potential exposure to off-site and on-site media and exposure areas (with the exception of hypothetical future use of off-site groundwater as drinking water at certain locations) are less than 1, indicating that no adverse noncarcinogenic health effects are expected to occur. Hazard indices associated with the hypothetical future use of off-site groundwater as drinking water are less than 1 at three off-site monitoring well locations and exceeded 1 at one off-site and three boundary area monitoring well locations. The three boundary area wells are located near the eastern Site boundary in the central portion of the Site, near and north of the Central Ditch. The off-site well is located east of the boundary

wells. Estimated potential carcinogenic risks associated with the all potential exposure to off-site and on-site media and exposure areas (with the exception of hypothetical future use of off-site groundwater as drinking water), are within or below the EPA's target risk range ($1x10^{-6}$ to $1x10^{-4}$). Potential risks associated with the hypothetical future use of off-site groundwater as drinking water are within or below the EPA's target risk range at one boundary monitoring well and at four off-site monitoring well locations and exceeded EPA's target risk range at two boundary monitoring well locations. These boundary area wells are located near the eastern Site boundary in the central portion of the Site, near and north of the Central Ditch. It should be noted that no current exposure to off-site groundwater exists, and no potential future exposure to off-site groundwater is expected to occur, because the Site and surrounding area are supplied with municipal drinking water.

The ecological evaluation concluded that potential risks to terrestrial receptors on-Site are unlikely because the active wood-treating operations preclude the existence of important ecological habitat in operational portions of the Site.

The Interim Measures eliminated any current or potential future risk from exposure to sediment and surface water in the Central Ditch, both on-site and downstream. Potential effects to benthic macroinvertebrates, but not other wildlife using the Northern Stream, was identified to have the potential to occur in a limited portion of the on-site area of the Northern Stream, but are not expected to occur downstream of the Site. Additional sediment toxicity testing for the Northern Stream was performed in 2006. The results of the sediment toxicity testing confirmed that the benthic macroinvertebrate community in the Northern Stream are not adversely affected.

The implementation of the IM has resulted in Site risks being with in the EPA's acceptable risk range for current and reasonable future use scenarios.

The Environmental Indicators of both Current Human Exposures Under Control (CA 725) and Migration of Contaminated Groundwater Under Control (CA 750) received "YE" designations from the EPA in September 2005, documenting that these Site indicators are under control.

Based on the implementation of the Site corrective actions, including the Interim Measures, and the results of the Site-specific risk assessment, the risks associated with exposure to Site soil, sediment and surface water are within the EPA's acceptable range. The only remaining potentially unacceptable risks that remain at the Site are associated with potential exposure to groundwater within certain portions of the Site and limited off-site areas adjacent to the central portion of the Site. It should be noted that no current exposure to off-site groundwater exists, and no potential future exposure to off-site groundwater is expected to occur, because the Site and surrounding area are supplied with municipal drinking water.

3.0 CORRECTIVE ACTION OBJECTIVES

The Corrective Action Objectives (CAOs) for the Site were presented in the Complete RFI and are summarized below, with a discussion of the current status of achieving the CAOs.

Soil: 1. Mitigate potential unacceptable risk due to direct contact exposure to Site surface soil.

Under the current and reasonable future use conditions for the Site, the risks associated with potential exposure to soil are within the EPA's acceptable range. To ensure conditions remain protective of human health and the environment, the only element of the soil remedy that remains to be performed is preparing and recording Institutional Controls to restrict the land use of the Site to industrial use.

Groundwater: 1. Control unacceptable exposures to on-site groundwater through institutional controls; and

2. Mitigate future potential exposure to groundwater constituents that exceed MCLs or acceptable risk levels.

The installation of the barrier wall immediately upgradient of the on-site Central Ditch as part of the IM partially contains impacts in the Upper Sand Zone groundwater. The Complete RFI presented the baseline Monitoring Natural Attenuation (MNA) sampling at the Site, which demonstrated that the groundwater plumes in the Upper and Lower Sand Zones are stable or potentially receding. Additionally, the Site parameters indicate that MNA is an appropriate and feasible remedy for dissolved constituents in groundwater at the Site.

Accordingly, two components remain to be performed to implement the Site groundwater remedy: developing and implementing a Site-specific MNA plan; and, preparing and recording groundwater institutional controls to prevent use of groundwater on-site or within the footprint of the off-site groundwater plume.

The CAOs for soil have been achieved and the soil remedy is complete. To achieve the groundwater CAOs, the Site remedy will be MNA combined with continued source reduction through DNAPL recovery.

4.0 ACTIONS REMAINING TO PREPARE THE STATEMENT OF BASIS AND DEVELOP THE CORRECTIVE MEASURES IMPLEMENTATION PLAN

Beazer is working proactively with the EPA to develop the Statement of Basis for the Site to define the Site remedy. Implementing the Site remedy to achieve the CAOs for the Site is anticipated to include the following tasks:

1. Working interactively with the EPA to prepare a Statement of Basis for the Site and obtain a RCRA Permit modification to reflect the remedy selection for the Site.
2. Preparing and recording Institutional Controls for the Site restricting the land use to be Industrial.
3. Continuing periodic collection of passively recovered DNAPL in the underdrain collection system in the Central Ditch and recovery wells immediately upgradient of the barrier wall.
4. Preparing and recording Institutional Controls to prevent use of groundwater on-site or off-site within the footprint of the groundwater plume, as defined in the Complete RFI.
5. Preparing, submitting, and implementing the MNA plan to remediate impacted groundwater.

5.0 REFERENCES

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Beazer East, Inc. (Beazer), 1996. *Response to Notice of Technical Inadequacy, Draft RCRA Facility Investigation Report, Koppers Industries Incorporated, Grenada, Mississippi.* Letter from Mr. Donald A. Ruggery, Jr., Environmental Manager, Beazer, to Ms. Diane Scott, RCRA Permitting Section, Waste Management Division, EPA. August 30, 1996.

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EPA, 1996a. *Comments on Draft RCRA Facility Investigation Report, Koppers Industry, Incorporated, Grenada, MS Facility.* Letter from Mr. A. Farmer, Chief, RCRA Branch, Waste Management Division to Mr. D. Ruggery, Jr., Associate Program Manager, Environmental Group, Beazer East, Inc. June 12, 1996.

Fluor Daniel GTI, 1996. *Soil Pile Removal Procedures, Koppers Industries, Inc., Grenada, Mississippi Facility.* Prepared for Beazer East, Inc.,

Fluor Daniel GTI, 1997. Removal Documentation Report, Soil Containment Structures, Koppers Industries, Inc., Grenada, Mississippi Facility. Prepared for Beazer East, Inc. February 21, 1997.

GeoTrans, Inc. 2002. *Work Plan to Characterize Soil in the Vicinity of the Former "Creosote Hole", Koppers Industries, Inc., Grenada Facility, Grenada, Mississippi.* Prepared for Beazer East, Inc., Pittsburgh, PA. June 5, 2002.

GeoTrans, Inc. 2003. *Results of Soil Characterization, Vicinity of the Former "Creosote Hole", Koppers Industries, Inc., Grenada Facility, Grenada, Mississippi.* Prepared for Beazer East, Inc., Pittsburgh, PA. April 17, 2003.

GeoTrans, Inc. and AMEC, 2003. Complete Phase II RCRA Facility *Investigation, Koppers Industries, Inc., Grenada Facility, Grenada, Mississippi.* Prepared for Beazer East, Inc., Pittsburgh, PA. July __, 2003.

HSI GeoTrans, Inc. and Ogden Environmental and Energy Services, 1998. *Revised Final Phase II RCRA Facility Investigation, Koppers Industries, Inc., Grenada Facility, Grenada, Mississippi.* Prepared for Beazer East, Inc., Pittsburgh, PA. November 13, 1998.

HSI GeoTrans, Inc. 1999. *Work Plan to Complete Phase II RCRA Facility Investigation, Koppers Industries, Inc., Grenada Facility, Grenada, Mississippi.* Prepared for Beazer East, Inc., Pittsburgh, PA. August 16, 1999.

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Keystone Environmental Resources, Inc. (Keystone), 1989. *Soil and Groundwater Investigation of Solid Waste Management Units, Koppers Industries, Inc. Plant, Grenada, Mississippi.* Prepared for Koppers Company, Inc., Pittsburgh, PA. January 1989.

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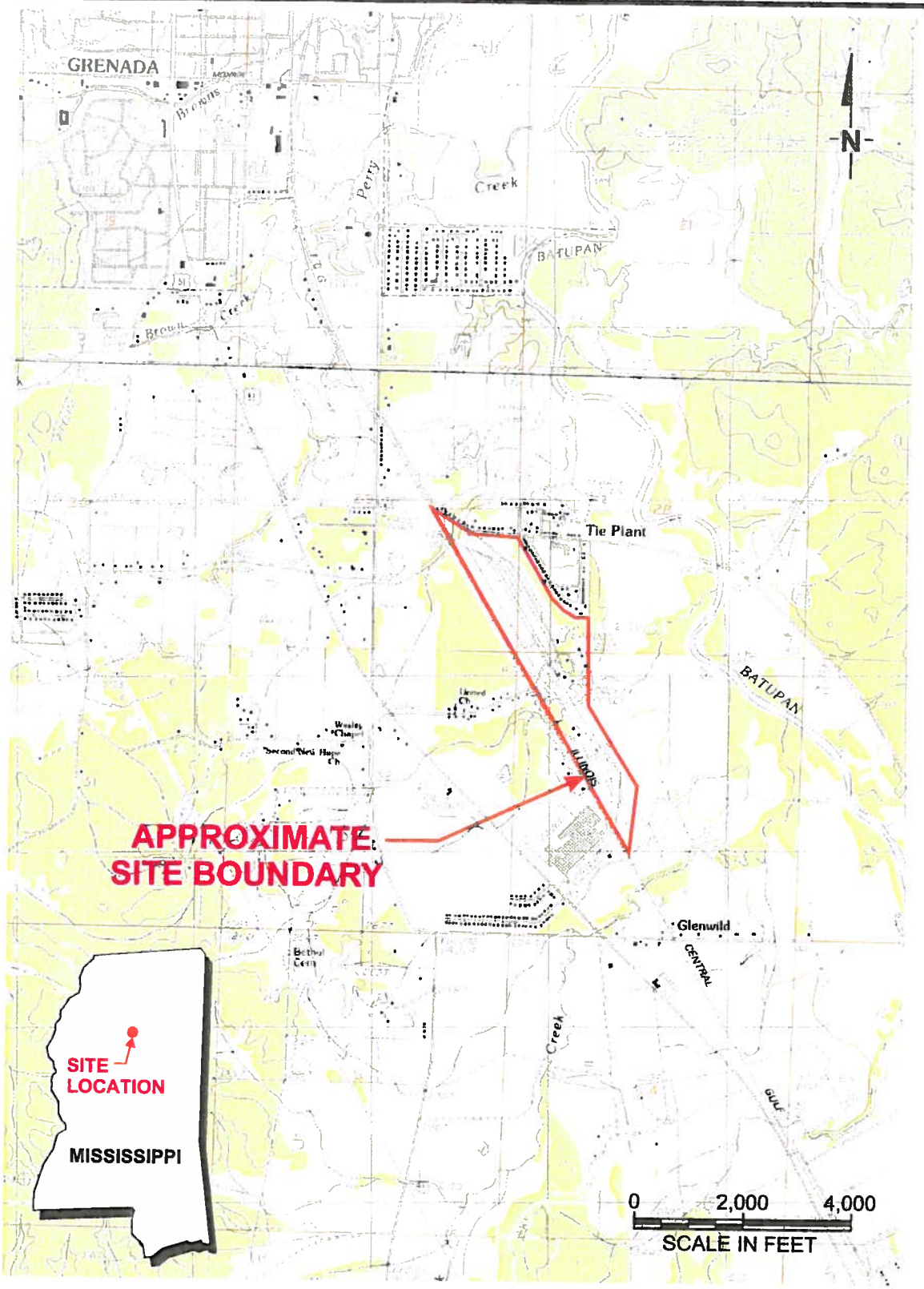
Keystone, 1991. *Supplemental Work Plan, RCRA Facility Investigation (RFI), Koppers Industries, Inc., Grenada, Mississippi.* Prepared for Beazer Materials and Services, Inc., Pittsburgh, PA.

FIGURES



TITLE:	GENERAL SITE LOCATION
LOCATION:	Koppers Industries/Beazer East Facility Tie Plant, Mississippi

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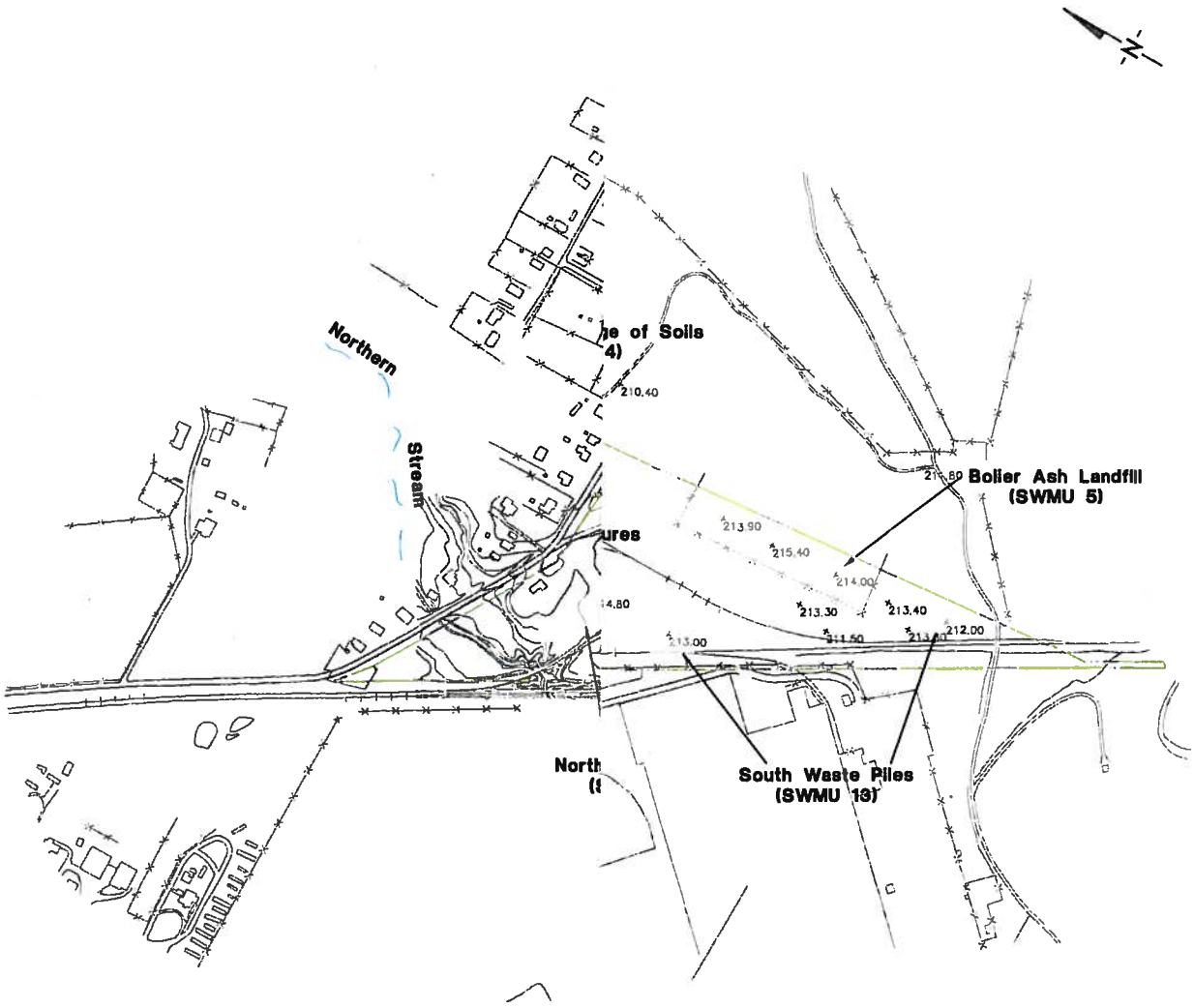
CHECKED	TR
DRAFTED	FM
FILE	N410002A.CDR
DATE	9-29-00

FIGURE: 1



Explanation

- SWMU area
- Site Boundary
- IM Study Area (HSI, 1996)
- General Boundary for Northern, Central, and Southern Area
- 80 Spot elevation, feet msl
- Note: Contour interval 2 feet

0 300 600
SCALE IN FEET

TITLE	Site Features
LOCATION	Koppers Industries, Inc., Grenada, MS
GeoTrans, Inc.	CHECKED: CEL; DRAFTED: GHP; DATE: 04-13-01
FIGURE	2