GRENADA COUNTY - TIE PLANT MS
KOPPERS INC
COMPLIANCE
MSD007027543
2000--------
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 12:58:30 PM

MDEQ OPC Locational Data Entry Form

Page 1 of ___

MSD007027514

Site Name: KOPPERS INDUSTRIES INC

Address: 1 KOPPERS DRIVE, TIE PLANT
City: TIE PLANT State: MS Zip: _____
County: GRENADA

Site Unique Identifier: JUST INSIDE ENTRANCE GATE
Site Unique Identifier Description: _____
(Permit#, EPA ID, Monitoring Station #, etc…)

Latitude: 33 Degrees 44 Minutes 03.0 Seconds

Longitude: 89 Degrees 47 Minutes 08.6 Seconds

Elevation: 223 ft.

Method of Collection: ___G3 - Differential
__✓__G5 - Automonous/SA Off

Point Description: ___PG - Plant Entrance (General)
___NE - NE Corner of Land Parcel
___SE - SE Corner of Land Parcel
___NW - NW Corner of Land Parcel
___SW - SW Corner of Land Parcel
___CE - Center of Facility
___WL - Well*
___WM - Ambient Water Mon. Station
___AM - Ambient Air Mon. Station

J.H. 11/16/05

Comments: _____

*This point should be used only for wells in cases where there is no other identifiable facility.

Collected By: MIKE HARDY Date Collected: 11/8/2005

The RETEC Group, Inc.
300 Baker Avenue, Suite 302
Concord, MA 01742-2851

RETEC

978.371. 1422 Phone
978.371. 1448 Fax
www.retec.com

Letter of Transmittal

TO: Environmental Permits Division, Chief **DATE:** July 12, 2002

RE: 2002 RCRA First Semiannual Groundwater Monitoring Report
Beazer East, Inc. Grenada, MS Facility **PROJECT NO:** BEAZ7-03611-103

PLEASE FIND: ☒ Attached ☐ Under separate cover via: _____

☐ Copy of Letter ☐ Change Order ☐ Drawings/Figures ☐ Plans/Specs

☐ Samples ☐ Other: _____

Copies	Date	No.	Description
1	7/11/02		2002 RCRA First Semiannual Groundwater Monitoring Report Beazer East, Inc. Grenada, MS Facility

☐ For Approval ☐ Approved as Submitted ☐ Resubmit _____ Copies for Approval

☐ For Your Use ☐ Approved as Noted ☐ Submit _____ Copies for Distribution

☒ As Required ☐ Returned for Corrections ☐ Return _____ Corrected Prints

☐ For Review & Comment ☐ Other: _____

Remarks:

Here is the 2002 RCRA First Semiannual Groundwater Monitoring Report, Beazer East, Inc. Grenada, MS Facility that is due to your office on July 15, 2002.

The signed certification page, which goes in Appendix C, will follow shortly under separate cover.

Should you have any questions, please feel free to call me.

Sincerely,

The RETEC Group, Inc.

Jennifer L. Atkins, Project Engineer

MODULE III -GROUND WATER DETECTION MONITORING

III.A. MODULE HIGHLIGHTS

The Permittee is required by this module to maintain a groundwater detection monitoring system for the closed surface storage impoundment that was used in the treatment of wastewater from the wood preserving process. The groundwater detection monitoring system consists of eight wells, two up-gradient or background wells and six down-gradient wells. Monitoring wells R-1R and R-10- are the background wells. Monitoring well R-1R is 29.5 feet deep and R-10 is 27.0 feet deep. Monitoring wells R-7, R-8, R-8B, R-9, R-9C, and R-9D are down-gradient wells and are 31.0, 31.0, 46.0, 31.0, 60.5, and 87.2 feet deep, respectively. The location of the wells are shown in Attachment E, figure-E-5.

Indicator parameters to be measured include pH, temperature, and conductivity.

III.B. WELL LOCATION, INSTALLATION AND CONSTRUCTION

The Permittee shall install and maintain a ground-water monitoring system as specified below: [MHWMR 264.97]

III.B.1 The Permittee shall maintain ground-water monitoring wells at the locations specified on the map in Permit Attachment E, figure-E-5. and in conformance with the following list:

III.B.1.a Monitoring well R-1R and R-10 shall be maintained as a background monitoring wells.

III.B.1.b Monitoring wells R-7, R-8, R-8B, R-9, R-9C, and R-9D shall be maintained as detection-monitoring wells for the unit identified in Permit Condition IV.B.

III.B.2 The Permittee shall maintain the monitoring wells identified in Permit Condition III.B.1, in accordance with the detailed plans and specifications presented in Permit Attachment E-5.

III.B.3 All wells deleted from the monitoring program shall be plugged and abandoned in accordance with the Mississippi Office of Land and Water regulations. Well plugging and abandonment methods and certification shall be submitted to the Director within seven (7) days from the date the wells are removed from the

monitoring program.

III.C. INDICATOR PARAMETERS AND MONITORING CONSTITUENTS

III.C.1 The Permittee shall monitor R-1R, R-10, R-7, R-8, R-8B, R-9, R-9C, and R-9D as described in Permit Condition III.B, for the following parameters and constituents: [MHWMR 264.98(a)]

Parameter or Constituent	Established Background Concentrations
pentachlorophenol	MDL, SW-846 Method 8270
naphthalene	MDL, SW-846 Method 8270
fluoranthene	MDL, SW-846 Method 8270
acenaphthylene	MDL, SW-846 Method 8270
2,4-dinitrophenol	MDL, SW-846 Method 8270
phenol	MDL, SW-846 Method 8270
2-chlorophenol	MDL, SW-846 Method 8270
p-chloro-m-cresol	MDL, SW-846 Method 8270
2,4-dimethylphenyl	MDL, SW-846 Method 8270
trichlorophenols	MDL, SW-846 Method 8270
tetrachlorophenols	MDL, SW-846 Method 8270
creosote	MDL, SW-846 Method 8270
chrysene	MDL, SW-846 Method 8270
benzo (b) fluoranthene	MDL, SW-846 Method 8270
benzo (a) pyrene	MDL, SW-846 Method 8270
indeno (1,2,3-cd) pyrene	MDL, SW-846 Method 8270
benz (a) anthracene	MDL, SW-846 Method 8270
dibenz (a) anthracene	MDL, SW-846 Method 8270

III.C.2 For those parameters and constituents in Permit Condition III.C.1. for which no

background values are established at the time the Permit is issued, the Permittee shall establish background values in accordance with the following procedures. [MHWMR 264.97(g)(1)]

III.C.2.a Background ground-water quality for a monitoring parameter or constituent shall be based on data from quarterly sampling of the well [or wells] upgradient from the waste management unit for one (1) year. [MHWMR 264.97(g)(1)]

III.C.2.b The Permittee shall take a minimum of one sample from each well and a minimum of four samples from the entire system used, to determine background ground-water quality for each parameter and/or constituent each time the system is sampled. [MHWMR 264.97(g)(4)]

III.D. SAMPLING AND ANALYSIS PROCEDURES

The Permittee shall use the following techniques and procedures when obtaining and analyzing samples from the ground-water monitoring wells described in Permit Condition III.B: [MHWMR 264.97(d) and (e)]

III.D.1 Samples shall be collected using the techniques described in the Groundwater Sampling and Analysis Plan, Permit Appendix E-5.

III.D.2 Samples shall be preserved and shipped, in accordance with the procedures specified in the Groundwater Sampling and Analysis Plan, Permit Appendix E-5.

III.D.3 Samples shall be analyzed in accordance with the procedures specified in the Groundwater Sampling and Analysis Plan, Permit Appendix E-5.

III.D.4 Samples shall be tracked and controlled using the chain-of-custody procedures specified in the Groundwater Sampling and Analysis Plan, Permit Appendix E-5.

III.E. ELEVATION OF THE GROUND-WATER SURFACE

III.E.1 The Permittee shall determine the elevation of the ground-water surface at each well each time the ground-water is sampled, in accordance with Permit Condition III.G.2. [MHWMR 264.97(f)]

III.E.2 The Permittee shall record the surveyed elevation of the monitoring well(s) when installed (with as-built drawings).

III.F. SIGNIFICANT EVIDENCE OF A RELEASE

Historical sampling results at the facility have shown the background levels for the constituents listed in Permit Condition III.C.1 to be below method detection limits. When evaluating the monitoring results in accordance with Permit Condition III.G., the Permittee shall use the following procedures:

III.F.1 For compounds that are not naturally occurring and/or those compounds not detected in background samples, the following conditions will constitute significant evidence of a release (subject to QA/QC checks and confirmation by retesting).

III.F.1.a A compound is detected above a PQL in a down-gradient well.

III.F.1.b More than one compound is detected in a well above the MDL but below the PQL in a single sampling event.

III.F.1.c One compound is detected in a well above the MDL but below the PQL twice or more in a twelve-month period.

III.F.1.d A compound (or compounds) is detected above the MDL but below the PQL, either in a single well or in multiple wells, and a review of data shows trends or indications that a release may have occurred. Such a review of available data, including graphical and spatial analyses, must be documented by the facility owner/operator either at the next scheduled monitoring event or as otherwise required by permit condition, regulation or law.

III.F.2 The Permittee may choose to retest when there has been significant evidence of a release identified under Permit Condition III.F.1. A retest shall consist of analyzing two additional samples. Such samples must be collected in separate events (i.e., after re-purging the wells prior to sampling). It will not be necessary to obtain an independent sample with respect to the interval of time between subsequent samples. Confirmation of a detect will occur if analysis of either sample collected during the retest detects the compounds found in the original sample. If additional or different compounds are found in a retest, further sampling will be necessary to determine if a release of the additional constituents has occurred.

III.G. MONITORING PROGRAM AND DATA EVALUATION

III.G.1 The Permittee shall collect, preserve, and analyze samples pursuant to Permit

Mississippi Department of Environmental Quality
Office of Pollution Control
Hazardous Waste Compliance Inspection Report

Site Name: Koppers Inc

EPA ID: MSD007027543

Physical Address
1 Koppers Drive
Tie Plant, MS 38960
Grenada County

Mailing Address
PO Box 160
Tie Plant, Mississippi 38960

Date of Evaluation: 4/5/07
Evaluation Type: Compliance Evaluation Inspection - CEI
Investigator: Azzam Abu-Mirshid
Significant Non-Complier: N

Comments:

Facility and Process Description

Koppers treats utility poles using pentachlorophenol (PCP) and creosote and rail road cross ties using creosote. The treating process includes PCP tanks, creosote tanks, three creosote treating cylinders and two PCP treating cylinders and a drip pad. The tanks and cylinders are provided with concrete secondary containment.

Pine logs received by the facility are pealed, cut and drilled to customer specifications and dried in an on-site natural gas dry kiln. The facility operates a wood waste boiler to generate steam for the conditioning of wood prior to and after treatment. Waste bark is sold and sawdust is used to fuel the wood waste boiler.

The wood is loaded on trams, the trams are pushed into the cylinder, the cylinder is closed, locked, filled with treating solution and pressure is applied to force the treating solution into the wood. After treatment is complete, wood is taken out of the cylinder and kept on the drip pad until all drippage has ceased. The treated wood is then moved to the storage yard.

Cylinders

Each cylinder is provided with a drip pan underneath the cylinder door to collect drippings when the cylinder door is open. Drippings are pumped into the tanks to be reused in the treating process.

Drip Pad

The drip pad is made of concrete and provided with a dike. The drip pad is certified annually by Willis Engineering, Inc. The drip pad was clean and appeared to be in good condition. The drip pad is provided with several sumps to collect and convey drippage and storm water to the wastewater treatment system.

Hazardous Waste

Wastewaters, preservative drippage and process residuals generated from the PCP process are listed hazardous waste F032. Wastewaters, preservative drippage and process residuals generated from the creosote process are listed hazardous waste F034.

The facility generates wastewater from steam conditioning of wood prior to and after treatment. Sludge generated from the treatment of wastewater contaminated with PCP and creosote is listed hazardous waste K001. The wastewater treatment process includes a series of oil-water separators, a flocculation tank, a filter press, an aeration basin and a clarifier.

The facility notified our agency as a Large Quantity Generator (LQG). A LQG is a generator generating greater than 1000 kilograms of hazardous waste per calendar month. The facility's shipping records indicate that the facility is a LQG.

There was one hazardous waste drum in the satellite accumulation area. The drum was labeled, closed and in good condition. K001 sludge from the filter press is collected in two 100-gallon dumpsters then transferred into a roll-off hopper. The containers were labeled and were in good condition. The roll-off hopper was labeled, closed, marked with the accumulation start date and in good condition.

Records and Reports

Drip pad certifications, cleaning logs, weekly inspection logs and logs documenting that treated wood was held on the pad until all drippage has ceased were kept on file. Manifest, land ban notifications and hazardous waste annual reports were kept on file also.

Employee Training and Contingency Plan

A copy of the contingency plan and employee training records were kept on file. Employee training includes storm water pollution prevention, emergency procedures, personal protective equipment and hazardous waste regulations.

There were no violations.

Signature: Ann Abel

Date: 5-10-07

Mississippi Department of Environmental Quality
Office of Pollution Control

TSD Facilities

- ☐ DCH - Chemical/Physical/Biological
- ☐ DCL - Closure/Post-Closure
- ☐ DCP - Contingency Plan
- ☐ DFR - Financial Responsibility
- ☐ DGS - General Standards
- ☐ DGW - Groundwater Monitoring
- ☐ DIN - Incineration
- ☐ DLF - Landfill
- ☐ DLB - Land Ban
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- ☐ DTT - Thermal Treatment
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Generator Facilities

- ☐ GER - All Requirements (Oversight)
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- ☒ GLB - Land Ban
- ☒ GOR - Waste Min. Program
  Annual/Biennual HW Report
- ☒ GPT - Pre-Transport
- ☒ GRR - Recordkeeping
- ☐ GSC - Special Conditions
- ☐ GSQ - SQG Requirements
- ☐ CESQG Requirements

Transporters

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- ☐ TWD - HW Discharges
- ☐ TRR - All Requirements

Mississippi Department of Environmental Quality
Office of Pollution Control
Hazardous Waste Compliance Inspection Report

Site Name: Koppers Industries Inc

EPA ID: MSD007027543

Permit No:

Hazardous Waste-TSD HW8854301

Physical Address
1 Koppers Drive
Tie Plant, MS 38960
Grenada County

Mailing Address
PO Box 160
Tie Plant, Mississippi 38960

Date of Evaluation: 2/21/05
Evaluation Type: Compliance Monitoring Evaluation - CME
Investigator: David Peacock
Significant Non-Complier:N

Comments: On February 21, 2005, this Office conducted a Comprehensive Monitoring Evaluation inspection at Kopper's Tie Plant facility. The inspection focused on the groundwater monitor well system in place for the closed RCRA impoundment, presently in detection monitoring. Groundwater sampling of four wells (one background and three compliance point wells was observed.

Groundwater levels were recorded on the day prior to the inspection, with water levels measured to the nearest 0.01 of a foot. All wells were sampled using disposable Teflon bailers and nylon cord. Three (3) well volumes were removed and temperature, ph and conductivity were monitored (using an Oakton ph/con/10 meter) to insure that these parameters were stabilized prior to collecting samples. All purge water was containerized and later placed into Koppers' wastewater reatment facility. Groundwater samples were collected using the appropriate glassware, storage and chain-of-custody protocol. Samples were shipped to Columbia Analytical Services, Rochester, NY for analysis.

During the inspection, Koppers' representatives followed the appropriate decontamination procedures (latex gloves, detergent wash of equipment, plastic sheeting around wellhead, and disposal of bailers/string) to insure that samples were representative .

Kopper's closed RCRA unit was observed to be well-kept (vegetative cover in good condition for the present weather conditions), fence was in place with appropriate signage, and all wellheads were locked and pads were in good/adequate condition.

Signature: David K. Peacock

Date: 04/08/05

cc: Data Integration Division

Mississippi Department of Environmental Quality
Office of Pollution Control

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Mississippi Department of Environmental Quality
Office of Pollution Control
Hazardous Waste Compliance Inspection Report

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EPA ID: MSD007027543

Permit No: Hazardous Waste-TSD HW8854301

Physical Address
1 Koppers Drive
Tie Plant, MS 38960
Grenada County

Mailing Address
PO Box 160
Tie Plant, Mississippi 38960

Date of Evaluation: 3/30/04 9:00:00 AM
Evaluation Type: Compliance Evaluation Inspection - CEI
Investigator: Wayne Stover
Significant Non-Complier: N

Comments: As a result of the inspection, there were no apparent violations of the Hazardous Waste Permit or the Mississippi Hazardous Waste Management Regulations.

Signature: C. Wayne Stover

Date: 6/23/04

cc: Data Integration Division

Mississippi Department of Environmental Quality
Office of Pollution Control

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Permit No: Hazardous Waste-TSD HW8854301

Physical Address

1 Koppers Drive
Tie Plant, MS 38960
Grenada County

Mailing Address

PO Box 160
Tie Plant, Mississippi 38960

Date of Evaluation: 3/30/04 8:00:00 AM
Evaluation Type: Operation and Maintenance - OM
Investigator: C. Wayne Stover, Jr.
Significant Non-Complier: N

Comments: There were no violations of the Hazardous Waste Permit or the Mississippi Hazardous Waste Management Regulations.

Signature: C. Wayne Stover Jr
Date: 6/23/04

cc: Data Integration Division

Mississippi Department of Environmental Quality
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Mississippi Department of Environmental Quality
Office of Pollution Control
Hazardous Waste Compliance Inspection Report

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EPA ID: MSD007027543

Permit No: Hazardous Waste-TSD HW8854301

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Tie Plant, MS 38960
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Mailing Address
PO Box 160
Tie Plant, Mississippi 38960

Date of Evaluation: 4/8/04
Evaluation Type: Compliance Evaluation Inspection - CEI
Investigator: Azzam Abu-Mirshid
Significant Non-Complier: N

Comments: Surface impoundment receiving wastewater from the wood treating process was closed in 1989. Wastewater and sludge were removed and the impoundment was filled with clean soil and capped with bentonite topped with soil and grass. Impoundment cap, fence, warning signs, and monitoring wells were in good condition. Financial assurance for the post closure care was assumed by Beazer, Inc., a former owner of Koppers. The post closure care estimate amount is $532,350. A letter of credit issued by Fleet National Bank in the amount of $763,661 was submitted on 4-2-04. No violations noted.

Signature: Azzam Abu-Mirshid

Date: 4-13-04

cc: Data Integration Division

Mississippi Department of Environmental Quality
Office of Pollution Control

TSD Facilities

- ☐ DCH - Chemical/Physical/Biological
- ☒ DCL - Closure/Post-Closure
- ☒ DCP - Contingency Plan
- ☒ DFR - Financial Responsibility
- ☐ DGS - General Standards
- ☒ DGW - Groundwater Monitoring
- ☐ DIN - Incineration
- ☐ DLF - Landfill
- ☐ DLB - Land Ban
- ☐ DLT - Land Treatment
- ☐ DMC - Container Management
- ☐ DMR - Manifest
- ☐ DOR - Other Requirements
- ☐ DOT - Other Requirements (Oversight)
- ☐ DPB - Part B Permit Application
- ☐ DPP - Preparedness Prevention
- ☐ DSI - Surface Impoundments
- ☐ DTR - Waste Tanks
- ☐ DTT - Thermal Treatment
- ☐ DWP - Waste Pile
- ☐ CAS - C/A Compliance Schedule
- ☐ FEA - Former Enforcement Agreements
- ☐ CSS - Compliance Schedule Violation
- ☐ BRR - Differ Stds for Regulation of Residue
- ☐ BPS - BIF Permit Standards
- ☐ BIS - BIF Interim Standards
- ☐ BCE - BIF Stds to Control Emissions
- ☐ BDT - BIF Stds to Direct Transfer
- ☐ DIA - Incinerator Waste Analysis
- ☐ DPS - Incinerator Performance Standards
- ☐ DOP - Incinerator Operating Requirements
- ☐ DMI - Incinerator Monitoring and Inspection

Generator Facilities

- ☐ GER - All Requirements (Oversight)
- ☐ GGR - General Requirements
- ☐ GMR - Manifest
- ☐ GLB - Land Ban
- ☐ GOR - Waste Min. Program
  Annual/Biennual HW Report
- ☐ GPT - Pre-Transport
- ☐ GRR - Recordkeeping
- ☐ GSC - Special Conditions
- ☐ GSQ - SQG Requirements
- ☐ CESQG Requirements

Transporters

- ☐ TGR - General Standards
- ☐ TMR - Manifest
- ☐ TOR - Other Requirements
- ☐ TWD - HW Discharges
- ☐ TRR - All Requirements

Mississippi Department of Environmental Quality
Office of Pollution Control
Hazardous Waste Compliance Inspection Report

Site Name: Koppers Industries Inc

EPA ID: MSD007027543

Permit No: Hazardous Waste-TSD HW8854301

Physical Address
1 Koppers Drive
Tie Plant, MS 38960
Grenada County

Mailing Address
PO Box 160
Tie Plant, Mississippi 38960

Date of Inspection: 1/16/02
Investigator: Azzam Abumirshid
Significant Non-Complier: N

Comments: Facility treats railroad cross ties using creosote and utility poles using pentachlorophenol. There were 62 drums of hazardous waste (F032, F034) in the 90 day storage area. The drums were labeled, dated, closed and in good condition. One drum in the satellite area in the maintenance shop and one drum in wood preserving area were labeled, closed and in good condition. There is a 30 gallon Safety Kleen part washer in the maintenance shop. Fluid is changed by Safety Kleen as necessary. Used oil and hydraulic fluid are collected and used in the creosote preserving process.

Manifest, land ban, contingency plan, employee training, groundwater monitoring reports, waste minimization, Financial assurance and biennial reports, drip pad inspection logs, annual certification and cleaning records were in compliance. The drip pad was clean and free of cracks.

The closed surface impoundment is fenced with barb wire, the cap was clean and the grass was cut. Monitoring wells were locked. Beazer Inc., former owner of Koppers assumed responsibility for groundwater monitoring and related issues.

Signature: Azzam Abumirshid

Date: 3-11-02

cc: Data Integration Division

Mississippi Department of Environmental Quality
Office of Pollution Control

TSD Facilities

- ☐ DCH - Chemical/Physical/Biological
- ☒ DCL - Closure/Post-Closure
- ☒ DCP - Contingency Plan
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- ☐ DGS - General Standards
- ☒ DGW - Groundwater Monitoring
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- ☐ CAS - C/A Compliance Schedule
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- ☐ GGR - General Requirements
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  Annual/Biennual HW Report
- ☒ GPT - Pre-Transport
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- ☐ GSC - Special Conditions
- ☐ GSQ - SQG Requirements
- ☐ CESQG Requirements

Transporters

- ☐ TGR - General Standards
- ☐ TMR - Manifest
- ☐ TOR - Other Requirements
- ☐ TWD - HW Discharges
- ☐ TRR - All Requirements

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

RCRA COMPLIANCE INSPECTION REPORT

1) INSPECTOR AND AUTHOR OF REPORT

Randy G. Jackson
Environmental Engineer, CHMM, REM

2) FACILITY INFORMATION

Koppers/Beazer
Tie Plant Road
Grenada, MS 38960
EPA ID # MSD007027543

3) RESPONSIBLE OFFICIAL

Mr. Thomas L. Henderson
Plant Manager

4) INSPECTION PARTICIPANTS

Randy G. Jackson, USEPA Region 4
Azzam AbuMirshid, MSDEQ
Thomas Henderson, Koppers/Beazer

5) DATE OF INSPECTION

January 16, 2002

6) APPLICABLE REGULATIONS

Title 40 Code of Federal Regulations (C.F.R.) Parts 260 through 270, 273, and 279.

Mississippi Hazardous Waste Management Regulations (MHWMR) Part 260 through 279. The State of Mississippi adopts by reference the regulations in 40 C.F.R. Part 260 through 279.

7) PURPOSE OF INSPECTION

To conduct a Compliance Evaluation Inspection (CEI) of the Koppers/Beazer facility as required under Section 3007 of the Resource Conservation and Recovery Act (RCRA), and to evaluate the facility's compliance status with applicable RCRA regulations.

8) FACILITY DESCRIPTION AND INSPECTION FINDINGS

Koppers/Beazer is a wood treating operation in Tie Plant, Mississippi. The facility occupies 130 acres. The facility began operation in 1903 as a lumber mill. In the mid 1930s, Koppers purchased the facility. Beazer purchased the facility in late 1988. In the mid 1990s, Koppers Industries purchased the facility. The Tie Plant facility currently employs 51 people. Nationwide, Koppers has 14 wood treating plants and over 2,000 employees.

The facility treats railroad ties, lumber and poles with creosote and pentachlorphenol. The facility has five treatment cylinders, only four were in operation at the time of the inspection. The facility operates two oil water seperators and a wastewater treatment facility. After treatment, the wastewater is sent to the Grenada POTW.

The facility is catagorized as a large quantity generator (LQG). The last shipment of waste was 85 drums of F032/F034 waste shipped to Safety Kleen in Deer Park, Texas. The inspection began with a review of waste disposal records, employee training records, drip pad certification records and the biennial report.

The inspection then proceeded to the wood treatment plant, the less than ninety day storage building, the satellite accumulation points, product tanks, treatment cylinder sumps, wastewater treatment, the wood storage yard, the waste impoundment area and the drip pad area were examined. The treatment cylinders and the product tanks are located in secondary containment.

Finally, an exit meeting was held with Mr. Henderson.

Less than Ninety Day Storage Area

The storage building had 72 drums of F032/F034 waste. All of the drums were closed, labeled and dated. Adequate aisle space was observed.

Drip Pad

The last drip pad certification was on December 20, 2001. Drip pad inspection records were reviewed and found to be in compliance. An inspection of the drip pad revealed no cracks or breaches. The pad is periodically cleaned with trisodium phosphate.

Waste Impoundment

The hazardous waste impoundment was fenced and locked. Warning signs were in place, the fencing was in good condition, the vegetative cover was mown and showed no evidence of erosion and the groundwater monitoring wells were locked and observed to be in good condition. The last sampling of the wells was on August 14 & 15 of 2001.

Permit Status

A Hazardous and Solid Waste Act (HSWA) permit was issued on June 28, 1988. The facility's Post Closure Permit was reissued on November 10, 1999. According to the Russ McLean, the Mississippi State Coordinator of the Region 4 - RCRA Programs Branch, the facility is currently in compliance with the conditions of the permits.

9) CONCLUSIONS

No violations were noted during the inspection.

10) SIGNED

Randy G. Jackson
Environmental Engineer, CHMM, REM

2-6-02
Date

11) CONCURRENCE

Jeffrey T. Pallas, Chief
South Enforcement and Compliance Section
RCRA Enforcement and Compliance Branch

2-8-02
Date

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

MAR 25 2010

FILE COPY

Mr. Michael W. Bollinger
Beazer East, Inc.
One Oxford Centre, Suite 3000
Pittsburgh, Pennsylvania 15219

Subject: Workplan for Additional Sampling
Dated, February 12, 2010, and
Addendum Dated, March 17, 2010
Koppers, Inc./Beazer East, Inc.
Tie Plant, Mississippi
EPA I.D. No. MSD 007 027 543

Dear Mr. Bollinger:

The U.S. Environmental Protection Agency (EPA) has reviewed the Workplan for Additional Sampling, dated, February 12, 2010, and the Addendum, dated March 17, 2010, for Koppers, Inc. /Beazer East, Inc., Tie Plant, Mississippi. This Workplan for Additional Sampling and Addendum (2010 Sampling WP) was submitted in accordance with the EPA meeting (to discuss the data gaps) with the representatives from Beazer East, Inc., and Koppers, Inc., (Beazer/Koppers), on December 15-16, 2009; and pursuant to your Hazardous and Solid Waste Amendments (HSWA) permit, issued by EPA on September 2, 1998.

Based on its review, EPA hereby approves this 2010 Sampling WP in accordance to the following conditions:

- Beazer/Koppers shall submit a sampling schedule to the EPA RCRA Project Manager and the Chief, Corrective Action Section within 5 calendar days of the date of receipt of this letter. The sampling schedule shall have a start date no later than April 26, 2010, and a completion date no later than May 31, 2010.

- Beazer/Koppers will immediately notify the EPA RCRA Project Manager and the Chief, Corrective Action Section of any planned changes, reductions or additions to the 2010 Sampling WP.

- Beazer/Koppers shall submit preliminary laboratory analytical data and copies of the log books (electronically) for all samples to EPA RCRA Project Manager nlt 45 calendar days after the completion of field sampling.

- Beazer/Koppers shall submit a draft Sampling Report (electronically) to EPA RCRA Project Manager and the Chief, Corrective Action Section no later than 45 calendar days after completion of field sampling.

- Beazer/Koppers shall submit final (hard copy) Sampling Report to the EPA RCRA Project Manager and the Chief, Corrective Action Section no later than 20 calendar days after submittal of draft Sampling Report.

- In regard to references in the 2010 Sampling WP to where samples will be collected from 0-to 6-inches below surface, EPA is interpreting this to mean the equivalent to soil samples collected from the top 1.5 inches as the depth for ground surface to 6 inches below ground surface (bgs). In addition, where there is grass or some type of ground/yard cover, the soil sample will be collected below the ground/yard cover from the top 1.5 inches at depth for ground surface to 6 inches below ground surface (bgs).

- Beazer/Koppers shall work with EPA Chief, Corrective Action Section and with other EPA representatives in the preparation of Community Involvement Plan (CIP) for the approved sampling activity to take place in the Carver Circle Community.

Should you have any questions concerning this approval, please contact RCRA Project Manager, Mr. Harbhajan Singh at (404) 562-8473 or e-mail at singh.harbhajan@epa.gov or Ms. Karen Knight, Chief, Corrective Action Section at (404) 562-8885 or e-mail at knight.karen@epa.gov.

Sincerely,

Jeffrey T. Pallas, Chief
Restoration and Underground Storage Tank Branch
RCRA Division

cc: Linda Paul, Koppers/Pittsburgh
Leslie Hyde, Koppers/Pittsburgh
Jennifer Abrahams, GeoTrans/Rancho Cordova
Toby Cook, MDEQ/Jackson

FILE COPY

STATE OF MISSISSIPPI

HALEY BARBOUR
GOVERNOR

MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY

TRUDY D. FISHER, EXECUTIVE DIRECTOR

June 29, 2009

Hon. Thad Cochran
190 East Capital Street
Suite 550
Jackson, MS 39201

Dear Sen. Cochran:

Re: Tie Plant Community

Thank you for the correspondence you forwarded to me from residents of the Tie Plant community in Grenada County. These residents are located in the vicinity of Koppers Industries, a wood treating facility which has been in operation for many years. MDEQ is not aware of any offsite environmental impacts attributable to the Koppers facility which would require action by this agency. The facility is currently in compliance with its environmental permits. The site has an active and ongoing site remediation program under the requirements of the RCRA Corrective Action Program, which is overseen by the United States Environmental Protection Agency (USEPA), since Mississippi is not authorized for this part of the RCRA program. If it is determined that any hazardous waste or hazardous constituents have migrated off-site, it has been our experience that USEPA will require investigation and clean-up as needed to protect human health and the environment. Our staff has contacted USEPA and learned that they also received correspondence from your office regarding the same matter. USEPA indicated that they are in the process of developing a written response to your constituent's questions shortly and MDEQ has asked to receive a copy of that correspondence when it is finalized.

If you need any additional information, please contact Harry Wilson of my staff at (601) 961-5073.

Sincerely,

Trudy D. Fisher
Executive Director

OFFICE OF POLLUTION CONTROL
POST OFFICE BOX 2261 • JACKSON, MISSISSIPPI 39225-2261• TEL: (601) 961-5171 • FAX: (601) 354-6612 • www.deq.state.ms.us
AN EQUAL OPPORTUNITY EMPLOYER

THAD COCHRAN
MISSISSIPPI

COMMITTEE ON
APPROPRIATIONS
RANKING MEMBER

COMMITTEE ON
AGRICULTURE, NUTRITION,
AND FORESTRY

COMMITTEE ON
RULES AND
ADMINISTRATION

United States Senate

WASHINGTON, DC 20510-2402

June 22, 2009

Please reply to:
190 East Capitol Street
Suite 550
Jackson, MS. 39201
(601) 965-4459
(601) 965-4919 Telefax

Ms. Trudy Fisher
Executive Director
Mississippi Dept. of Environmental Quality
Post Office Box 2261
Jackson, Mississippi 39225

Dear Ms. Fisher:

Enclosed is further correspondence sent to me regarding the Tie Plant Community. As a courtesy to me, I would appreciate a written response at your earliest convenience.

I have also forwarded these concerns to Environmental Protection Agency officials. Any assistance or input you can provide in this matter would be deeply appreciated.

Sincerely,

THAD COCHRAN
United States Senator

TC/kc

Enclosure

05/01/09

Lula Amos
418 Tie Plant Road
Grenada, MS 38901

Dear Senator Cochran

I am writing because I have a concern regarding the environmental pollution in the Tie Plant Community. The Tie Plant Community is located in Grenada County, Mississippi. It has been proven that Koppers Industries has contaminated the land in the community and there have been numerous deaths in young adults. Even today, you can smell the odor if you just ride through the community. A lawsuit has been filed and the lawyers are just tying it up in court to avoid paying money to the predominately African American community.

I was recently tested for dioxins that are contained in the chemicals that are used at the plant. My level was elevated along with other members of the community. I feel that the federal government or the EPA needs to investigate this contamination of the air and the land in the community.

This comes thanking you in advance for any assistance that you may offer.

Sincerely

Mrs Lula Amos

Mrs Lula Amos

THAD COCHRAN
MISSISSIPPI

COMMITTEE ON
APPROPRIATIONS
RANKING MEMBER

COMMITTEE ON
AGRICULTURE, NUTRITION,
AND FORESTRY

COMMITTEE ON
RULES AND
ADMINISTRATION

United States Senate

WASHINGTON, DC 20510-2402

June 23, 2009

Please reply to:
190 East Capitol Street
Suite 550
Jackson, MS. 39201
(601) 965-4459
(601) 965-4919 Telefax

Ms. Trudy Fisher
Executive Director
Mississippi Dept. of Environmental Quality
Post Office Box 2261
Jackson, Mississippi 39225

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Sincerely,

THAD COCHRAN
United States Senator

TC/kc

Enclosure

06/22/09

L C McNeal Jr
242 Shelby Drive
Grenada, MS 38901

To: Thad Cochran

This is being written because of my concern for the health of the residents in the community of Tie Plant. Tie Plant is located in Grenada County Mississippi. Koppers Industries is located adjacent to the community. Koppers Industries is a wood treatment facility. There is a strong odor of creosote in the air and it has been this way for many years.

I moved to Tie Plant (275 Carver Circle) in October 1977. I recently moved away from the community but my daughter and grandchildren continues to live in the community. My wife was born in 1954 and she died in 2005. One of my daughters was born in 1974 and died in 2003 after a seizure. My other two daughters who are in their 30's have been diagnosed with terminal illnesses. One of them has a tumor in her head and the other one has cancer. It is a known fact that the chemicals used at the plant can cause cancer, neurological, reproductive, respiratory and other problems.

How much longer is this company going to be allowed to poison the residents of this community? We are an African American community but that does not give them to right to expose us to these chemicals forever. We deserve to be compensated for the pain and suffering caused by this company. There was a lawsuit filed in 2003, but of course, it is tied up in court. It will forever be tied up in court unless our representatives take an active stand. We are citizens of Mississippi and we are asking for our representatives to become actively involved in this. I would appreciate any assistance that you can provide. This is literally an emergency situation.

Sincerely

L C McNeal JR

L C McNeal Jr.

THAD COCHRAN
MISSISSIPPI

Another new letter

United States Senate

WASHINGTON, DC 20510–2402

COMMITTEE ON APPROPRIATIONS
RANKING MEMBER

COMMITTEE ON AGRICULTURE, NUTRITION, AND FORESTRY

COMMITTEE ON RULES AND ADMINISTRATION

June 29, 2009

Please reply to:
190 East Capitol Street
Suite 550
Jackson, MS. 39201
(601) 965-4459
(601) 965-4919 Telefax

Ms. Trudy Fisher
Executive Director
Mississippi Dept. of Environmental Quality
Post Office Box 2261
Jackson, Mississippi 39225

Dear Ms. Fisher:

Enclosed is further correspondence sent to me regarding the Tie Plant Community. As a courtesy to me, I would appreciate a written response at your earliest convenience.

I have also forwarded these concerns to Environmental Protection Agency officials. Any assistance or input you can provide in this matter would be deeply appreciated.

Sincerely,

Thad

THAD COCHRAN
United States Senator

TC/kc

Enclosure

6/10/09

09 JUN 2[illegible] AM 9:56

Willie and Jordan Barnes (son)
109 Simmons Rd.
Grenada, MS 38901

To: Thad Cochran

We are lifetime residents of the Tie Plant Community which is in Grenada, MS. Koppers Industries is located within our community. We have been made aware, through documented reports, of the dangers of the chemicals used at Koppers Industries. There is a strong odor of creosote in the air constantly.

The chemicals used at Koppers Industries are known to cause cancer. There have been many cancer related illnesses and deaths in our community that are believed to be related to the contamination, including members of our immediate family. A lawsuit was filed in 2003. Even though we did not get a compensation for the contamination our main concern is that it does not continue to affect our health.

We are writing this letter to make others aware of this health concern which has already affected too many lives in our small community. We would appreciate anything you can do to help us bring attention to this very important dilemma in our community.

Sincerely,

Willie and Jordan Barnes (son)

Kevin B. Coker
SH&E Supervisor

Haz Waste
MSD007027542

KOPPERS

RECEIVED
OCT 15 2008
Dept of Environmental Quality
Office of Pollution Control

Koppers Inc.
Utility Poles and Piling
P. O. Box 160
Tie Plant, MS 38960
Tel 662 226 4584 X38
Fax 662 226 4588
CokerKBR@koppers.com
www.koppers.com

AI 8776
Grenada

October 3, 2008

Mr. Phillip LaBarre
Mississippi Department of Environmental Quality
Timber and Wood Products Branch
Office of Pollution Control
P.O. Box 10385
Jackson, MS 39289-0385

CERTIFIED MAIL: 7007 3020 0001 0626 5652

Subject: **Koppers Inc. – Grenada Plant**
Incident Report No. 885728

Dear Mr. LaBarre:

At approximately 9:58 AM on September 30, 2008 a release of FO32/FO34 waste was discovered. The Facility's Drip Pad Sump Pump No. 4 was undergoing a routine test when a leak in an underground metal line that transfers the sump's contents to a waste water treatment system was discovered. Upon discovery notifications were made to the National Response Center at 10:07 AM, Mississippi Emergency Management Agency at 10:13 AM, and the Local Emergency Planning Committee at 10:16 AM.

As corrective action the line was uncovered and repaired. All impacted soil was placed in an approved hazardous waste container for disposal. Further corrective actions included the testing of the line which revealed the presence of a second leak. This area of the line was likewise repaired, tested, and all impacted soil was appropriately managed. No further leaks are present at this time. The total volume of material released by the line during the initial incident as well as its subsequent testing and repair is estimated to be approximately 52 gallons. The plant is currently working to obtain cost estimates for the replacement of this line with a double-walled line to reduce the risk of further releases.

Should you have any questions or concerns please contact me.

Sincerely,

Kevin B. Coker
SH&E Supervisor

Enclosures

cc: Ms. Joyce Fankulewski, Koppers Inc.
Mr. George Frazier, LEPC Grenada

R. A. (Ron) Rutledge
Treating Supervisor

Koppers Inc.
Utility Poles and Pilings
P. O. Box 160
Tie Plant, MS 38960
Tel 662 226 4584
Fax 662 226 4588
rutledgera@koppers.com
www.koppers.com

AI 876
Grenada

November 14, 2008

Mr. Phillip LaBarre
Mississippi Department of Environmental Quality
Timber and Wood Products Branch
Office of Pollution Control
P. O. Box 10385
Jackson, MS 39289-0385

Subject: **Koppers Inc. - Grenada Plant**
Incident Report No.889915

Dear Mr. LaBarre:

At approximately 10:30 AM on November 13, 2008 a release of FO32/FO34 was discovered. The facility's drip pad sump pump No. 4 was in use when a possible leak was discovered in the underground metal line that transfers the water to plant storage. When confirmed, the pump was shut down. Emergency notifications were made to the National Response Center at 10:40 AM, MDEQ at 10:47 AM and the LEPC at 10:51 AM.

As corrective action, the line was purged with air and disconnected on each end. A new, temporary line was run from sump pump No. 4 to the discharge header at sump pump No. 3. A small amount of impacted soil was properly managed. The total amount of released water was approximately one gallon. There is an active capital project to replace the line with a double-walled line to reduce the risk of further releases.

Should you have any questions or concerns, please contact me or Kevin Coker.

Sincerely,

R. A. (Ron) Rutledge
Treating Supervisor

Cc: Mr. George Frazier, LEPC Grenada
Ms Joyce Fankulewski, Koppers Inc.
Kevin Coker, Koppers Inc.

STATE OF MISSISSIPPI
HALEY BARBOUR
GOVERNOR
MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY
CHARLES H CHISOLM, EXECUTIVE DIRECTOR

May 10, 2007

Mr. Vance Haskin
Koppers Inc
PO Box 160
Tie Plant, Mississippi 38960

Dear Mr. Haskin:

Re: Inspection Report
Koppers Inc
Tie Plant, Grenada County
Water-Pretreatment MSP090300
GP-Wood Treating MSR220005
Hazardous Waste-EPA ID MSD007027543

Enclosed are our inspection reports that were completed as a result of a multimedia Compliance Evaluation Inspection (CEI) at Koppers Inc on 4/5/07. The reports should be used by you as a guide for complying with requirements and limitations stated in your permits.

If you have any questions concerning this matter, please contact me at (601) 961-5050.

Sincerely,

Azzam Abu-Mirshid, P.E., BCEE
Timber and Wood Products Branch
Environmental Compliance and Enforcement Division

Agency Interest No. 876
INS20070001

Kevin B. Coker
SH&E Supervisor

KOPPERS

MSD007027541
Grenada Co.

Koppers Inc.
Utility Poles and Piling
P. O. Box 160
Tie Plant, MS 38960
Tel 662 226 4584 X38
Fax 662 226 4588
CokerKBR@koppers.com
www.koppers.com

February 28, 2007

Mr. Azzam Abu-Mirshid
Mississippi Department of Environmental Quality
Timber and Wood Products Branch
Office of Pollution Control
P.O. Box 10385
Jackson, MS 39289-0385

CERTIFIED MAIL: 7002 0460 0003 7596 2489

Subject: Spill Report

Dear Mr. Abu-Mirshid:

As severe storms moved through the area on the evening of Saturday, February 24, 2007 at approximately 8:38 PM, storm water was observed to have run off of the plant's drip pad at a transition point. Response actions included damming the transition point as well as notifying the National Response Center, Mississippi Emergency Management Agency, and the Local Emergency Planning Commission. The assigned Incident Number was 87439. The estimated quantity was approximately 200 gallons. It is believed that wood dust was transferred from the wood fuel handing area to the drip pad by strong winds, which stopped the drains leading to the sumps.

Corrective actions include the utilization of a larger mesh in the drain covers as well as the damming of the transition points with sand in future instances of storm events. Additionally, Koppers has approved capital that will be allocated to the installation of a roof over the drip pad. The roof should greatly reduce the risk of this occurrence in the future. Installation is tentatively scheduled for this Summer.

Should you have any questions please call.

Sincerely,

Kevin B. Coker
SH&E Supervisor

Enclosures

cc: Ms. Joyce Fankulewski, Koppers Inc.
Mr. George Frazier, LEPC Grenada

Haz. Waste
MSD007021
Grenada Co

Kevin B. Coker
SH&E Supervisor

KOPPERS

Koppers Inc.
Utility Poles and Piling
P. O. Box 160
Tie Plant, MS 38960
Tel 662 226 4584 (X38)
Fax 662 226 4588
CokerKB@koppers.com
www.koppers.com

April 18, 2007

Mr. Lawrence Fincher
US EPA Region 4
Atlanta Federal Center
61 Forsyth Street
Atlanta, Georgia 30303-8960

Certified Mail No.: 7002 0460 0003 7596 2328

Subject: **Koppers Inc. – Grenada Plant**
NRC Incident No. 828975

Dear Mr. Fincher:

Per your oral request, the following document has been prepared to relay particulars concerning the spill of pentachlorophenol treating solution that occurred at our site on the morning of March 13, 2007 at approximately 5:35 AM. This document supplements the incident report number 828975 filed with the Agency at the time of the incident. The incident occurred when treating solution was released from containment after an operator failed to close the appropriate valves on a four inch line connecting Cylinder No. 5 to Tank No. 23. An exhibit reflecting the location of these tanks is attached for your reference.

A charge of kiln-dried poles had been placed in Cylinder No. 5 for treatment. The system had been submitted to two and one half hours of steam conditioning in preparation for the treatment cycle. Process water generated during this steam cycle had been transferred to Tank No. 23 by opening a series of two valves on a four inch transfer line connecting the two vessels. The operator then commenced the treating cycle by introducing air into the cylinder and initiating the fill pump transferring preservative into it from Tank No. 10. In this act however, he failed to close the valves on the transfer line referenced above. Consequently, preservative was transferred from Tank No. 10 through Cylinder No. 5 to Tank No. 23 and though a vent pipe situated over the containment area.

The containment area captured the preservative, directing its flow to a receiving pit. In this process however, there was a three foot section where the flow managed to exit the containment area. After reclaiming the preservative from the containment area it was determined that approximately 7,000 gallons in total was released from the tank. Of this total, visual estimation placed the quantity released from containment at 300 gallons. The uncontained preservative and impacted soil and gravel were recovered and placed in a hazardous waste box that was subsequently sent to an approved TSD for disposal. No preservative was observed to have left the property or entered navigable waters.

Corrective actions were as follows:

- The operator was drug tested, disciplined and retrained
- The containment along the three foot section where the solution was released was enhanced
- A contractor has been hired to modify the controls to eliminate the possibility of the fill pump being initiated while the valves on the transfer lines are open.

The additional information you requested is provided in the following bullets or is attached for your reference.

- Actual Quantity of Pentachlorophenol Released – Pentachlorophenol concentrate, "*Dura-Treat 40*", is purchased in tanker trucks and delivered to the plant where it is blended with diesel fuel to generate Pentachlorophenol Treating Solution. The concentrate is received having 40% pentachlorophenol content and is mixed with diesel to a target solution strength of 8.5%. Accordingly, the volume of pentachlorophenol released during this event was approximately 194 pounds. Calculations are provided below:

Parameters	
Diesel Fuel (lbs/gal)	7.20
Pentachlorophenol Concentrate (lbs/gal)	9.50
Pentachlorophenol Treating Solution (lbs/gal)	7.59
Pentachlorophenol Concentration Strength	40%

Of the three hundred gallons released approximately 51 would have represented pentachlorophenol concentrate and approximately 249 would have represented diesel fuel.

Lbs Pentachlorophenol = (((51 gal. concentrate)(9.5 lbs/gal))+((249 gal.)(7.2 lbs/gal)))(8.5%) = 194 pounds

- Specific Gravity of Pentachlorophenol Treating Solution – The weight of the treating solution is approximately 7.59 pounds per gallon at 8.5% solution strength. Accordingly, its specific gravity is approximately 0.91.

- Material Safety Data Sheets for Dura-Treat 40 and diesel fuel are attached for your review. Per conversations with the manufacturer of the Dura-Treat 40, the ingredients used to mix with the pentachlorophenol are three blends of light petroleum solvents.

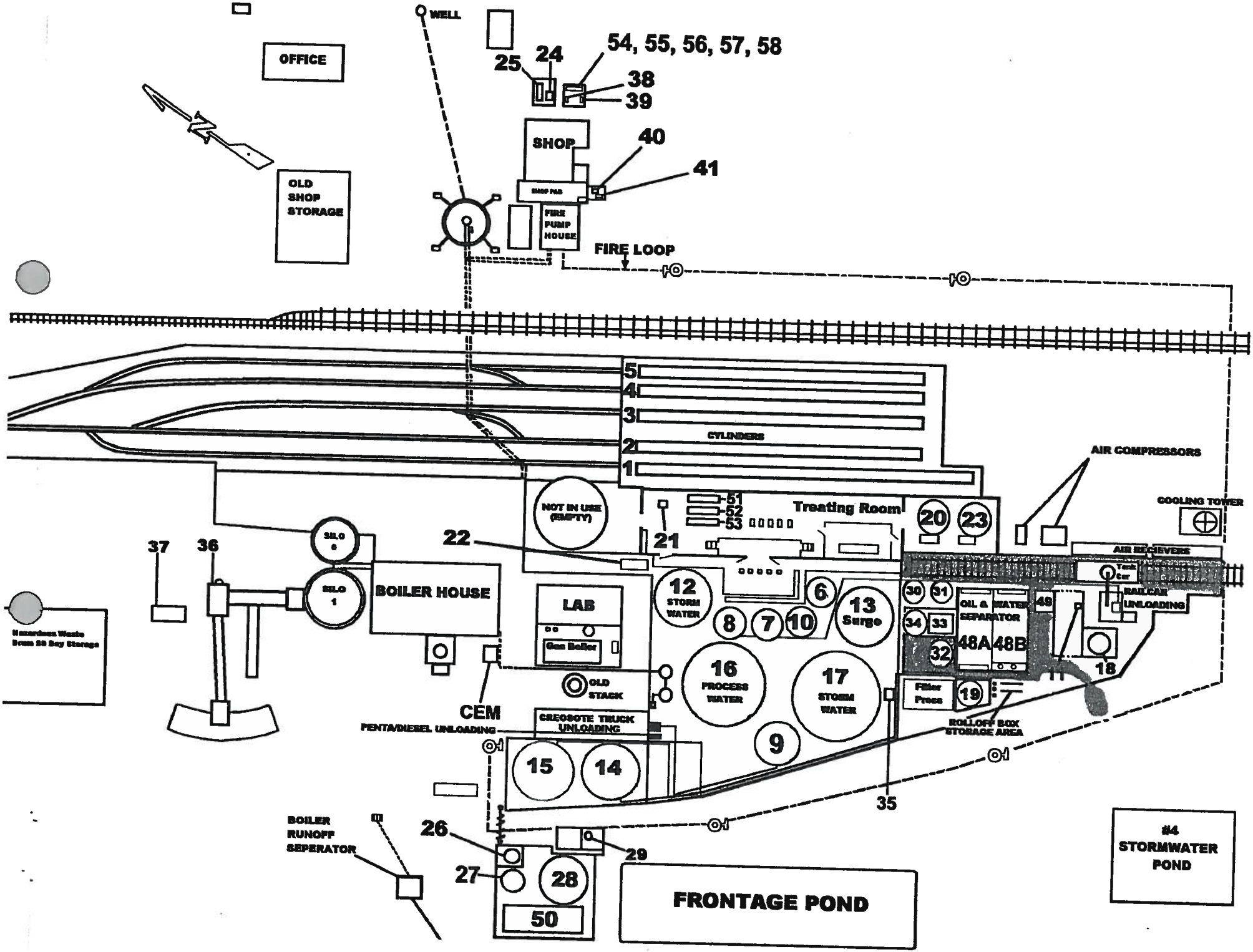
- As referenced earlier a diagram of the plant's tank farm is attached. The flow and release area of the treating solution is depicted in brown. Additionally, pictures of the area following cleanup are provided for your review.

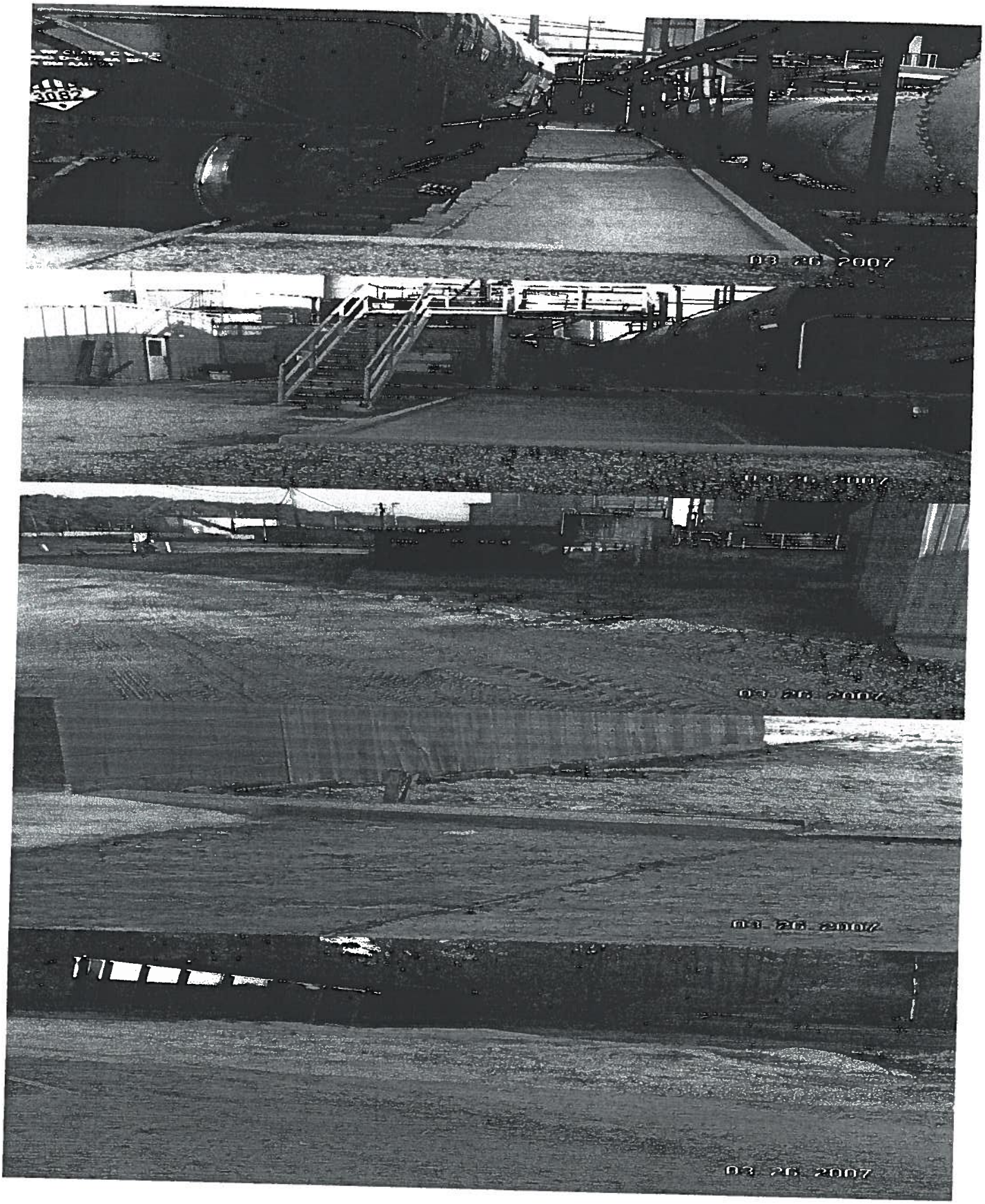
If you have any questions please contact me at 662-417-4308.

Sincerely,

Kevin B. Coker
SH&E Supervisor

cc: Ms. Joyce Fankulewski, KI – CSG
Mr. Azzam Abu-Mirshed, MDEQ


WELL
OFFICE
25
24
54, 55, 56, 57, 58
38
39
SHOP
40
41
OLD SHOP STORAGE
FIRE PUMP HOUSE
FIRE LOOP
CYLINDERS
5
4
3
2
1
AIR COMPRESSORS
COOLING TOWER
NOT IN USE (EMPTY)
51
52
53
Treating Room
20
23
21
22
AIR RECIEVERS
Tank Car
RAILCAR UNLOADING
37
36
SILO 2
SILO 1
BOILER HOUSE
LAB
Gas Boiler
12 STORM WATER
6
8
7
10
13 Surge
30
31
OIL & WATER SEPARATOR
49
34
33
32
48A
48B
18
Hazardous Waste Drum 55 Day Storage
OLD STACK
16 PROCESS WATER
17 STORM WATER
Filter Press
19
CEM
PENTA/DIESEL UNLOADING
CREOSOTE TRUCK UNLOADING
ROLLOFF BOX STORAGE AREA
9
15
14
35
BOILER RUNOFF SEPERATOR
26
29
27
28
50
FRONTAGE POND
#4 STORMWATER POND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Material Safety Data Sheet

Dura-Treat 40 Wood Preserver®

Version: Original Date Issued: 01/17/2005 MSDS No. 6148302

SECTION 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

COMPANY:	KMG- Bernuth, Inc. 10611 Harwin, Suite 402 Houston, Texas 77036
PHONE NUMBER:	713-988-9252
EMERGENCY PHONE:	CHEMTREC: 1-800-424-9300
NAME USED ON LABEL:	Dura-Treat 40 Wood Preserver
PRODUCT USE:	Wood Preservative

SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

IDENTITY	CAS NUMBER	TYPICAL %	OTHER INFORMATION
Pentachlorophenol	87-86-5	38.0-42.0	
Other Chlorophenols	Mixture	1.0-2.0	
Aliphatic Esters and Aldehydes	Mixture	57.0-61.0	

Ingredients not precisely identified are proprietary or non-hazardous.
Values are not product specifications.

SECTION 3: HAZARDS IDENTIFICATION

HEALTH HAZARDS: Primary Exposure Routes via inhalation and skin absorption.

Inhalation: Pentachlorophenol may be fatal if inhaled. Symptoms of over-exposure include sneezing, weakness, excessive sweating, headache, nausea, vomiting and difficult breathing. High concentrations can cause unconsciousness, convulsions and death. Concentrations greater than 1 mg/m^3 can cause nasal irritation.

Skin: Pentachlorophenol can be harmful or fatal if absorbed through the skin. It causes skin burns on prolonged or repeated contact. An allergic reaction may develop in a limited number of persons.

Eyes: Pentachlorophenol causes irritation to the eye at 1 mg/m^3. If exposure is prolonged, slight transient corneal damage may occur.

Ingestion: Pentachlorophenol may be fatal if ingested. Symptoms of overexposure include sneezing, weakness, excess sweating, headache, nausea, vomiting and difficult breathing. High concentrations can cause unconsciousness, convulsions and death.

Chloracne: Human exposure to pentachlorophenol may result in the development of chloracne. The usual symptoms of chloracne are the formation of blackheads, whiteheads and yellow cysts over the temples and around the ears. Mild cases resemble other forms of acne or skin changes observed with aging. Symptoms reverse upon removal of exposure source.

SECTION 3: HAZARDS IDENTIFICATION (Continued)

Chronic Toxicity: Chronic overexposure of lab animals to pentachlorophenol has cause toxic effects of liver and kidneys.

Reproductive Toxicitiy: Pentachlorophenol has been determined to be embryo and fetotoxic to rats but not to hamsters. Pentachlorophenol has not been found to cause teratogenic effects (birth defects) in lab animals, but can cause delays in normal fetal development. EPA has expressed an opinion that pentachlorophenol may produce defects in the offspring of lab animals. **Exposure to pentachlorophenol during pregnancy should be avoided.**

Carcinogenicity: The National Toxicology Program (NTP) has evaluated pentachlorophenol for possible cancer causing effects in lab animas and has indicated s statistically significant increase in benign liver tumors. Vascular tumors were seen in female mice but not males. Increased medulla tumors were observed in both sexes of mice. To other carcinogenicity studies, one in mice and one in rats, failed to show increased incidence of tumors. The International Agency for Research on Cancer (IARC) has concluded there is sufficient evidence of carcinogenicity to lab animals and inadequate evidence of carcinogenicity to humans, resulting in a classification as a 2B animal carcinogen.

SECTION 4: FIRST AID MEASURES

IF SWALLOWED: Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not give anything by mouth to an unconscious person. Do not induce vomiting unless told to by a poison control center or doctor.
IF IN EYES: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing. Call a poison control center or doctor for treatment advice.
IF ON SKIN OR CLOTHING: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.
IF INHALED: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or doctor for further treatment advice.
NOTE TO PHYSCIAN: This product is a metabolic stimulant. Treatment is supportive. Forced Diuresis may be effective to reduce total body-burden. Treat hyperthermia with physical measures. Do not administer aspirin, phenothiazines or atropine since they may enhance toxicity.

SECTION 5: FIREFIGHTING MEASURERS

FLASH POINT: >150 and <200 °F (PMCC)

AUTOIGNITION TEMPERATURE: Not Determined

FLAMMABLE LIMITS (LEL/UEL): Unknown

EXTINGUISHING MEDIA: Use dry chemical, carbon dioxide or foam.

SECTION 5: FIREFIGHTING MEASURERS (Continued)

PROTECTIVE EQUIPMENT: Fire fighters should wear MSHA/NIOSH approved self-contained positive-pressure breathing apparatus and full protective clothing. Avoid exposing the skin to the product.

NFPA RATING: Health 3 Fire 2 Reactivity 0

SPECIAL HAZARDS: Unusual Fire and Explosion Hazards – Fumes and vapors from the hot or burning product may contain hydrogen chloride (HCl), carbon monoxide (CO) and carbon dioxide (CO_2).

SPECIAL FIRE FIGHTING PROCEDURES: Use blanketing effect to smother fire. Avoid spraying water directly into stored containers because of the danger of boil-over of contaminated water.

SECTION 6: ACCIDENTAL RELEASE MEASURES

METHODS FOR CLEANING UP: Do not dispose of spilled material in streams or waterways. Improper disposal of excess pesticide, spray mixture, spills or rinsate is a violation of Federal law

Spills: Restrict access to the spill area. Ventilate the spill area. Wear suitable protective clothing. For small spills, absorb the liquid on clay or vermiculite. Sweep up absorbent material and place in an approved container for disposal according to the applicable State and Federal laws. For large spills, eliminate all sources of ignition, stop the flow of product from the spill source, restrict access to the spill area, dike the area to prevent spreading, collect all pumpable quantities into a recovery vessel, absorb the remaining liquid on clay or vermiculite, sweep up absorbent material and place in an approved container for disposal according to the applicable State and Federal laws.

Reportable Quantity: Reportable quantity (RQ) is 10 lbs. which is approximately 2.5 gallons of this product. Spills in excess of the reportable quantity must be reported to the United States Environmental Protection Agency's National Response Center at 800-424-8802.

Waste Disposal: Pesticide wastes are toxic. Dispose of wastes and residues of this product in accordance with state and federal regulation. If these wastes or residues cannot be disposed of in accordance with label directions, contact your state Pesticide or Environmental Control Agency, or the Hazardous Waste Representative of the United States Environmental Protection Agency for guidance. It is the responsibility of the user to determine which state and federal regulations apply to the user's facility.

SECTION 7: HANDLING AND STORAGE SECTION

REQUIREMENTS FOR STORAGE ROOMS: Store away from food or feed is a secure, well-ventilated area protected from extremes of temperature. Avoid bringing this product into contact with open flames, electric arcs or hot surfaces which can cause thermal decomposition. Store only in tightly closed original container.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

OCCUPATIONAL EXPOSURE LIMITS:

ACGIH TLV TWA (8 hour) 0.5 mg/m^3 **OSHA PEL** TWA (8 hour) 0.5 mg/m^3

VENTILATION: Do not use in closed or confined space. Open door and/or windows. Provide exhaust ventilation or other engineering controls to keep the airborne concentration below 0.5 mg/m^3.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION (Continued)

BODY PROTECTION: Wear PVC, neoprene, NBR(Buna-N), nitrile latex or equivalent gloves and tightly woven clothing including long sleeve shirt when handling pentachlorophenol. When mixing penta solutions, wear protective clothing, gloves, boots or shoes, which are suitable for the solvent used.

HYGIENE: Avoid contact with skin and breathing mist or fumes. Do not eat, drink or smoke in work area. Wash hands prior to eating, drinking or using restroom. Shower and change into uncontaminated clothing before leaving work premises. Wash clothing before re-use. Do not wash with household laundry.

EYE PROTECTION: Use protective eyewear. Do not wear contact lenses. When mixing penta solutions, wear chemical goggles and/or face shield.

RESPIRATORY PROTECTION: Where concentrations of pentachlorophenol exceed or are likely to exceed 0.5 mg/m^3, a NIOSH/MSHA approved organic vapor-dust filter type respirator is acceptable. A NIOSH/MSHA approved self-contained breathing apparatus or air line respirator with full face piece, is required for concentrations above 150.0 mg/m^3, or during emergency and spills. Follow applicable respirator use standards and regulations.

OTHER PROTECTIVE EQUIPMENT: Safety shower and eye wash stations should be available. Monitoring should be performed regularly to determine exposure levels.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

CHEMICAL FORMULA	C_6Cl_5OH
MOLECULAR WEIGHT	266.32
FORMULATION:	40 % Solution
PHYSICAL STATE:	Liquid
COLOR:	Dark
ODOR:	Phenolic
BOILING POINT:	≥ 214° F
MELTING POINT:	Not applicable
FREEZING TEMPERATURE:	Not applicable
VAPOR PRESSURE:	> 0.4 mm Hg @ 60° F
VAPOR DENSITY:	4.5 (Air = 1.0)
EVAPORATION RATE:	< 1 (n-BuAc = 1)
SPECIFIC GRAVITY:	1.15 – 1.17 (Water = 1.0)
BULK DENSITY:	9.60 – 9.76 lb/gal @ 20° C
SOLUBILITY IN WATER:	Insoluble

SECTION 10: STABILITY AND REACTIVITY

HAZARDOUS REACTIONS (CONDITIONS TO AVOID):

Stability: Stable under normal conditions. Avoid contact with open flames, electric arcs or hot surfaces.

Incompatibility: Avoid contact with strong oxidizers.

Hazardous polymerization: Material is not known to polymerize.

HAZARDOUS DECOMPOSITION PRODUCTS: Hydrogen chloride, chlorine, carbon monoxide, carbon dioxide, polychlorinated dibenzodioxins and polychlorinated dibenzofurans.

SECTION 11: TOXICOLOGICAL INFORMATION

Acute Oral LD_{50} (rat):	1.58 g/kg
Acute Dermal LD_{50} (rabbit):	4.20 g/kg
Acute Inhalation (rat – 4 hr):	>20 mg/kg
Primary Eye Irritation (rabbit):	Not a primary irritant
Primary Dermal Irritation (rabbit):	Slight irritant
Dermal Sensitization :	Not expected to cause sensitization

EFFECTS OF OVEREXPOSURE: Acute overexposure symptoms include sneezing, weakness, excessive sweating, headache, nausea, vomiting, difficulty in breathing, unconsciousness, convulsions and death. Chronic exposure has caused toxic liver and kidney effects in lab animals. Exposure to pentachlorophenol during pregnancy should be avoided.

SECTION 12: ECOLOGICAL INFORMATION

ECOTOXICITY ASSESSMENT: Maybe toxic to aquatic wildlife.

OTHER ECOLOGY INFORMATION: Toxic to wildlife.

SECTION 13: DISPOSAL CONSIDERATIONS

DISPOSAL METHOD: Wastes resulting from the use of this product may be disposed of on site or at an Approved waste disposal facility. Do not contaminate waterways by cleaning of equipment or by disposal of wastes.
CONTAINER DISPOSAL: Empty containers retain product residue. Triple rinse, or equivalent, empty container, return rinse water to dilution mixture, and dispose of dilution mixture as hazardous waste if it cannot be disposed of by use according to label instructions. Do not ruse container. Offer it for recycling or reconditioning, or puncture and dispose of in properly permitted landfill.

SECTION 14: TRANSPORT INFORMATION

DOT DESCRIPTION: RQ, Wood Preservatives, Liquid, 3, UN 1306, PG III, Marine Pollutant
FREIGHT DESCRIPTION: Combustible Liquid, 1306, Class 3 (PLACARD REQUIRED)
EMERGENCY RESPONSE GUIDE (ERG): Page 256 Guide 154

SECTION 15: REGULATORY INFORMATION

UNITED STATES EPA: EPA Reg. No. 61483-2
EPA Signal Word: DANGER - POISON

OTHER: **SARA 313 Inventory Ingredients** – Subject to reporting requirements
CERCLA REPORTABLE QUANTITY – 10 Lbs/4.54 KG
CALIFORNIA PROPOSITION 65 – Listed as known carcinogen
OTHER RIGHT TO KNOW STATES - New Jersey, Pennsylvania, Minnesota, Massachusetts

SECTION 16: OTHER INFORMATION

This Material Safety Data Sheet may be used to comply with OSHA's Hazardous Communication Standard, 29 CFR 1910.1200, and the Standard must be consulted to ensure full compliance.

KMG-Bernuth, Inc. believes that the information and recommendations contained herein (including data and statements) are accurate as of the date thereon. NO WARRANTY OF FITNESS FOR ANY PARTICULAR PURPOSE, WARRANTY OR MERCHANTABILITY, OR ANY OTHER WARRANTY, EXPRESSED OR IMPLIED, IS MADE CONCERNING THE INFORMATION PROVIDED HEREIN. The information provided herein relates to the specific product designated and may not be valid where such product is used in combination with any other materials or in any process. Further, since the conditions and methods of use of the product and of the information referred to herein are beyond the control of KMG-Bernuth, Inc, KMG-Bernuth, Inc. expressly disclaims any and all liability as to any results obtained or arising from any use of the product or reliance on such information..

MSDS No.: 6148302
Revision No.: Original
Supersedes: None
Date: January 17, 2005
Approved by: _____

No. 2 Diesel Fuel

Material Safety Data Sheet

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: No. 2 Diesel Fuel

MSDS Code: 001847

Synonyms:
CARB Diesel TF3; CARB Diesel; CARB Diesel 10%
CARB Diesel Ultra Low Sulfur - Dyed and Undyed
EPA Low Sulfur Diesel Fuel - Dyed and Undyed
EPA Off Road High Sulfur Diesel - Dyed
High Sulfur Diesel Fuel; Low Sulfur Diesel Fuel
No. 2 Diesel Fuel Oil
No. 2 High Sulfur Diesel - Dyed
No. 2 Low Sulfur Diesel - Dyed; No. 2 Low Sulfur Diesel - Undyed
No. 2 Low Sulfur Distillate
No. 2 Ultra Low Sulfur Diesel - Dyed; No. 2 Ultra Low Sulfur Diesel - Undyed
Super Diesel Fuel; Super Diesel Fuel II-LS
Virgin Diesel Fuel; No. 2 Distillate
ULSD
Super Diesel Fuel; Super Diesel Fuel II-LS
Virgin Diesel Fuel

Intended Use: Fuel

Responsible Party:
ConocoPhillips
600 N. Dairy Ashford
Houston, Texas 77079-1175

MSDS Information:
Phone: 800-762-0942
Email: MSDS@conocophillips.com
Internet: http://w3.conocophillips.com/NetMSDS/

Emergency Telephone Numbers:
Chemtrec: 800-424-9300 (24 Hours)
California Poison Control System: 800-356-3219

2. HAZARDS IDENTIFICATION

Emergency Overview

WARNING!
Flammable Liquid and Vapor
Skin Irritant
Aspiration Hazard

NFPA

Appearance: Straw colored to dyed red
Physical Form: Liquid
Odor: Diesel fuel

Potential Health Effects

Eye: Contact may cause mild eye irritation including stinging, watering, and redness.

Skin: Mild to moderate skin irritant. Contact may cause redness, itching, a burning sensation, and skin damage. Prolonged or repeated contact may cause drying and cracking of the skin, dermatitis (inflammation), burns, and severe skin damage. No harmful effects from skin absorption have been reported.

Inhalation (Breathing): No information available on acute toxicity. See signs and symptoms.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions: Flammable. Keep all sources of ignition and hot metal surfaces away from spill/release. The use of explosion-proof electrical equipment is recommended.

Spill precautions: Stay upwind and away from spill/release. Notify persons down wind of the spill/release, isolate immediate hazard area and keep unauthorized personnel out. Stop spill/release if it can be done with minimal risk. Wear appropriate protective equipment, including respiratory protection, as conditions warrant (see Section 8).

Environmental precautions: Prevent spilled material from entering sewers, storm drains, other unauthorized drainage systems, and natural waterways. Dike far ahead of spill for later recovery or disposal. Use foam on spills to minimize vapors (see Section 5). Spilled material may be absorbed into an appropriate absorbent material.

Methods for cleaning up: Notify fire authorities and appropriate federal, state, and local agencies. Immediate cleanup of any spill is recommended. If spill of any amount is made into or upon navigable waters, the contiguous zone, or adjoining shorelines, notify the National Response Center (phone number 800-424-8802).

7. HANDLING AND STORAGE

Handling: Open container slowly to relieve any pressure. Bond and ground all equipment when transferring from one vessel to another. Can accumulate static charge by flow or agitation. Can be ignited by static discharge. The use of explosion-proof electrical equipment is recommended and may be required (see appropriate fire codes). Refer to NFPA-704 and/or API RP 2003 for specific bonding/grounding requirements. Do not enter confined spaces such as tanks or pits without following proper entry procedures such as ASTM D-4276 and 29CFR 1910.146. The use of appropriate respiratory protection is advised when concentrations exceed any established exposure limits (see Section 8).

Do not wear contaminated clothing or shoes. Keep contaminated clothing away from sources of ignition such as sparks or open flames. Use good personal hygiene practices.

"Empty" containers retain residue and may be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, or other sources of ignition. They may explode and cause injury or death. "Empty" drums should be completely drained, properly bunged, and promptly shipped to the supplier or a drum reconditioner. All containers should be disposed of in an environmentally safe manner and in accordance with governmental regulations.

Before working on or in tanks which contain or have contained this material, refer to OSHA regulations, ANSI Z49.1, and other references pertaining to cleaning, repairing, welding, or other contemplated operations.

Storage: Keep container(s) tightly closed. Use and store this material in cool, dry, well-ventilated areas away from heat, direct sunlight, hot metal surfaces, and all sources of ignition. Post area "No Smoking or Open Flame." Store only in approved containers.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Component	ACGIH	OSHA	Other
Diesel Fuel No. 2	TWA: 100 mg/m³ Skin	—	—

Note: State, local or other agencies or advisory groups may have established more stringent limits. Consult an industrial hygienist or similar professional, or your local agencies, for further information.

Engineering controls: If current ventilation practices are not adequate to maintain airborne concentrations below the established exposure limits additional engineering controls may be required. Where explosive mixtures may be present, electrical systems safe for such locations must be used (see appropriate electrical codes).

Personal Protective Equipment (PPE):

Eye/Face: Approved eye protection to safeguard against potential eye contact, irritation, or injury is recommended. Depending on conditions of use, a face shield may be necessary.

Skin: The use of nitrile gloves impervious to the specific material handled is advised to prevent skin contact, possible irritation, and skin damage (see glove manufacturer literature for information on permeability). Depending on conditions of use, nitrile apron and/or arm covers may be necessary.

Diesel Fuel No. 2

Carcinogenicity: Petroleum middle distillates have been shown to cause skin tumors in mice following repeated and prolonged skin contact. Follow-up studies have shown that these tumors are produced through a non-genotoxic mechanism associated with frequent cell damage and repair, and that they are not likely to cause tumors in the absence of prolonged skin irritation. Animal studies have also shown that washing the skin with soap and water can reduce the tumor response. Middle distillates with low polynuclear aromatic hydrocarbon content have not been identified as a carcinogen by NTP, IARC or OSHA. Diesel exhaust has been identified as a probable cancer hazard by IARC

Target Organs: Limited evidence of renal impairment has been noted from a few older case reports involving excessive exposure to diesel fuel No. 2. However, renal toxicity has not been demonstrated to be a consistent finding of diesel fuel exposure.

Naphthalene

Carcinogenicity: Naphthalene has been evaluated in two year inhalation studies in both rats and mice. The National Toxicology Program (NTP) concluded that there is clear evidence of carcinogenicity in male and female rats based on increased incidences of respiratory epithelial adenomas and olfactory epithelial neuroblastomas of the nose. NTP found some evidence of carcinogenicity in female mice (alveolar adenomas) and no evidence of carcinogenicity in male mice. Naphthalene has been identified as a carcinogen by IARC and NTP.

Acute Data:

Component	Oral LD50	Dermal LD50	Inhalation LC50
Diesel Fuel No. 2	9 ml/kg (Rat)	>5ml/kg (Rabbit)	No data available

12. ECOLOGICAL INFORMATION

When middle distillate hydrocarbons escape into the environment due to leaks or spills, most of their constituent hydrocarbons will evaporate and be photodegraded by reaction with hydroxyl radicals in the atmosphere. The half-lives in air for many of the individual hydrocarbons is less than one day. Less volatile hydrocarbons can persist in the aqueous environment for longer periods. They remain floating on the surface of the water; those that reach soil or sediment biodegrade relatively slowly. Soil contaminated with middle distillates can develop adapted microbial species able to use the fuel as a carbon source; soil aeration and nutrient supplementation can enhance this biodegradation.

Reported LC50/EC50 values for water-soluble fractions of middle distillates are usually in the range of 10 to 100 mg/liter. Adverse effects on the gills, pseudobranch, kidney and nasal mucosa have been reported in fish involved in spills of middle distillates. Juvenile clams may be particularly sensitive to marine sediments contaminated as a result of spilled material. Direct toxicity and fouling of sea birds can occur if birds dive through floating layers of spilled material.

Phytotoxic effects of middle distillate hydrocarbons have been reported following exposure of plants to sprays or vapors. Lack of seed germination and inhibition of seedling growth may also occur. There is evidence for moderate bioaccumulation of the water-soluble hydrocarbons present in middle distillates.

13. DISPOSAL CONSIDERATIONS

The generator of a waste is always responsible for making proper hazardous waste determinations and needs to consider state and local requirements in addition to federal regulations.

This material, if discarded as produced, would not be a federally regulated RCRA "listed" hazardous waste. However, it would likely be identified as a federally regulated RCRA hazardous waste for the following characteristic(s) shown below. See Sections 7 and 8 for information on handling, storage and personal protection and Section 9 for physical/chemical properties. It is possible that the material as produced contains constituents which are not required to be listed in the MSDS but could affect the hazardous waste determination. Additionally, use which results in chemical or physical change of this material could subject it to regulation as a hazardous waste.

Container contents should be completely used and containers should be emptied prior to discard. Container residues and rinseates could be considered to be hazardous wastes.

EPA Waste Number(s)

- D001 - Ignitability characteristic

14. TRANSPORTATION INFORMATION

U.S. Department of Transportation (DOT)

California Proposition 65:
Warning: This material may contain detectable quantities of the following chemicals, known to the State of California to cause cancer, birth defects or other reproductive harm, and which may be subject to the requirements of California Proposition 65 (CA Health & Safety Code Section 25249.5):

Component	Type of Toxicity
Toluene	Developmental Toxicant
Benzene	Cancer Developmental Toxicant Male Reproductive Toxicant
Naphthalene	Cancer

Diesel engine exhaust, while not a component of this material, is on the Proposition 65 list of chemicals known to the State of California to cause cancer.

Canadian Regulations:
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

WHMIS Hazard Class
B3 - Combustible Liquids
D2A - Very Toxic Material
D2B - Toxic Material

National Chemical Inventories:

Component	AIOS	DSL	NDSL	CHINA	EINECS	ENCS	KOREA	PICCS	TSCA
Diesel Fuel No. 2 68476-34-6	X	X		X		X		X	X	X

U.S. Export Control Classification Number: EAR99

16. OTHER INFORMATION

Issue Date: 12-Mar-2007
Status: Final
Product Code: Multiple
Revised Sections or Basis for Revision: Fire Fighting Information (Section 5)
MSDS Code: 001847

MSDS Legend:
ACGIH = American Conference of Governmental Industrial Hygienists; CAS = Chemical Abstracts Service Registry; CEILING = Ceiling Limit (15 minutes); CERCLA = The Comprehensive Environmental Response, Compensation, and Liability Act; EPA = Environmental Protection Agency; IARC = International Agency for Research on Cancer; LEL = Lower Explosive Limit; NE = Not Established; NFPA = National Fire Protection Association; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration; PEL = Permissible Exposure Limit (OSHA); SARA = Superfund Amendments and Reauthorization Act; STEL = Short Term Exposure Limit (15 minutes); TLV = Threshold Limit Value (ACGIH); TWA = Time Weighted Average (8 hours); UEL = Upper Explosive Limit; WHMIS = Worker Hazardous Materials Information System (Canada)

Disclaimer of Expressed and Implied Warranties:
The information presented in this Material Safety Data Sheet is based on data believed to be accurate as of the date this Material Safety Data Sheet was prepared. HOWEVER, NO WARRANTY OF MERCHANTABILITY, FITNESS FOR ANY PARTICULAR PURPOSE, OR ANY OTHER WARRANTY IS EXPRESSED OR IS TO BE IMPLIED REGARDING THE ACCURACY OR COMPLETENESS OF THE INFORMATION PROVIDED ABOVE, THE RESULTS TO BE OBTAINED FROM THE USE OF THIS INFORMATION OR THE PRODUCT, THE SAFETY OF THIS PRODUCT, OR THE HAZARDS RELATED TO ITS USE. No responsibility is assumed for any damage or injury resulting from abnormal use or from any failure to adhere to recommended practices. The information provided above, and the product, are furnished on the condition that the person receiving them shall make their own determination as to the suitability of the product for their particular purpose and on the condition that they assume the risk of their use. In addition, no authorization is given nor implied to practice any patented invention without a license.

Ingestion (Swallowing): Low degree of toxicity by ingestion. ASPIRATION HAZARD - This material can enter lungs during swallowing or vomiting and cause lung inflammation and damage.

Signs and Symptoms: Effects of overexposure may include irritation of the respiratory tract, irritation of the digestive tract, nausea, diarrhea, signs of nervous system depression (e.g., headache, drowsiness, dizziness, loss of coordination, disorientation and fatigue).

Pre-Existing Medical Conditions: Conditions aggravated by exposure may include skin disorders.

See Section 11 for additional Toxicity Information.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS	Concentration (wt %)
Diesel Fuel No. 2	68476-34-6	100
Naphthalene	91-20-3	<1

4. FIRST AID MEASURES

Eye: If irritation or redness develops from exposure, flush eyes with clean water. If symptoms persist, seek medical attention.

Skin: Remove contaminated shoes and clothing, and flush affected area(s) with large amounts of water. If skin surface is damaged, apply a clean dressing and seek medical attention. If skin surface is not damaged, cleanse affected area(s) thoroughly by washing with mild soap and water or a waterless hand cleaner. If irritation or redness develops, seek medical attention.

Inhalation (Breathing): Immediately move victim away from exposure and into fresh air. If respiratory symptoms or other symptoms of exposure develop, seek immediate medical attention. If victim is not breathing, clear airway and immediately begin artificial respiration. If breathing difficulties develop, oxygen should be administered by qualified personnel. Seek immediate medical attention.

Ingestion (Swallowing): Aspiration hazard: Do not induce vomiting or give anything by mouth because this material can enter the lungs and cause severe lung damage. If victim is drowsy or unconscious and vomiting, place on the left side with the head down. If possible, do not leave victim unattended and observe closely for adequacy of breathing. Seek medical attention.

5. FIREFIGHTING MEASURES

NFPA 704 Hazard Class

Health: 1 **Flammability:** 2 **Instability:** 0 (0-Minimal, 1-Slight, 2-Moderate, 3-Serious, 4-Severe)

Unusual Fire & Explosion Hazards: This material is flammable and can be ignited by heat, sparks, flames, or other sources of ignition (e.g., static electricity, pilot lights, or mechanical/electrical equipment, and electronic devices such as cell phones, computers, calculators, and pagers which have not been certified as intrinsically safe). Vapors may travel considerable distances to a source of ignition where they can ignite, flash back, or explode. May create vapor/air explosion hazard indoors, in confined spaces, outdoors, or in sewers. If container is not properly cooled, it can rupture in the heat of a fire.

Extinguishing Media: Dry chemical, carbon dioxide, or foam is recommended. Water spray is recommended to cool or protect exposed materials or structures. Carbon dioxide can displace oxygen. Use caution when applying carbon dioxide in confined spaces. Water may be ineffective for extinguishment, unless used under favorable conditions by experienced fire fighters.

Fire Fighting Instructions: For fires beyond the incipient stage, emergency responders in the immediate hazard area should wear bunker gear. When the potential chemical hazard is unknown, in enclosed or confined spaces, or when explicitly required by DOT, a self contained breathing apparatus should be worn. In addition, wear other appropriate protective equipment as conditions warrant (see Section 8).

Isolate immediate hazard area, keep unauthorized personnel out. Stop spill/release if it can be done with minimal risk. Move undamaged containers from immediate hazard area if it can be done with minimal risk.

Water spray may be useful in minimizing or dispersing vapors and to protect personnel. Cool equipment exposed to fire with water, if it can be done with minimal risk. Avoid spreading burning liquid with water used for cooling purposes.

See Section 9 for Flammable Properties Including Flash Point and Flammable (Explosive) Limits

Respiratory: A NIOSH certified air purifying respirator with an organic vapor cartridge may be used under conditions where airborne concentrations are expected to exceed exposure limits.

Protection provided by air purifying respirators is limited (see manufacturer's respirator selection guide). Use a NIOSH approved self-contained breathing apparatus (SCBA) or equivalent operated in a pressure demand or other positive pressure mode if there is potential for an oxygen-deficient atmosphere, uncontrolled release, exposure levels are not known, or any other circumstances where air purifying respirators may not provide adequate protection.

A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements must be followed whenever workplace conditions warrant a respirator's use.

Other Protective Equipment: Eye wash and quick-drench shower facilities should be available in the work area. Thoroughly clean shoes and wash contaminated clothing before reuse. It is recommended that impervious clothing be worn when skin contact is possible.

Suggestions for the use of specific protective materials are based on readily available published data. Users should check with specific manufacturers to confirm the performance of their products.

9. PHYSICAL AND CHEMICAL PROPERTIES

Note: Unless otherwise stated, values are determined at 20°C (68°F) and 760 mm Hg (1 atm).

Appearance:	Straw colored to dyed red
Physical Form:	Liquid
Odor:	Diesel fuel
Odor Threshold:	No data
pH:	Not applicable
Vapor Pressure:	0.40 mm Hg
Vapor Density (air=1):	> 3
Boiling Point/Range:	300-690°F / 149-366°C
Melting/Freezing Point:	No data
Solubility in Water:	Negligible
Partition Coefficient (n-octanol/water) (Kow):	No data
Specific Gravity:	0.81-0.88 @ 60°F (15.6°C)
Bulk Density:	7.08 lbs/gal
Percent Volatile:	Negligible @ ambient conditions
Evaporation Rate (nBuAc=1):	<1
Flash Point:	125-180°F / 52-82°C
Test Method:	Pensky-Martens Closed Cup (PMCC), ASTM D93, EPA 1010
LEL (vol % in air):	0.3
UEL (vol % in air):	10.0
Autoignition Temperature:	500°F / 260°C

10. STABILITY AND REACTIVITY

Stability: Stable under normal ambient and anticipated storage and handling conditions of temperature and pressure. Flammable liquid and vapor. Vapor can cause flash fire.

Conditions to Avoid: Avoid all possible sources of ignition (see Sections 5 and 7).

Materials to Avoid (Incompatible Materials): strong oxidants such as liquid chlorine, concentrated oxygen, sodium hypochlorite, calcium hypochlorite, etc..

Hazardous Decomposition Products: Combustion can yield carbon, nitrogen and sulfur oxides. The use of hydrocarbon fuel in an area without adequate ventilation may result in hazardous levels of combustion products (e.g., oxides of carbon, sulfur and nitrogen, benzene and other hydrocarbons) and/or dangerously low oxygen levels. Diesel engine exhaust contains hazardous combustion products and has been classified as a probable cancer hazard in humans.

Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

Chronic Data:

14. TRANSPORTATION INFORMATION

Shipping Description: Diesel fuel, Combustible liquid, NA1993, III
Non-Bulk Package Marking: Not Regulated *[49 CFR 173.150(f)(2)]*
Non-Bulk Package Labeling: Not Regulated *[49 CFR 173.150(f)(2)]*
Bulk Package/Placard Marking: Combustible/1993
Packaging - References: None; none; 49 CFR 173.241 *(Exceptions; Non-bulk; Bulk)*
Emergency Response Guide: 128
Note: ***May also be shipped as:*** Diesel fuel, Combustible liquid, UN1202, III
Bulk Package/Placard Marking would also be changed to: 1202

International Maritime Dangerous Goods (IMDG)

Shipping Description: ***Not regulated if flashpoint is >60° C closed-cup*** UN1202, Diesel fuel, 3, III , (FP° C), *where FP is the material's flash point in degrees C.*
Non-Bulk Package Marking: Diesel fuel, UN1202
Labels: Flammable liquid
Placards/Marking (Bulk): Flammable/1202
Packaging - Non-Bulk: P001, LP01
EMS: F-E, S-E
Note: ***May also replace*** Diesel fuel ***with*** Gas Oil ***or*** Heating Oil, light ***as the Shipping Name***

International Civil Aviation Org. / International Air Transport Assoc. (ICAO/IATA)

UN/ID #: ***Not regulated if flashpoint is >60° C cc*** UN1202
Proper Shipping Name: Diesel fuel
Hazard Class/Division: 3
Packing Group: III
Non-Bulk Package Marking: Diesel fuel, UN1202
Labels: Flammable liquid
ERG Code: 3L

	LTD. QTY	Passenger Aircraft	Cargo Aircraft Only
Packaging Instruction #:	Y309	309	310
Max. Net Qty. Per Package:	10 L	60 L	220 L

15. REGULATORY INFORMATION

CERCLA/SARA - Section 302 Extremely Hazardous Substances and TPQs (in pounds):
This material does not contain any chemicals subject to the reporting requirements of SARA 302 and 40 CFR 372.

CERCLA/SARA - Section 311/312 (Title III Hazard Categories)

Acute Health: Yes
Chronic Health: Yes
Fire Hazard: Yes
Pressure Hazard: No
Reactive Hazard: No

CERCLA/SARA - Section 313 and 40 CFR 372:
This material contains the following chemicals subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR 372:

Component	Concentration (wt %)	De minimis
Naphthalene	<1	0.1%

EPA (CERCLA) Reportable Quantity (in pounds):
EPA's Petroleum Exclusion applies to this material - (CERCLA 101(14)).

Haz Waste
MS 0070027543
Grenada Co.

Kevin B. Coker
SH&E Supervisor

Koppers Inc.
Utility Poles and Piling
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March 13, 2007

Mr. Azzam Abu-Mirshid
Mississippi Department of Environmental Quality
Timber and Wood Products Branch
Office of Pollution Control
P.O. Box 10385
Jackson, MS 39289-0385

CERTIFIED MAIL: 7002 0460 0003 7596 2519

Subject: Koppers Inc. – Grenada Plant
Incident Report No. 828975

Dear Mr. Abu-Mirshid:

At approximately 5:35 A.M. on Tuesday, March 13, 2007 a spill of pentachlorophenol treating solution occurred from a vent line of a process tank servicing the plant's wood treating system. The total quantity estimated to have spilled is estimated at 1,000 gallons. Of this total approximately 300 gallons extended beyond contained areas thus impacting a roadway adjacent to the West side of the treating plant. Containment and cleaning activities on the roadway commenced immediately after the incident occurred and were completed by 10:00 AM.

The root cause has been determined to be operator error. In short he failed to close the appropriate valves leading to the subject tank per procedure. Corrective actions include disciplining of the operator as well as drug testing, a review of standard operating procedures, and the installation of additional containments where the released material escaped. Should you have any questions please call.

Sincerely,

Kevin B. Coker
SH&E Supervisor

Enclosures

cc: Ms. Joyce Fankulewski, Koppers Inc.
Mr. George Frazier, LEPC Grenada

Haz Waste File
AI 8876
Koppers/Beazer
Grenada County

STATE OF MISSISSIPPI
HALEY BARBOUR
GOVERNOR
MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY
CHARLES H. CHISOLM, EXECUTIVE DIRECTOR

May 25, 2006

Mr. Thomas Henderson, Plant Manager
Koppers Industries, Inc.
PO Box 160
Tie Plant, MS 38960

FILE COPY

Dear Mr. Henderson:

Re: Koppers Industries, Inc.
1st 2006 Semiannual Groundwater Monitoring Report Review
Hazardous Waste Ref No. HW8854301
Grenada County

The Mississippi Department of Environmental Quality has completed a review of the aforementioned document dated May 4, 2006 and received in our office May 8, 2006. The Department has no further comments with regard to this submittal at this time based on the information presented in this document.

Please do not hesitate to contact me at 601-961-5526 with any concerns or comments with regards to this correspondence.

Sincerely,

Ross D. Williams, RPG
Environmental Permits Division

cc: Mr. Russ McLean, EPA Region IV, RCRA Programs Branch
Mr. Brad Shanks, PE, EPD-OPC-MDEQ

876 PER20000001

Kevin B. Coker
Plant Manager

KOPPERS

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Utility Poles and Piling
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Cokerkb@koppers.com
www.koppers.com

May 15, 2006

Mr. Azzam Abu-Mirshid, P.E.
Mississippi Department of Environmental Quality
Timber And Wood Products Branch - ECED
Office of Pollution Control
P.O. Box 10385
Jackson, Mississippi 39289-0385

CERTIFIED MAIL: 7002 0460 0003 7596 2205

Subject: Koppers Inc. Grenada Facility - Spill Notification

Dear Mr. Abu-Mirshid:

Per your request this document serves as written notification regarding the spills that occurred at our site on the evening of Wednesday, May 10, 2006. The NRC (Incident No. 796731), MEMA and the LEPC were also notified of this incident.

Last Wednesday sever thunderstorms moved though the area resulting in substantial rainfall at the site. In the process secondary containments captured the storm water. An inspection of the containment walls revealed seeps in three areas. These seeps have been repaired using an industrial strength caulk. A contractor is also being hired to inspect and reseal all questionable joints and seams in the plant's secondary containments.

It was also observed that storm water ran off of the pad at transition points resulting in the presences of a light sheen. The plant responded by laying absorbent booms along the flowing water running from the drip pad. The receiving outfall was inspected and the presence of sheen was not observed. The plant is currently investigation corrective actions to prevent the recurrence of this incident.

Should you have any questions or concerns please call.

Sincerely,

Kevin B. Coker

Kevin B. Coker
Plant Manager

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Utility Poles and Piling
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March 3, 2006

Mr. Azzam Abu-Mirshid, P.E.
Mississippi Department of Environmental Quality
Timber And Wood Products Branch - ECED
Office of Pollution Control
P.O. Box 10385
Jackson, Mississippi 39289-0385

CERTIFIED MAIL: 7000 0520 0021 7551 9200

Subject: Koppers Inc. Grenada Facility - Spill Notification

Dear Mr. Abu-Mirshid:

On Sunday, February 26, 2006 at approximately 2:50 AM a spill of pentachlorophenol occurred at the Koppers Inc. – Grenada Facility. The NRC (Incident No. 789199), MDEQ (Report No. EM2000-2264), and LEPC were notified of this incident.

The incident has been linked to operator error. Two separate in-line valves are positioned between each of the plant's cylinders and initial waste water receiving tanks. The first is an automatic valve representing the primary valve for releasing process water to the tanks. The second is a manual valve serving as a safety valve that is to be closed during the preservative pressure cycle of the treating process.

As pentachlorophenol preservative was being introduced into one of the plant's cylinders, the automatic valve servicing the cylinder is believed to have failed or have been blocked by debris. Incidentally, the operator also failed to close the safety valve. Consequently, the preservative filled the receiving waste water tank and escaped through a vent pipe to a nearby roof and gutter system. As the tank filled a high-level alarm sounded. The operator and the third shift crew responded by relieving the pressure to the system.

Preservative ran through the gutter system to the surrounding soil. The crew utilized sand to contain the flow of the preservative. It and the impacted soil were transferred to hazardous waste containers. The roof and gutter system have likewise been cleaned.

The shift operator on duty has been reprimanded. All other operators have been apprised of the incident and instructed to strictly follow appropriate operating procedures.

Should you have any questions or concerns please call.

Sincerely,

Kevin B. Coker

CC: Patrick Stark – KI CSG

FILE COPY

AI #8876
Koppers/Brazer East
Grenada County
Haz Waste Files

STATE OF MISSISSIPPI
HALEY BARBOUR
GOVERNOR
MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY
CHARLES H. CHISOLM, EXECUTIVE DIRECTOR

January 18, 2006

Mr. Thomas Henderson, Plant Manager
Koppers Industries, Inc.
PO Box 160
Tie Plant, MS 38960

Dear Mr. Henderson:

Re: Koppers Industries, Inc.
2nd 2005 Semiannual Groundwater Monitoring Report Review
Hazardous Waste Ref No. HW8854301
Grenada County

The Mississippi Department of Environmental Quality has completed a review of the aforementioned document dated December 22, 2005 and received in our office December 27, 2005. Based on the information presented in the document, the Department has no further comments with regard to this submittal at this time.

Please do not hesitate to contact me at 601-961-5526 with any concerns or comments with regards to this correspondence.

Sincerely,

Ross D. Williams, RPG
Environmental Permits Division

cc: Mr. Russ McLean, EPA Region IV, RCRA Programs Branch
Mr. Brad Shanks, PE, EPD-OPC-MDEQ

876 PER20000001

Kevin B. Coker
Plant Manager

Haz. Waste
MSD007027547
Grenada Co.

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August 15, 2005

Mr. Azzam Abu-Mirshid, P.E.
Mississippi Department of Environmental Quality
Timber And Wood Products Branch - ECED
Office of Pollution Control
P.O. Box 10385
Jackson, Mississippi 39289-0385

CERTIFIED MAIL: 7000 0520 0021 7551 9088

Subject: Koppers Inc. Grenada Facility - Spill Notification

Dear Mr. Abu-Mirshid:

Per your request this document serves as written notification regarding a spill that occurred at our site on the morning of Friday, August 12, 2005. The NRC (Incident No. 768824) and LEPC were also notified of this incident.

Lightening associated with a thunder storm around 8:32 AM damaged a transformer servicing the plant. As a result various portions of the plant lost power including three of the sump pumps servicing the drip pad. Consequently, stormwater ran off of the pad at two transition areas where product is transferred to and from production areas in the yard.

The incident was recognized during the storm event and plant personnel responded by blocking the flow from the pad using sand. The remaining stormwater on the pad was captured and subsequently transferred to containments for the waste water treatment system.

It is estimated that approximately 100 gallons of stormwater flowed off the pad. Sheen was observed on the stormwater and absorbent pads were used in an attempt to capture it. The area of the pad where the incident took place had been earlier cleaned and no treated product was stored on the pad at the time of the storm. An inspection of the receiving outfall revealed no presence of sheen.

Should you have any questions or concerns please call.

Sincerely,

Kevin B. Coker

Kevin B. Coker
Plant Manager

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August 9, 2005

Mr. Azzam Abu-Mirshid, P.E.
Mississippi Department of Environmental Quality
Timber And Wood Products Branch - ECED
Office of Pollution Control
P.O. Box 10385
Jackson, Mississippi 39289-0385

CERTIFIED MAIL: 7002 0460 0003 7596 1604

Subject: Koppers Inc. Grenada Facility - Spill Notification

Dear Mr. Abu-Mirshid:

Per your request this document serves as written notification regarding a spill that occurred at our site on the morning of Thursday, August 4, 2005. The NRC (Incident No. 767919) and LEPC were also notified of this incident.

At approximately 8:20 AM while attempting to load a hazardous waste roll-off box filled with KOO1 waste approximately 1.5 gallons of liquid leaked from the corner of a the rear door of the box. The roll-off box was placed back in containment. The liquid and impacted soil were cleaned and placed back in the container.

Corrective actions stemming from an investigation of the incident included the following:

- The rescheduling of the shipment of the roll-off box
- A representative from the vendor supplying the roll-off box visited the plant, repaired the subject door seal, and inspected the door seal on a second box staged at the site. He further made recommendations as to the type of seals that should be used on the boxes and made plans to ensure that future boxes would be fitted with the better seal.
- Plant procedures for handling these boxes will be changed to include the tilting of roll-off boxes prior to their being taken out of containment to ensure door seal integrity.

Should you have any questions or concerns please call.

Sincerely,

Kevin B. Coker

FILE COPY

STATE OF MISSISSIPPI
HALEY BARBOUR
GOVERNOR
MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY
CHARLES H. CHISOLM, EXECUTIVE DIRECTOR

August 9, 2005

Mr. Thomas Henderson, Plant Manager
Koppers Industries Inc
PO Box 160
Tie Plant, MS 38960

Dear Mr. Henderson:

Re: Koppers Industries, Inc.
1st 2005 Semiannual Groundwater Monitoring Report Review
Hazardous Waste Ref. No.HW8854301
Grenada County

The Mississippi Department of Environmental Quality has completed a review of the aforementioned document dated July 13, 2005 and received in our office on July 18, 2005. We have no further comments with regards to this submittal at this time.

Please do not hesitate to contact me at 601-961-5526 with any concerns or comments with regards to this correspondence.

Sincerely,

Ross D. Williams, RPG
Solid Waste and Mining Branch
Environmental Permits Division

cc: Mr. Russ McLean, EPA Region IV, RCRA Programs Branch
Mr. Brad Shanks, EPD-OPC-MDEQ

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OFFICE OF POLLUTION CONTROL
AN EQUAL OPPORTUNITY EMPLOYER

MM Rao

AI 876
Beazer East
Grenada County
MSD 007027543

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

JUL 28 2005

4WD-RPB

Mr. Michael W. Bollinger
Beazer East, Inc.
One Oxford Centre, Suite 3000
Pittsburgh, PA 15219

SUBJ: Annual Report on DNAPL Recovery and
Inspection of Sediment Cap and Ditch
Dated, April 28, 2005
Koppers Industries/Beazer East, Inc.
Tie Plant, Mississippi
EPA I.D. No. MSD 007 027 543

Dear Mr. Bollinger:

The U.S. Environmental Protection Agency (EPA) has reviewed the annual report on DNAPL recovery and inspection of Sediment Cap and Ditch, dated April 28, 2005 of Koppers/Beazer's, Tie Plant, Mississippi. This report was submitted in accordance with the EPA October 16, 2003 approval letter of the Interim Measures Documentation Report for SWMU 11. EPA noted that approximately 5,942 gallons of DNAPL has been recovered from the Central Ditch and the Impoundment Area since October 1999. The Inspection Checklist shows that the vegetative cover on the cap, cover integrity, surface water drainage and stability of the Impoundment and Central Ditch are in good condition. The next annual report is due in April 2006.

If you have any question(s), please contact Mr. Harbhajan Singh of my staff at (404) 562-8473.

Sincerely,

Jon D. Johnston

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

CC: Timothy Basilone, Koppers Industries/Pittsburgh
Jennifer Abrahams, HSI GeoTrans/Rancho Cordova
Jennifer Atkins, RETEC/Concord
Jerry Cain, MDEQ/Jackson

Migration of Contaminated Groundwater Under Control
Environmental Indicator (EI) RCRIS code (CA750)

6. Can the **discharge** of "contaminated" groundwater into surface water be shown to be "**currently acceptable**" (i.e., not cause impacts to surface water, sediments or eco-systems that should not be allowed to continue until a final remedy decision can be made and implemented[4])?

_____ If yes - continue after either: 1) identifying the Final Remedy decision incorporating these conditions, or other site-specific criteria (developed for the protection of the site's surface water, sediments, and eco-systems), and referencing supporting documentation demonstrating that these criteria are not exceeded by the discharging groundwater; OR
2) providing or referencing an interim-assessment,[5] appropriate to the potential for impact, that shows the discharge of groundwater contaminants into the surface water is (in the opinion of a trained specialists, including ecologist) adequately protective of receiving surface water, sediments, and eco-systems, until such time when a full assessment and final remedy decision can be made. Factors which should be considered in the interim-assessment (where appropriate to help identify the impact associated with discharging groundwater) include: surface water body size, flow, use/classification/habitats and contaminant loading limits, other sources of surface water/sediment contamination, surface water and sediment sample results and comparisons to available and appropriate surface water and sediment "levels," as well as any other factors, such as effects on ecological receptors (e.g., via bio-assays/benthic surveys or site-specific ecological Risk Assessments), that the overseeing regulatory agency would deem appropriate for making the EI determination.

_____ If no - (the discharge of "contaminated" groundwater can not be shown to be "**currently acceptable**") - skip to #8 and enter "NO" status code, after documenting the currently unacceptable impacts to the surface water body, sediments, and/or eco-systems.

_____ If unknown - skip to 8 and enter "IN" status code.

Rationale and Reference(s): _____

_____

_____

_____

_____

_____

_____

_____

_____

_____

4 Note, because areas of inflowing groundwater can be critical habitats (e.g., nurseries or thermal refugia) for many species, appropriate specialist (e.g., ecologist) should be included in management decisions that could eliminate these areas by significantly altering or reversing groundwater flow pathways near surface water bodies.

5 The understanding of the impacts of contaminated groundwater discharges into surface water bodies is a rapidly developing field and reviewers are encouraged to look to the latest guidance for the appropriate methods and scale of demonstration to be reasonably certain that discharges are not causing currently unacceptable impacts to the surface waters, sediments or eco-systems.

Migration of Contaminated Groundwater Under Control
Environmental Indicator (EI) RCRIS code (CA750)

7. Will groundwater **monitoring** / measurement data (and surface water/sediment/ecological data, as necessary) be collected in the future to verify that contaminated groundwater has remained within the horizontal (or vertical, as necessary) dimensions of the "existing area of contaminated groundwater?"

__X__ If yes - continue after providing or citing documentation for planned activities or future sampling/measurement events. Specifically identify the well/measurement locations which will be tested in the future to verify the expectation (identified in #3) that groundwater contamination will not be migrating horizontally (or vertically, as necessary) beyond the "existing area of groundwater contamination."

_____ If no - enter "NO" status code in #8.

_____ If unknown - enter "IN" status code in #8.

Rationale and Reference(s):

References

[1] Complete Phase II RCRA Facility Investigation Report, Grenada Facility, Grenada, Mississippi, Vol. 1, July 2003
[2] Interim Measures SWMU 11 Documentation Report, Koppers Beazer/Beazer East Facility, Tie Plant, Mississippi, September 2000

Rationale

The Complete Phase II RFI monitored natural attenuation (MNA) evaluation concluded that biodegradation plays a substantial role in the behavior of dissolved phase constituents at the Site. This evaluation also concluded that the current constituent distributions are likely to be at least stable, and possibly receding. Therefore, an MNA remedy is considered appropriate to address dissolved phase constituents at the Site. It is recommended that this remedy be implemented by establishing a Natural Attenuation Monitoring Plan (NAMP) that provides the following:

1. efficient and early detection of any future expansion in the extent of dissolved phase constituents;
2. confirmation of the ongoing effectiveness of dissolved phase constituent biodegradation; and
3. ongoing evaluation of the rate of source depletion.

This NAMP has been developed with consideration of the following components of the Complete Phase II RFI:

1. vertical constituent distributions;
2. lateral extent of constituents;
3. trends in constituent indicators parameters; and
4. potential for additional constituent migration

The NAMP will be implemented upon EPA approval of the Complete Phase II RFI.

Migration of Contaminated Groundwater Under Control
Environmental Indicator (EI) RCRIS code (CA750)

8. Check the appropriate RCRIS status codes for the Migration of Contaminated Groundwater Under Control EI (event code CA750), and obtain Supervisor (or appropriate Manager) signature and date on the EI determination below (attach appropriate supporting documentation as well as a map of the facility).

__X__ YE - Yes, "Migration of Contaminated Groundwater Under Control" has been verified. Based on a review of the information contained in this EI determination, it has been determined that the "Migration of Contaminated Groundwater" is "Under Control" at the **Koppers Industries/Beazer East Grenada Site** facility, **EPA ID # MSD 007 027 543** at **Grenada, Mississippi**. Specifically, this determination indicates that the migration of "contaminated" groundwater is under control, and that monitoring will be conducted to confirm that contaminated groundwater remains within the "existing area of contaminated groundwater" This determination will be re-evaluated when the Agency becomes aware of significant changes at the facility.

_____ NO - Unacceptable migration of contaminated groundwater is observed or expected.

_____ IN - More information is needed to make a determination.

Completed by (signature) _____ Date _____
(print) _____
(title) _____

Supervisor (signature) _____ Date _____
(print) _____
(title) _____
(EPA Region or State) _____

Locations where References may be found:

1) EPA Region IV Offices
2) MDEQ Offices
3) Koppers Facility
4) Beazer Offices

Contact telephone number and e-mail:

(name) _____
(phone #) _____
(e-mail) _____

Table 3-7 Groundwater Sampling Results, Selected 1991 Data

Koppers Industries, Inc., Grenada, MS
Complete Phase II RFI Report, July 2003

Sample Location	Date	Units	Penta-chlorophenol	Benzene	Total PAHs	pcPAHs	TOC
M-1	1/15/1991	µg/L			0.52	0.22	
M-1	4/9/1991	µg/L			0.31	0.08	
M-1	7/16/1991	µg/L			0.18	0	
M-1	11/21/1991	µg/L			0	0	
M-1	2/4/1992	µg/L			7.89	0.28	
M-1	5/5/1992	µg/L			7.92	0.28	
M-1	9/16/1992	µg/L			7.96	0.28	
M-1	10/13/1992	µg/L			8.25	0.38	
M-1	11/24/1992	µg/L			0	0	
M-1B	11/24/1992	µg/L			0.66	0	
M-2	1/15/1991	µg/L			3.1	0.34	
M-2	4/9/1991	µg/L			0	0.07	
M-2	7/16/1991	µg/L			3.05	0	
M-2	11/21/1991	µg/L			7.96	0	
M-2	2/4/1992	µg/L			7.88	0.28	
M-2	5/5/1992	µg/L			8.65	0.32	
M-2	9/16/1992	µg/L			7.95	0.55	
M-2	10/13/1992	µg/L				0.31	
M-2B	9/16/1992	µg/L			7.8	0.27	
M-3	1/15/1991	µg/L			1.43	0.27	
M-3	4/9/1991	µg/L			0.3	0.02	
M-3	7/16/1991	µg/L			0.24	0.05	
M-3	11/21/1991	µg/L			0	0	
M-3	2/4/1992	µg/L			7.55	0.26	
M-3	5/5/1992	µg/L			7.87	0.29	
M-3	9/16/1992	µg/L			7.9	0.29	
M-3	10/13/1992	µg/L			7.85	0.27	
M-4	1/15/1991	µg/L			1.84	0.54	
M-4	4/9/1991	µg/L			2.59	0.16	
M-4	7/16/1991	µg/L			0.28	0.06	
M-4	11/21/1991	µg/L			2.35	0	
M-4	2/4/1992	µg/L			7.69	0.28	
M-4	5/5/1992	µg/L			8.55	0.33	
M-4	9/16/1992	µg/L			7.63	0.32	
M-4	10/13/1992	µg/L			6.88	0.27	
M-5	8/1/1991	µg/L			5.017	1.81	
M-5	9/16/1992	µg/L			8.95	0.99	
M-5B	8/1/1991	µg/L	ND(20.0)	ND(0.5)	0.2067	0.017	ND(4000.0)
M-5B	9/16/1992	µg/L	ND(20.0)	ND(0.5)	7.99	0.31	ND(4000.0)
M-6	9/16/1992	µg/L			8.12	0.41	
M-6B	9/16/1992	µg/L			7.9	0.31	
M-7	9/16/1992	µg/L			7.96	0.28	
M-7B	9/16/1992	µg/L			7.96	0.28	
M-8	9/16/1992	µg/L			7.86	0.26	
M-8B	9/16/1992	µg/L			7.96	0.28	
PW-1	8/6/1991	µg/L	ND(20.0)	ND(0.5)	12.419	3.38	ND(4000.0)

Table 3-7 Groundwater Sampling Results, Selected 1991 Data

Koppers Industries, Inc., Grenada, MS
Complete Phase II RFI Report, July 2003

Sample Location	Date	Units	Penta-chlorophenol	Benzene	Total PAHs	pcPAHs	TOC
R-10	1/15/1991	µg/L			1.35	0.47	
R-10	4/9/1991	µg/L			0.04	0.04	
R-10	7/16/1991	µg/L			0.11	0.11	
R-10	2/5/1992	µg/L			7.95	0.27	
R-12	8/2/1991	µg/L	ND(200.0)	ND(100.0)	2900.075	2.675	45000.0
R-12B	8/2/1991	µg/L	ND(2000.0)	480.0	6860.482	0.022	95000.0
R-12C	8/2/1991	µg/L	ND(20.0)	ND(0.5)	445.717	0.867	ND(4000.0)
R-13	8/2/1991	µg/L	ND(20.0)	35.0	218.496	3.62	17000.0
R-16	8/2/1991	µg/L	5300.0	180.0	9941.8	293	24000.0
R-16B	8/2/1991	µg/L	ND(2000.0)	510.0	6370.8	27.8	110000.0
R-17	8/2/1991	µg/L	172.0	23.0	14802.1	357	11000.0
R-19	8/1/1991	µg/L	3100.0	5.0	3792.494	6.06	23000.0
R-19B	8/1/1991	µg/L	41.0	54.0	1347.7008	0.0208	7000.0
R-1R	1/15/1991	µg/L			1.7	0.66	
R-1R	4/9/1991	µg/L			0.84	0.06	
R-1R	7/16/1991	µg/L			0.06	0.06	
R-1R	2/5/1992	µg/L			7.96	0.28	
R-20	8/6/1991	µg/L	ND(2000.0)	190.0	16173.1	302	74000.0
R-20B	8/6/1991	µg/L	ND(200.0)	ND(100.0)	15276.5	332	22000.0
R-21	8/6/1991	µg/L	ND(2000.0)	ND(0.5)	8985.046	6.24	170000.0
R-21B	8/6/1991	µg/L	ND(20.0)	350.0	313.954	1.61	
R-22	8/1/1991	µg/L	ND(20.0)	ND(0.5)	759.7526	0.008	ND(4000.0)
R-23	8/6/1991	µg/L	ND(2000.0)	ND(100.0)	54.736	4.87	100000.0
R-23B	8/6/1991	µg/L	ND(200.0)	75.0	1699.31	14.85	14000.0
R-24	8/14/1991	µg/L	ND(20.0)	ND(0.5)	60.764	4.45	ND(4000.0)
R-25	8/14/1991	µg/L	ND(20.0)	ND(5.0)	126771	6570	18000.0
R-25B	8/1/1991	µg/L	ND(20.0)	ND(0.5)	61.7418	1.094	ND(4000.0)
R-26	8/14/1991	µg/L	ND(20.0)	ND(0.5)	6.627	2.97	6000.0
R-28	8/14/1991	µg/L			83.34	0	
R-28R	8/1/1991	µg/L				1.1	
R-29R	8/1/1991	µg/L				0.0144	
R-32	8/14/1991	µg/L	ND(20.0)	ND(0.5)	2.765	1.094	ND(4000.0)
R-33	8/14/1991	µg/L	220.0	8.4	369.9	0	11000.0
R-34	8/14/1991	µg/L	ND(20.0)	ND(0.5)	4.5	2.39	6000.0
R-35	8/2/1991	µg/L	ND(20.0)	ND(0.5)	94.6	18.2	ND(4000.0)
R-36	8/2/1991	µg/L	ND(20000.0)	860.0	14879.5	343.4	400000.0
R-37	3/19/1992	µg/L				0	
R-38	3/19/1992	µg/L				0	
R-38B	3/19/1992	µg/L				0	
R-39B	3/19/1992	µg/L				0	
R-39C	3/19/1992	µg/L				0	
R-41	8/14/1991	µg/L	ND(20.0)	ND(0.5)	0.061	0	4000.0
R-42	8/14/1991	µg/L	ND(20.0)	ND(0.5)	0.0743	0.0293	6000.0
R-43	8/1/1991	µg/L	ND(20.0)	ND(0.5)	228.77	36.2	ND(4000.0)
R-43	9/16/1992	µg/L			21.3	3.65	
R-44	8/1/1991	µg/L	47.0	ND(0.5)	2.503	0.918	ND(4000.0)

Table 3-7 Groundwater Sampling Results, Selected 1991 Data

Koppers Industries, Inc., Grenada, MS
Complete Phase II RFI Report, July 2003

Sample Location	Date	Units	Penta-chlorophenol	Benzene	Total PAHs	pcPAHs	TOC
R-44	9/16/1992	µg/L			12.8	3.3	
R-45	8/2/1991	µg/L	ND(20.0)	ND(0.5)	1.868	0.774	ND(4000.0)
R-7	1/15/1991	µg/L			1.4	0.48	
R-7	4/9/1991	µg/L			0.03	0.03	
R-7	7/16/1991	µg/L			0.05	0.05	
R-7	2/6/1992	µg/L			7.87	0.28	
R-7	9/15/1992	µg/L			7.95	0.27	
R-8	1/15/1991	µg/L			1.46	0.55	
R-8	4/9/1991	µg/L			0	0	
R-8	7/16/1991	µg/L			0.05	0.05	
R-8	2/6/1992	µg/L			7.96	0.28	
R-8	9/15/1992	µg/L			7.96	0.28	
R-8B	1/15/1991	µg/L			1.41	0.52	
R-8B	4/9/1991	µg/L			2.92	0.06	
R-8B	7/16/1991	µg/L			0.15	0.05	
R-8B	2/6/1992	µg/L			9.06	0.28	
R-8B	9/15/1992	µg/L			7.85	0.27	
R-9	1/15/1991	µg/L			1.48	0.58	
R-9	4/9/1991	µg/L			0.26	0.03	
R-9	7/16/1991	µg/L			0	0	
R-9	2/5/1992	µg/L			7.9	0.32	
R-9	9/15/1992	µg/L			7.96	0.28	
R-9C	1/16/1991	µg/L			1.29	0.49	
R-9C	4/10/1991	µg/L			0.14	0.08	
R-9C	7/17/1991	µg/L			0.05	0.05	
R-9C	2/5/1992	µg/L			7.96	0.28	
R-9C	9/15/1992	µg/L			7.96	0.28	
R-9D	1/16/1991	µg/L			1.32	0.5	
R-9D	4/10/1991	µg/L			0	0	
R-9D	7/17/1991	µg/L			0	0	
R-9D	2/5/1992	µg/L			7.95	0.27	
R-9D	9/15/1992	µg/L			7.96	0.28	
SF-1	10/11/1991	µg/L			0	0	
SF-1	1/23/1992	µg/L			0	0	
SF-1	7/29/1992	µg/L			0	0	
SF-2	10/11/1991	µg/L			0	0	
SF-2	1/23/1992	µg/L			0	0	
SF-2	7/29/1992	µg/L			0	0	
SF-3	10/11/1991	µg/L			0	0	
SF-3	1/23/1992	µg/L			0	0	
SF-3	7/29/1992	µg/L			0	0	
SF-4	10/11/1991	µg/L			0	0	
SF-4	1/23/1992	µg/L			0	0	
SF-4	7/29/1992	µg/L			0	0	

Table 3-13 Horizontal and Vertical Definition Groundwater Sampling Results

Koppers Industries, Inc., Grenada, MS
Complete Phase II RFI Report, July 2003

Parameter	Units	Well / Sample ID / Date	M-6 KGGWM6A 5/20/1997	M-6B KGGWM6B 5/20/1997	M-7 KGGWM7A 5/20/1997	M-7B KGGWM7B 5/20/1997	M-8 KGGWM8A 5/20/1997	M-8B KGGWM8B 5/20/1997	R-5 KGGWR5 6/28/2000	R-5B KGGWR5B 6/28/2000	R-7 R-7 2/17/1999
Pentachlorophenol	µg/L		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	10	16	< 2.0
BTEX											
Benzene	µg/L		< 2	< 2	< 2	< 2	< 2	< 2	10	90	< 5.0
Ethylbenzene	µg/L		< 3	< 3	< 3	< 3	< 3	< 3	8	82	< 5.0
Toluene	µg/L		< 3	< 3	< 3	< 3	< 3	< 3	4	95	< 5.0
Total Xylenes	µg/L		< 3	< 3	< 3	< 3	< 3	< 3	9	190	< 5.0
PAHs											
Acenaphthene	µg/L		< 10	< 10	< 10	< 10	< 10	< 10	92	270	< 2.0
Acenaphthylene	µg/L		< 10	< 10	< 10	< 10	< 10	< 10	1.9	9	< 2.0
Anthracene	µg/L		< 10	< 10	< 10	< 10	< 10	< 10	6	5	< 0.1
Benzo(a)anthracene	µg/L		< 10	< 10	< 10	< 10	< 10	< 10	0.4	< 1.0	< 0.02
Benzo(a)pyrene	µg/L		< 10	< 10	< 10	< 10	< 10	< 10	0.1	< 1.0	< 0.02
Benzo(b)fluoranthene	µg/L		< 10	< 10	< 10	< 10	< 10	< 10	0.1	< 1.0	< 0.02
Benzo(g,h,i)perylene	µg/L		< 10	< 10	< 10	< 10	< 10	< 10	< 0.1	< 1.0	< 0.05
Benzo(k)fluoranthene	µg/L		< 10	< 10	< 10	< 10	< 10	< 10	0.2	< 1.0	< 0.02
Chrysene	µg/L		< 10	< 10	< 10	< 10	< 10	< 10	0.5	< 1.0	< 0.15
Dibenz(a,h)anthracene	µg/L		< 10	< 10	< 10	< 10	< 10	< 10	< 0.1	< 1.0	< 0.03
Fluoranthene	µg/L		< 10	< 10	< 10	< 10	< 10	< 10	7.8	2	< 0.2
Fluorene	µg/L		< 10	< 10	< 10	< 10	< 10	< 10	28	98	< 0.2
Indeno(1,2,3-cd)pyrene	µg/L		< 10	< 10	< 10	< 10	< 10	< 10	< 0.1	< 1.0	< 0.05
Naphthalene	µg/L		< 10	< 10	< 10	< 10	< 10	< 10	440	10000	< 2.0
Phenanthrene	µg/L		< 10	< 10	< 10	< 10	< 10	< 10	33	24	< 0.5
Pyrene	µg/L		< 10	< 10	< 10	< 10	< 10	< 10	4.4	1.0	< 0.2
Total PAHs	µg/L		ND	ND	ND	ND	ND	ND	614.4	10409	ND
Total Potentially Carcinogenic PAHs	µg/L		ND	ND	ND	ND	ND	ND	1.3	ND	ND
Field Parameters											
Temperature	°C		18.6	18.7	17.9	19.0	17.8	18.5	20	20.2	
pH			5.73	6.40	5.5	6.61	6.15	6.40	6.6	6.79	
Eh	mV		100	32.0	165	27.5	35	7.5	-73	-110	
Specific Conductivity	µS/cm		190	183.6	174.4	208	206	184.8	400	930	
Dissolved Oxygen (DO)	mg/L		2.2	0.95	5.0	0.9	2.5	1.2	6.7	4.02	

Notes
< = Constituent below reporting limit
J = Estimated result
ND = Analyzed for, but not detected
1 = BTEX samples collected in June, 2000

Table 3-13 Horizontal and Vertical Definition Groundwater Sampling Results

Koppers Industries, Inc., Grenada, MS
Complete Phase II RFI Report, July 2003

Parameter	Well / Sample ID / Units / Date	R-8 KGGWR8 8/28/2000	R-8B KGGWR8B 8/28/2000	Duplicate R-8B KGGWR91 6/1/1997	R-9 R-9 2/17/1999	R-9C R-9C 2/17/1999	R-9D R-9C 2/17/1999	R-10 KGGWR10 8/26/2000	R-10B KGGWR10B 8/26/2000
Pentachlorophenol	µg/L	< 0.5	< 0.5	0.54	< 2.0	< 2.0	< 2.0	< 0.5	< 0.5
BTEX									
Benzene	µg/L	< 0.5 [1]	< 0.5 [1]	< 2	< 5.0	< 5.0	< 5.0	< 0.5 [1]	< 0.5 [1]
Ethylbenzene	µg/L	< 1.0 [1]	< 1.0 [1]	< 3	< 5.0	< 5.0	< 5.0	< 1.0 [1]	< 1.0 [1]
Toluene	µg/L	< 1.0 [1]	< 1.0 [1]	< 3	< 5.0	< 5.0	< 5.0	< 1.0 [1]	< 1.0 [1]
Total Xylenes	µg/L	< 1.0 [1]	< 1.0 [1]	< 3	< 5.0	< 5.0	< 5.0	3.8	< 1.0 [1]
PAHs									
Acenaphthene	µg/L	< 0.1	< 0.1	< 10	< 2.0	< 2.0	< 2.0	< 0.1	< 0.1
Acenaphthylene	µg/L	< 0.1	< 0.1	< 10	< 2.0	< 2.0	< 2.0	< 0.1	< 0.1
Anthracene	µg/L	< 0.1	0.1	< 10	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(a)anthracene	µg/L	< 0.1	< 0.1	< 10	< 0.02	< 0.02	< 0.02	< 0.1	< 0.1
Benzo(a)pyrene	µg/L	< 0.1	< 0.1	< 10	< 0.02	< 0.02	< 0.02	< 0.1	< 0.1
Benzo(b)fluoranthene	µg/L	< 0.1	< 0.1	< 10	< 0.02	< 0.02	< 0.02	< 0.1	< 0.1
Benzo(g,h,i)perylene	µg/L	< 0.1	< 0.1	< 10	< 0.05	< 0.05	< 0.05	< 0.1	< 0.1
Benzo(k)fluoranthene	µg/L	< 0.1	< 0.1	< 10	< 0.02	< 0.02	< 0.02	< 0.1	< 0.1
Chrysene	µg/L	< 0.1	< 0.1	< 10	< 0.15	< 0.15	< 0.15	< 0.1	< 0.1
Dibenz(a,h)anthracene	µg/L	< 0.1	< 0.1	< 10	< 0.03	< 0.03	< 0.03	< 0.1	< 0.1
Fluoranthene	µg/L	< 0.1	< 0.1	< 10	< 0.2	< 0.2	< 0.2	< 0.1	< 0.1
Fluorene	µg/L	< 0.1	< 0.1	< 10	< 0.2	< 0.2	< 0.2	< 0.1	< 0.1
Indeno(1,2,3-cd)pyrene	µg/L	< 0.1	< 0.1	< 10	< 0.05	< 0.05	< 0.05	< 0.1	< 0.1
Naphthalene	µg/L	0.6	< 0.1	< 10	< 2.0	< 2.0	< 2.0	< 0.1	0.1
Phenanthrene	µg/L	< 0.1	< 0.1	< 10	< 0.5	< 0.5	< 0.5	< 0.1	< 0.1
Pyrene	µg/L	< 0.1	< 0.1	< 10	< 0.2	< 0.2	< 0.2	< 0.1	< 0.1
Total PAHs	µg/L	0.6	0.1	ND	ND	ND	ND	ND	0.1
Total Potentially Carcinogenic PAHs	µg/L	ND	ND	ND	ND	ND	ND	ND	ND
Field Parameters									
Temperature	°C	21.7	17.9					20.9	19.5
pH		5.7	5.78					6.21	6.62
Eh	mV	221	224.0					229	47
Specific Conductivity	µS/cm	694	363					259	233
Dissolved Oxygen (DO)	mg/L	8.86	0.49					8	7.93

Notes
< = Constituent below reporting limit
J = Estimated result
ND = Analyzed for, but not detected
1 = BTEX samples collected in June, 2000

Table 3-13 Horizontal and Vertical Definition Groundwater Sampling Results

Koppers Industries, Inc., Grenada, MS
Complete Phase II RFI Report, July 2003

Parameter	Units	Well / Sample ID / Date	Duplicate R-10B KGGWR10B 8/30/2000	R-12 KGGWR12 6/1/1997	R-12B KGGWR12B 6/1/1997	R-12C KGGWR12C 6/29/2000	Duplicate R-12C KGGWR93 6/2/1997	R-16B KGGWR16B 6/28/2000	R-17 KGGWR17 6/29/2000	R-19 KGGWR19 5/31/1997
Pentachlorophenol	µg/L		< 0.5	650	16	< 250	< 0.5	380	2.6	0.69
BTEX										
Benzene	µg/L			53	460	140	15	550	12	2.3
Ethylbenzene	µg/L			76	490	210	19	370	8	5.2
Toluene	µg/L			41	750	340	< 3	650	6	4.7
Total Xylenes	µg/L			75	730	700	49	880	27	12
PAHs										
Acenaphthene	µg/L		0.1	120 J	340	21000	63	330	90	330 J
Acenaphthylene	µg/L		< 0.1	< 10	< 100	1000	< 10	28	3.7	< 10
Anthracene	µg/L		< 0.1	< 10	< 100	5200	< 10	18	14	< 10
Benzo(a)anthracene	µg/L		< 0.1	< 10	< 100	3200	< 10	< 1.0	2.3	< 10
Benzo(a)pyrene	µg/L		< 0.1	< 10	< 100	1000	< 10	< 1.0	0.6	< 10
Benzo(b)fluoranthene	µg/L		0.1	< 10	< 100	1100	< 10	< 1.0	0.6	< 10
Benzo(g,h,i)perylene	µg/L		< 0.1	< 10	< 100	310	< 10	< 1.0	0.2	< 10
Benzo(k)fluoranthene	µg/L		< 0.1	< 10	< 100	1000	< 10	< 1.0	0.5	< 10
Chrysene	µg/L		0.1	< 10	< 100	2800	< 10	< 1.0	1.8	< 10
Dibenz(a,h)anthracene	µg/L		< 0.1	< 10	< 100	110	< 10	< 1.0	< 0.1	< 10
Fluoranthene	µg/L		0.3	4 J	< 100	19000	< 10	10	25	16
Fluorene	µg/L		0.1	88 J	130	19000	24	160	100	160 J
Indeno(1,2,3-cd)pyrene	µg/L		< 0.1	< 10	< 100	410	< 10	< 1.0	0.2	< 10
Naphthalene	µg/L		0.4	1900	9800	110000	1900	14000	680	2500
Phenanthrene	µg/L		0.2	39	47 J	48000	2 J	97	110	74
Pyrene	µg/L		0.2	2 J	< 100	12000	< 10	< 1.0	15	8 J
Total PAHs	µg/L		1.5	2153	10317	245130	1989	14643	1043.9	3088
Total Potentially Carcinogenic PAHs	µg/L		0.2	ND	ND	9620	ND	ND	6.0	ND
Field Parameters										
Temperature	°C			17.1	18.5	18		18.6	19.1	19.2
pH				6.26	6.52	6.4		6.44	5.68	6.48
Eh	mV			-112	-126.7	-146		-84	-7	-240
Specific Conductivity	µS/cm			723	610	231		942	920	719
Dissolved Oxygen (DO)	mg/L			0.48	0.30	2.5		2.87	6.28	0.5

Notes
< = Constituent below reporting limit
J = Estimated result
ND = Analyzed for, but not detected
1 = BTEX samples collected in June, 2000

Table 3-13 Horizontal and Vertical Definition Groundwater Sampling Results

Koppers Industries, Inc., Grenada, MS
Complete Phase II RFI Report, July 2003

Parameter	Units	Well / Sample ID / Date	R-19B KGGWR19B 5/31/1997	R-20B KGGWR20B 6/29/2000	R-21 KGGWR21 6/29/2000	R-21B KGGWR21B 6/29/2000	R-25B KGGWR25B 8/26/2000	R-38 KGGWR38 6/27/2000	R-38B KGGWR38B 6/29/2000	R-39B KGGWR39B 5/14/1997	R-39C KGGWR39C 5/14/1997
Pentachlorophenol	µg/L		< 0.5	57	2100	29	0.6	3.3	3.1	< 0.5	< 0.5
BTEX											
Benzene	µg/L		54	69	240	1.3	< 0.5 [1]	1.9	59	3.3	< 2
Ethylbenzene	µg/L		3.3	86	190	7	< 1.0 [1]	4.5	1	< 3	< 3
Toluene	µg/L		< 3	64	250	8	< 1.0 [1]	2.9	< 1	< 3	< 3
Total Xylenes	µg/L		11	220	410	31	< 1.0 [1]	13	31	< 3	< 3
PAHs											
Acenaphthene	µg/L		29	3000	900	120	14	27	50	< 10	< 10
Acenaphthylene	µg/L		< 10	120	39	5	0.3	1.3	0.4	< 10	< 10
Anthracene	µg/L		< 10	990	140	12	0.5	3.1	1.2	< 10	< 10
Benzo(a)anthracene	µg/L		< 10	330	57	2.5	0.8	0.8	0.2	< 10	< 10
Benzo(a)pyrene	µg/L		< 10	110	20	0.9	0.5	0.2	< 0.1	< 10	< 10
Benzo(b)fluoranthene	µg/L		< 10	110	23	0.8	1.9	0.2	< 0.1	< 10	< 10
Benzo(g,h,i)perylene	µg/L		< 10	37	7	0.3	0.6	< 0.1	< 0.1	< 10	< 10
Benzo(k)fluoranthene	µg/L		< 10	100	19	1	0.6	0.2	< 0.1	< 10	< 10
Chrysene	µg/L		< 10	300	52	2.4	1	0.7	0.2	< 10	< 10
Dibenz(a,h)anthracene	µg/L		< 10	10	3	< 0.1	0.1	< 0.1	< 0.1	< 10	< 10
Fluoranthene	µg/L		< 10	2300	310	22	4.5	6.7	2	< 10	< 10
Fluorene	µg/L		7 J	2700	580	76	4.4	16	7	< 10	< 10
Indeno(1,2,3-cd)pyrene	µg/L		< 10	45	9	0.3	0.8	< 0.1	< 0.1	< 10	< 10
Naphthalene	µg/L		1700	19000	15000	1200	0.5	240	540	19	< 10
Phenanthrene	µg/L		< 10	6700	1100	110	0.3	24	10	< 10	< 10
Pyrene	µg/L		< 10	1400	200	12	3.7	4	1.3	< 10	< 10
Total PAHs	µg/L		1736	37252	18459	1565.2	34.5	324.2	612.3	19	ND
Total Potentially Carcinogenic PAHs	µg/L		ND	1005	183	8.2	5.7	2.1	0.4	ND	ND
Field Parameters											
Temperature	°C		21.1	21.4	20.8	21.3	20.4	17.3	17.9	18.7	19.4
pH			6.24	6.69	6.64	10.79	6.19	5.95	6.68	6.61	3.87
Eh	mV		14	-154	-81	-172	-26	42	-78	-70.3	8.0
Specific Conductivity	µS/cm		1002	900	990	378	316	624.0	597	571	432
Dissolved Oxygen (DO)	mg/L		0.4	3.89	4.98	7.01	2.02	3.75	2.77	1.0	0.8

Notes
< = Constituent below reporting limit
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Table 3-13 Horizontal and Vertical Definition Groundwater Sampling Results

Koppers Industries, Inc., Grenada, MS
Complete Phase II RFI Report, July 2003

Parameter	Units	Well / Sample ID / Date	R96-12 KGGWR9612 6/27/2000	R96-16 KGGWR9616 8/30/2000	R96-17 KGGWR9617 8/30/2000	R96-18 KGGWR9618 6/2/1997	R97-1A KGGWR97-1A 6/10/1997	R97-1B KGGWR97-1B 6/10/1997	Field Blank KGGWR90 5/20/1997	Field Blank KGGWR92 6/1/1997
Pentachlorophenol	µg/L		33	< 0.5	< 0.5	1.1	< 0.5	< 0.5	< 0.5	< 0.5
BTEX										
Benzene	µg/L		190	< 0.5 [1]	< 0.5 [1]	203	< 2	< 2	< 2	< 2
Ethylbenzene	µg/L		210	< 1.0 [1]	< 1.0 [1]	113	< 3	< 3	< 3	< 3
Toluene	µg/L		100	< 1.0 [1]	< 1.0 [1]	200	< 3	< 3	< 3	< 3
Total Xylenes	µg/L		380	< 1.0 [1]	< 1.0 [1]	193	< 3	< 3	< 3	< 3
PAHs										
Acenaphthene	µg/L		670	< 0.1	< 0.1	27	< 10	< 10	< 10	< 10
Acenaphthylene	µg/L		34	< 0.1	< 0.1	1 J	< 10	< 10	< 10	< 10
Anthracene	µg/L		110	< 0.1	< 0.1	< 10	< 10	< 10	< 10	< 10
Benzo(a)anthracene	µg/L		49	< 0.1	< 0.1	< 10	< 10	< 10	< 10	< 10
Benzo(a)pyrene	µg/L		20	< 0.1	< 0.1	< 10	< 10	< 10	< 10	< 10
Benzo(b)fluoranthene	µg/L		13	< 0.1	< 0.1	< 10	< 10	< 10	< 10	< 10
Benzo(g,h,i)perylene	µg/L		6	< 0.1	< 0.1	< 10	< 10	< 10	< 10	< 10
Benzo(k)fluoranthene	µg/L		26	< 0.1	< 0.1	< 10	< 10	< 10	< 10	< 10
Chrysene	µg/L		47	< 0.1	< 0.1	< 10	< 10	< 10	< 10	< 10
Dibenz(a,h)anthracene	µg/L		3	< 0.1	< 0.1	< 10	< 10	< 10	< 10	< 10
Fluoranthene	µg/L		260	0.2	0.2	< 10	< 10	< 10	< 10	< 10
Fluorene	µg/L		440	< 0.1	< 0.1	8 J	< 10	< 10	< 10	< 10
Indeno(1,2,3-cd)pyrene	µg/L		7	< 0.1	< 0.1	< 10	< 10	< 10	< 10	< 10
Naphthalene	µg/L		9300	0.2	< 0.1	2 J	< 10	< 10	< 10	< 10
Phenanthrene	µg/L		830	< 0.1	< 0.1	< 10	< 10	< 10	< 10	< 10
Pyrene	µg/L		160	0.1	< 0.1	< 10	< 10	< 10	< 10	< 10
Total PAHs	µg/L		11975	0.5	0.2	38	ND	ND	ND	ND
Total Potentially Carcinogenic PAHs	µg/L		165	ND	ND	ND	ND	ND	ND	ND
Field Parameters										
Temperature	°C		19.9	23.4	18.8	19.0	18.2	19.2		
pH			6.28	5.39	5.38	6.32	6.99	6.36		
Eh	mV		-42	248	244	-1.0				
Specific Conductivity	µS/cm		770	177	173	232	436	393		
Dissolved Oxygen (DO)	mg/L		2.56	3.18	1.03	0.20				

Notes
< = Constituent below reporting limit
J = Estimated result
ND = Analyzed for, but not detected
1 = BTEX samples collected in June, 2000

Table 3-14 Plume Definition Groundwater Sampling Results

Koppers Industries, Inc., Grenada, MS
Complete Phase II RFI Report, July 2003

Geoprobe/Drilling Location		GW-1	GW-1	GW-2	GW-2	GW-3	GW-3	GW-4	GW-4	GW-5
Sample ID		GPGW-1A	GPGW-1B	GPGW-2A	GPGW-2B	GPGW-3A	GPGW-3B	KGGP4A	KGGP4B	GPGW-5A
Depth (ft)		20	42	18	44	20	44	20	46	20
Parameter	Units Date	5/31/1997	5/31/1997	6/4/1997	6/4/1997	6/5/1997	6/5/1997	5/21/1997	5/21/1997	5/30/1997
Pentachlorophenol										
Laboratory Results	µg/L	< 0.5				< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Field Results (RISc Kit)	µg/L	[x] < 5	[x] > 5	5 < [x] < 50	5 < [x] < 50	[x] < 5	5 < [x] < 50	[x] < 5	[x] < 5	[x] < 5
PAH										
Field Results, Naphthalene	mg/L									
Field Results, Total PAH	mg/L									
BTEX										
Benzene	µg/L	< 2				5	< 2	< 2	< 2	< 2
Ethylbenzene	µg/L	< 3				< 3	< 3	< 3	< 3	< 3
Toluene	µg/L	< 3				< 3	< 3	< 3	< 3	< 3
Total Xylenes	µg/L	< 3				< 3	< 3	< 3	< 3	< 3
PAHs										
Acenaphthene	µg/L	< 10				< 10	< 10	< 10	< 10	< 10
Acenaphthylene	µg/L	< 10				< 10	< 10	< 10	< 10	< 10
Anthracene	µg/L	< 10				< 10	< 10	< 10	< 10	< 10
Benzo(a)anthracene	µg/L	< 10				< 10	< 10	< 10	< 10	< 10
Benzo(a)pyrene	µg/L	< 10				< 10	< 10	< 10	< 10	< 10
Benzo(b)fluoranthene	µg/L	< 10				< 10	< 10	< 10	< 10	< 10
Benzo(g,h,i)perylene	µg/L	< 10				< 10	< 10	< 10	< 10	< 10
Benzo(k)fluoranthene	µg/L	< 10				< 10	< 10	< 10	< 10	< 10
Chrysene	µg/L	< 10				< 10	< 10	< 10	< 10	< 10
Dibenz(a,h)anthracene	µg/L	< 10				< 10	< 10	< 10	< 10	< 10
Fluoranthene	µg/L	< 10				< 10	< 10	< 10	< 10	< 10
Fluorene	µg/L	< 10				< 10	< 10	< 10	< 10	< 10
Indeno(1,2,3-cd)pyrene	µg/L	< 10				< 10	< 10	< 10	< 10	< 10
Naphthalene	µg/L	< 10				< 10	< 10	< 10	< 10	< 10
Phenanthrene	µg/L	< 10				< 10	< 10	< 10	< 10	< 10
Pyrene	µg/L	< 10				< 10	< 10	< 10	< 10	< 10
Total PAHs	µg/L	ND				ND	ND	ND	ND	ND
Total Potentially Carcinogenic PAHs	µg/L	ND				ND	ND	ND	ND	ND

Notes
< = constituent below reporting limit
J = Estimated result
ND = Analyzed for, but not detected

Table 3-14 Plume Definition Groundwater Sampling Results

Koppers Industries, Inc., Grenada, MS
Complete Phase II RFI Report, July 2003

Geoprobe/Drilling Location		GW-5	GW-6	GW-6	GW-7	GW-7	LSZ-1	LSZ-1	LSZ-1
Sample ID		GPGW-5B	GPGW-6A	GPGW-6B	GPGW-7A	GPGW-7B	LSZ-1-27	LSZ-1-76	LSZ-1-116
Depth (ft)		35	20	38	20	45	27	76	116
Parameter	Units Date	5/30/1997	5/29/1997	5/29/1997	6/6/1997	6/6/1997	07/26/00	07/27/00	07/28/00
Pentachlorophenol									
Laboratory Results	µg/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Field Results (RISc Kit)	µg/L	[x] < 5	[x] < 5	[x] < 5					
PAH									
Field Results, Naphthalene	mg/L						0.046		0.003
Field Results, Total PAH	mg/L						0.114		0.009
BTEX									
Benzene	µg/L	< 2	< 2	< 2	37	34	< 0.5	0.52	< 0.5
Ethylbenzene	µg/L	< 3	< 3	< 3	< 3	< 3	< 1	< 1	< 1
Toluene	µg/L	< 3	< 3	< 3	< 3	< 3	< 1	1.9	< 1
Total Xylenes	µg/L	< 3	< 3	< 3	8	14	< 1	< 1	< 1
PAHs									
Acenaphthene	µg/L	< 10	< 10	< 10	24	37 J	< 0.1	35	< 0.1
Acenaphthylene	µg/L	< 10	< 10	< 10	< 10	< 200	< 0.1	< 0.1	< 0.1
Anthracene	µg/L	< 10	< 10	< 10	< 10	< 200	< 0.1	< 0.1	< 0.1
Benzo(a)anthracene	µg/L	< 10	< 10	< 10	< 10	< 200	< 0.1	< 0.1	< 0.1
Benzo(a)pyrene	µg/L	< 10	< 10	< 10	< 10	< 200	< 0.1	< 0.1	< 0.1
Benzo(b)fluoranthene	µg/L	< 10	< 10	< 10	< 10	< 200	< 0.1	< 0.1	< 0.1
Benzo(g,h,i)perylene	µg/L	< 10	< 10	< 10	< 10	< 200	< 0.1	< 0.1	< 0.1
Benzo(k)fluoranthene	µg/L	< 10	< 10	< 10	< 10	< 200	< 0.1	< 0.1	< 0.1
Chrysene	µg/L	< 10	< 10	< 10	< 10	< 200	< 0.1	< 0.1	< 0.1
Dibenz(a,h)anthracene	µg/L	< 10	< 10	< 10	< 10	< 200	< 0.1	< 0.1	< 0.1
Fluoranthene	µg/L	< 10	< 10	< 10	< 10	< 200	0.9	< 0.1	< 0.1
Fluorene	µg/L	< 10	< 10	< 10	2 J	< 200	< 0.1	0.8	< 0.1
Indeno(1,2,3-cd)pyrene	µg/L	< 10	< 10	< 10	< 10	< 200	< 0.1	< 0.1	< 0.1
Naphthalene	µg/L	< 10	< 10	< 10	25	430	< 0.1	1.9	< 0.1
Phenanthrene	µg/L	< 10	< 10	< 10	< 10	< 200	0.1	< 0.1	< 0.1
Pyrene	µg/L	< 10	< 10	< 10	< 10	< 200	0.3	< 0.1	< 0.1
Total PAHs	µg/L	ND	ND	ND	51	467	1.3	37.7	ND
Total Potentially Carcinogenic PAHs	µg/L	ND	ND	ND	ND	ND	ND	ND	ND

Notes
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Table 3-14 Plume Definition Groundwater Sampling Results

Koppers Industries, Inc., Grenada, MS
Complete Phase II RFI Report, July 2003

Geoprobe/Drilling Location		LSZ-1	LSZ-1A	LSZ-1A	LSZ-1A	LSZ-1A	LSZ-1A	LSZ-1A	LSZ-1A
Sample ID		LSZ-1-167	LSZ-1A-27	LSZ-1A-57	LSZ-1A-77	LSZ-1A-97	LSZ-1A-117	LSZ-1A-137	LSZ-1A-157
Depth (ft)		167	27	57	77	97	117	137	157
Parameter	Units Date	07/30/00	08/23/00	08/23/00	08/23/00	08/23/00	08/24/00	08/24/00	08/25/00
Pentachlorophenol									
Laboratory Results	µg/L	< 0.5	< 0.95	< 0.95	< 0.95	< 0.95	< 0.95	< 0.95	< 0.95
Field Results (RISc Kit)	µg/L								
PAH									
Field Results, Naphthalene	mg/L	0.023	0.005	0.0005	0.0009	0.0007	0.0007	0.0005	0.0005
Field Results, Total PAH	mg/L	0.057	0.0126	0.0013	0.002	0.0017	0.0017	0.0013	0.0013
BTEX									
Benzene	µg/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Ethylbenzene	µg/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Toluene	µg/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Total Xylenes	µg/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
PAHs									
Acenaphthene	µg/L	0.2	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthylene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Anthracene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(a)anthracene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(a)pyrene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(b)fluoranthene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(g,h,i)perylene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(k)fluoranthene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Chrysene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Dibenz(a,h)anthracene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Fluoranthene	µg/L	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Fluorene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Indeno(1,2,3-cd)pyrene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Naphthalene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Phenanthrene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Pyrene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Total PAHs	µg/L	0.3	ND	ND	ND	ND	ND	ND	ND
Total Potentially Carcinogenic PAHs	µg/L	ND	ND	ND	ND	ND	ND	ND	ND

Notes
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Table 3-14 Plume Definition Groundwater Sampling Results

Koppers Industries, Inc., Grenada, MS
Complete Phase II RFI Report, July 2003

Geoprobe/Drilling Location		LSZ-1A	LSZ-2	LSZ-2	LSZ-2	LSZ-2	LSZ-2	LSZ-2	LSZ-2
Sample ID		LSZ-1A-172	LSZ-2-22	LSZ-2-37	LSZ-2-57	LSZ-2-77	LSZ-2-97	LSZ-2-117	LSZ-2-137
Depth (ft)		177	22	37	57	77	97	117	137
Parameter	Units Date	08/25/00	07/31/00	07/31/00	07/31/00	08/01/00	08/01/00	08/01/00	08/02/00
Pentachlorophenol									
Laboratory Results	µg/L	< 0.95	< 0.5		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Field Results (RISc Kit)	µg/L								
PAH									
Field Results, Naphthalene	mg/L	0.0022	0.016	0.0076	0.67	0.005	0.002	0.002	0.0003
Field Results, Total PAH	mg/L	0.0057	0.04	0.019	1.69	0.013	0.006	0.005	0.0009
BTEX									
Benzene	µg/L	< 0.5	< 0.5		82	< 0.5	< 0.5	< 0.5	< 0.5
Ethylbenzene	µg/L	< 1	< 1		32	< 1	< 1	< 1	< 1
Toluene	µg/L	< 1	< 1		1.1	< 1	< 1	< 1	< 1
Total Xylenes	µg/L	< 1	< 1		46	< 1	< 1	< 1	< 1
PAHs									
Acenaphthene	µg/L	< 0.1	< 0.1		37	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthylene	µg/L	< 0.1	< 0.1		< 1	< 0.1	< 0.1	< 0.1	< 0.1
Anthracene	µg/L	< 0.1	< 0.1		0.2	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(a)anthracene	µg/L	< 0.1	< 0.1		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(a)pyrene	µg/L	< 0.1	< 0.1		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(b)fluoranthene	µg/L	< 0.1	< 0.1		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(g,h,i)perylene	µg/L	< 0.1	< 0.1		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(k)fluoranthene	µg/L	< 0.1	< 0.1		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Chrysene	µg/L	< 0.1	< 0.1		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Dibenz(a,h)anthracene	µg/L	< 0.1	< 0.1		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Fluoranthene	µg/L	< 0.1	0.5		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Fluorene	µg/L	< 0.1	< 0.1		< 1	< 0.1	< 0.1	< 0.1	< 0.1
Indeno(1,2,3-cd)pyrene	µg/L	< 0.1	< 0.1		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Naphthalene	µg/L	< 0.1	< 0.1		2,600	1.4	0.3	0.1	0.1
Phenanthrene	µg/L	< 0.1	0.6		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Pyrene	µg/L	< 0.1	0.3		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Total PAHs	µg/L	ND	1.4		2,637.2	1.4	0.3	0.1	0.1
Total Potentially Carcinogenic PAHs	µg/L	ND	ND		ND	ND	ND	ND	ND

Notes
< = constituent below reporting limit
J = Estimated result
ND = Analyzed for, but not detected

Table 3-14 Plume Definition Groundwater Sampling Results

Koppers Industries, Inc., Grenada, MS
Complete Phase II RFI Report, July 2003

Geoprobe/Drilling Location		LSZ-2	LSZ-2A	LSZ-2A	LSZ-2A	LSZ-2A	LSZ-2A	LSZ-2A	LSZ-2A
Sample ID		LSZ-2-147	LSZ-2A-17	LSZ-2A-37	LSZ-2A-57	LSZ-2A-77	LSZ-2A-97	LSZ-2A-117	LSZ-2A-137
Depth (ft)		147	17	37	57	77	97	117	137
Parameter	Units Date	08/02/00	08/15/00	08/15/00	08/15/00	08/15/00	08/15/00	08/16/00	08/16/00
Pentachlorophenol									
Laboratory Results	µg/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Field Results (RISc Kit)	µg/L								
PAH									
Field Results, Naphthalene	mg/L	0.008	0.002	0.002	0.0017	0.0005	0.00034	0.001	0.0008
Field Results, Total PAH	mg/L	0.019	0.005	0.006	0.004	0.0013	0.00087	0.003	0.002
BTEX									
Benzene	µg/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Ethylbenzene	µg/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Toluene	µg/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Total Xylenes	µg/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
PAHs									
Acenaphthene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthylene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Anthracene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(a)anthracene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(a)pyrene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(b)fluoranthene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(g,h,i)perylene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(k)fluoranthene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Chrysene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Dibenz(a,h)anthracene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Fluoranthene	µg/L	< 0.1	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Fluorene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Indeno(1,2,3-cd)pyrene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Naphthalene	µg/L	0.2	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.2	< 0.1
Phenanthrene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Pyrene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Total PAHs	µg/L	0.2	0.1	ND	ND	ND	ND	0.2	ND
Total Potentially Carcinogenic PAHs	µg/L	ND	ND	ND	ND	ND	ND	ND	ND

Notes
< = constituent below reporting limit
J = Estimated result
ND = Analyzed for, but not detected

Table 3-14 Plume Definition Groundwater Sampling Results

Koppers Industries, Inc., Grenada, MS
Complete Phase II RFI Report, July 2003

Geoprobe/Drilling Location		LSZ-3	LSZ-3	LSZ-3	LSZ-3	LSZ-3	LSZ-3	LSZ-3	LSZ-4
Sample ID		LSZ-3-17	LSZ-3-37	LSZ-3-57	LSZ-3-77	LSZ-3-97	LSZ-3-117	LSZ-3-133	LSZ-4-22
Depth (ft)		17	37	57	77	97	117	133	22
Parameter	Units Date	08/08/00	08/08/00	08/09/00	08/09/00	08/09/00	08/09/00	08/10/00	08/11/00
Pentachlorophenol									
Laboratory Results	µg/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Field Results (RISc Kit)	µg/L								
PAH									
Field Results, Naphthalene	mg/L	0.003	0.005	0.0045	0.0009	0.0005	0.0005	0.0016	0.002
Field Results, Total PAH	mg/L	0.008	0.013	0.011	0.002	0.0013	0.0013	0.0039	0.006
BTEX									
Benzene	µg/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Ethylbenzene	µg/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Toluene	µg/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Total Xylenes	µg/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
PAHs									
Acenaphthene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthylene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Anthracene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(a)anthracene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(a)pyrene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(b)fluoranthene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(g,h,i)perylene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(k)fluoranthene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Chrysene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Dibenz(a,h)anthracene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Fluoranthene	µg/L	0.3	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.2
Fluorene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Indeno(1,2,3-cd)pyrene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Naphthalene	µg/L	0.3	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Phenanthrene	µg/L	0.6	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.1
Pyrene	µg/L	0.2	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Total PAHs	µg/L	1.4	ND	ND	ND	ND	ND	ND	0.3
Total Potentially Carcinogenic PAHs	µg/L	ND	ND	ND	ND	ND	ND	ND	ND

Notes
< = constituent below reporting limit
J = Estimated result
ND = Analyzed for, but not detected

Table 3-14 Plume Definition Groundwater Sampling Results

Koppers Industries, Inc., Grenada, MS
Complete Phase II RFI Report, July 2003

Geoprobe/Drilling Location		LSZ-4	LSZ-4	LSZ-4	LSZ-4	LSZ-4	LSZ-4	LSZ-5	LSZ-5
Sample ID		LSZ-4-37	LSZ-4-57	LSZ-4-77	LSZ-4-97	LSZ-4-117	LSZ-4-137	LSZ-5-27	LSZ-5-57
Depth (ft)		37	57	77	97	117	137	27	57
Parameter	Units Date	08/11/00	08/12/00	08/12/00	08/12/00	08/13/00	08/13/00	08/29/00	08/29/00
Pentachlorophenol									
Laboratory Results	µg/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	7	< 0.5
Field Results (RISc Kit)	µg/L								
PAH									
Field Results, Naphthalene	mg/L	0.0009	0.0017	0.0003	0.0003	0.0005	0.001	0.0063	0.00035
Field Results, Total PAH	mg/L	0.002	0.004	0.0009	0.0009	0.0013	0.0026	0.0157	0.00087
BTEX									
Benzene	µg/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Ethylbenzene	µg/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Toluene	µg/L	2	5.1	< 1	< 1	< 1	< 1	< 1	< 1
Total Xylenes	µg/L	< 1	1.1	< 1	< 1	< 1	< 1	< 1	< 1
PAHs									
Acenaphthene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthylene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Anthracene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(a)anthracene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(a)pyrene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(b)fluoranthene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(g,h,i)perylene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(k)fluoranthene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Chrysene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Dibenz(a,h)anthracene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Fluoranthene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.2
Fluorene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Indeno(1,2,3-cd)pyrene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Naphthalene	µg/L	< 0.1	0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.1	< 0.1
Phenanthrene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.1	< 0.1
Pyrene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Total PAHs	µg/L	ND	0.1	ND	ND	ND	ND	0.2	0.2
Total Potentially Carcinogenic PAHs	µg/L	ND	ND	ND	ND	ND	ND	ND	ND

Notes
< = constituent below reporting limit
J = Estimated result
ND = Analyzed for, but not detected

Table 3-14 Plume Definition Groundwater Sampling Results

Koppers Industries, Inc., Grenada, MS
Complete Phase II RFI Report, July 2003

Geoprobe/Drilling Location		LSZ-5	LSZ-5	LSZ-5	LSZ-5	LSZ-6	LSZ-6	LSZ-6	LSZ-6
Sample ID		LSZ-5-77	LSZ-5-97	LSZ-5-117	LSZ-5-137	LSZ-6-27	LSZ-6-57	LSZ-6-77	LSZ-6-97
Depth (ft)		77	97	117	137	27	57	77	97
Parameter	Units Date	08/29/00	08/29/00	08/29/00	08/30/00	08/26/00	08/26/00	08/27/00	08/27/00
Pentachlorophenol									
Laboratory Results	µg/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Field Results (RISc Kit)	µg/L								
PAH									
Field Results, Naphthalene	mg/L	0.00035	0.00035	0.0005	0.0014	0.0017	0.0003	0.0003	0.0003
Field Results, Total PAH	mg/L	0.00087	0.00087	0.0013	0.0035	0.0044	0.00087	0.0009	0.00087
BTEX									
Benzene	µg/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Ethylbenzene	µg/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Toluene	µg/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Total Xylenes	µg/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
PAHs									
Acenaphthene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthylene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Anthracene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(a)anthracene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(a)pyrene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(b)fluoranthene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(g,h,i)perylene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(k)fluoranthene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Chrysene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Dibenz(a,h)anthracene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Fluoranthene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Fluorene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Indeno(1,2,3-cd)pyrene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Naphthalene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Phenanthrene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Pyrene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Total PAHs	µg/L	ND	ND	ND	ND	ND	ND	ND	ND
Total Potentially Carcinogenic PAHs	µg/L	ND	ND	ND	ND	ND	ND	ND	ND

Notes
< = constituent below reporting limit
J = Estimated result
ND = Analyzed for, but not detected

Table 3-14 Plume Definition Groundwater Sampling Results

Koppers Industries, Inc., Grenada, MS
Complete Phase II RFI Report, July 2003

Geoprobe/Drilling Location		LSZ-6	LSZ-6	LSZ-7	LSZ-7	LSZ-7	LSZ-7	LSZ-7	LSZ-7
Sample ID		LSZ-6-117	LSZ-6-137	LSZ-7-32	LSZ-7-57	LSZ-7-77	LSZ-7-97	LSZ-7-117	LSZ-7-137
Depth (ft)		117	137	32	57	77	97	117	137
Parameter	Units Date	08/27/00	08/27/00	09/09/00	09/09/00	09/09/00	09/09/00	09/10/00	09/10/00
Pentachlorophenol									
Laboratory Results	µg/L	< 0.5	< 0.5	13 J	< 0.5	< 0.5	< 0.5	< 0.5	< 2.5
Field Results (RISc Kit)	µg/L								
PAH									
Field Results, Naphthalene	mg/L	0.0005	0.0007	1.477	1.431	0.003	0.005	0.0007	0.0021
Field Results, Total PAH	mg/L	0.0013	0.0017	3.691	3.578	0.0074	0.011	0.0017	0.0052
BTEX									
Benzene	µg/L	< 0.5	< 0.5	23	180	< 0.5	< 0.5	< 0.5	< 0.5
Ethylbenzene	µg/L	< 1	< 1	21	64	< 1	< 1	< 1	< 1
Toluene	µg/L	< 1	< 1	31	160	< 1	< 1	< 1	< 1
Total Xylenes	µg/L	< 1	< 1	40	155	< 1	< 1	< 1	< 1
PAHs									
Acenaphthene	µg/L	< 0.1	< 0.1	60	66	0.3	1.4	0.5	9.8
Acenaphthylene	µg/L	< 0.1	< 0.1	2.6	< 0.1	< 0.1	< 0.1	< 0.1	0.2
Anthracene	µg/L	< 0.1	< 0.1	0.6	0.2	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(a)anthracene	µg/L	< 0.1	< 0.1	< 5	< 0.1	< 0.1	< 0.1	< 0.5	< 0.1
Benzo(a)pyrene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.5	< 0.5
Benzo(b)fluoranthene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.5	< 0.5
Benzo(g,h,i)perylene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.5	< 0.5
Benzo(k)fluoranthene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.5	< 0.5
Chrysene	µg/L	< 0.1	< 0.1	< 5	< 0.1	< 0.1	< 0.1	< 0.5	< 0.1
Dibenz(a,h)anthracene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.5	< 0.5
Fluoranthene	µg/L	< 0.1	< 0.1	< 5	< 0.1	< 0.1	< 0.1	< 0.5	< 0.1
Fluorene	µg/L	< 0.1	< 0.1	120	17	< 0.1	0.2	< 0.1	0.3
Indeno(1,2,3-cd)pyrene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.5	< 0.5
Naphthalene	µg/L	< 0.1	< 0.1	2,000	7,200	2.5	0.9	0.2	0.1
Phenanthrene	µg/L	< 0.1	< 0.1	24	1.5	< 0.1	< 0.1	< 0.1	< 0.1
Pyrene	µg/L	< 0.1	< 0.1	< 5	< 0.1	< 0.1	< 0.1	< 0.5	< 0.1
Total PAHs	µg/L	ND	ND	2,207.2	7,284.7	2.8	2.5	0.7	10.4
Total Potentially Carcinogenic PAHs	µg/L	ND	ND	ND	ND	ND	ND	ND	ND

Notes
< = constituent below reporting limit
J = Estimated result
ND = Analyzed for, but not detected

Table 3-14 Plume Definition Groundwater Sampling Results

Koppers Industries, Inc., Grenada, MS
Complete Phase II RFI Report, July 2003

Geoprobe/Drilling Location		LSZ-7	LSZ-7	LSZ-7	LSZ-7	LSZ-8	LSZ-8	LSZ-8	LSZ-8
Sample ID		LSZ-7-157	LSZ-7-177	LSZ-7-197	LSZ-7-217	LSZ-8-32	LSZ-8-57	LSZ-8-77	LSZ-8-97
Depth (ft)		157	177	197	217	32	57	77	97
Parameter	Units Date	09/10/00	09/11/00	09/12/00	09/13/00	09/06/00	09/06/00	09/07/00	09/07/00
Pentachlorophenol									
Laboratory Results	µg/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Field Results (RISc Kit)	µg/L								
PAH									
Field Results, Naphthalene	mg/L	0.00052	0.00087	0.0009	0.0077	0.612	1.23	0.675	0.007
Field Results, Total PAH	mg/L	0.0013	0.002	0.002	0.019	1.53	3.078	1.687	0.018
BTEX									
Benzene	µg/L	< 0.5	< 0.5	< 0.5	< 0.5	5.8	46	21	2.1
Ethylbenzene	µg/L	< 1	< 1	< 1	< 1	< 1	26	15	< 1
Toluene	µg/L	< 1	< 1	< 1	< 1	< 1	7.7	2.7	< 1
Total Xylenes	µg/L	< 1	< 1	< 1	< 1	< 1	36	23.4	< 1
PAHs									
Acenaphthene	µg/L	0.2	< 0.1	< 0.1	< 0.1	26	130	65	< 0.1
Acenaphthylene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	0.7	0.9	0.5	< 0.1
Anthracene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	0.6	0.1	0.4	< 0.1
Benzo(a)anthracene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(a)pyrene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(b)fluoranthene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(g,h,i)perylene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(k)fluoranthene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Chrysene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Dibenz(a,h)anthracene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Fluoranthene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	0.4	0.5	< 0.1	< 0.1
Fluorene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	71	43	12	< 0.1
Indeno(1,2,3-cd)pyrene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Naphthalene	µg/L	3.4	0.9	< 0.1	0.1	7	1,800	1,700	1.1
Phenanthrene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	22	42	9	< 0.1
Pyrene	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	0.3	0.2	< 0.1	< 0.1
Total PAHs	µg/L	3.6	0.9	ND	0.1	128	2,016.7	1,786.9	1.1
Total Potentially Carcinogenic PAHs	µg/L	ND	ND	ND	ND	ND	ND	ND	ND

Notes
< = constituent below reporting limit
J = Estimated result
ND = Analyzed for, but not detected

Table 3-14 Plume Definition Groundwater Sampling Results

Koppers Industries, Inc., Grenada, MS
Complete Phase II RFI Report, July 2003

Geoprobe/Drilling Location		LSZ-8	LSZ-8	LSZ-8
Sample ID		LSZ-8-117	LSZ-8-137	LSZ-8-157
Depth (ft)		117	137	157
Parameter	Units Date	09/07/00	09/07/00	09/08/00
Pentachlorophenol				
Laboratory Results	µg/L	< 0.5	< 0.5	< 0.5
Field Results (RISc Kit)	µg/L			
PAH				
Field Results, Naphthalene	mg/L	0.0012	0.0005	0.001
Field Results, Total PAH	mg/L	0.003	0.0013	0.0026
BTEX				
Benzene	µg/L	< 0.5	< 0.5	< 0.5
Ethylbenzene	µg/L	< 1	< 1	< 1
Toluene	µg/L	< 1	< 1	< 1
Total Xylenes	µg/L	< 1	< 1	< 1
PAHs				
Acenaphthene	µg/L	0.3	0.2	0.2
Acenaphthylene	µg/L	< 0.1	< 0.1	< 0.1
Anthracene	µg/L	< 0.1	< 0.1	< 0.1
Benzo(a)anthracene	µg/L	< 0.1	< 0.1	< 0.1
Benzo(a)pyrene	µg/L	< 0.1	< 0.1	< 0.1
Benzo(b)fluoranthene	µg/L	< 0.1	< 0.1	< 0.1
Benzo(g,h,i)perylene	µg/L	< 0.1	< 0.1	< 0.1
Benzo(k)fluoranthene	µg/L	< 0.1	< 0.1	< 0.1
Chrysene	µg/L	< 0.1	< 0.1	< 0.1
Dibenz(a,h)anthracene	µg/L	< 0.1	< 0.1	< 0.1
Fluoranthene	µg/L	< 0.1	< 0.1	< 0.1
Fluorene	µg/L	< 0.1	< 0.1	< 0.1
Indeno(1,2,3-cd)pyrene	µg/L	< 0.1	< 0.1	< 0.1
Naphthalene	µg/L	0.5	< 0.1	0.1
Phenanthrene	µg/L	< 0.1	< 0.1	< 0.1
Pyrene	µg/L	< 0.1	< 0.1	< 0.1
Total PAHs	µg/L	0.8	0.2	0.3
Total Potentially Carcinogenic PAHs	µg/L	ND	ND	ND

Notes
< = constituent below reporting limit
J = Estimated result
ND = Analyzed for, but not detected

COLUMBIA ANALYTICAL SERVICES

VOLATILE ORGANICS
METHOD 8021B
Reported: 03/15/05

The RETEC Group
Project Reference: GRENADA MONITORING-SUPPLY WELL-FEBRUARY 2005
Client Sample ID : SUPPLY WELL

Date Sampled : 02/21/05 09:20 **Order #:** 793603 **Sample Matrix:** WATER
Date Received: 02/22/05 **Submission #:** R2524913 **Analytical Run** 113607

ANALYTE	PQL	RESULT	UNITS
DATE ANALYZED : 02/24/05			
ANALYTICAL DILUTION: 1.00			
BENZENE	0.70	0.70 U	UG/L
ETHYLBENZENE	1.0	1.0 U	UG/L
TOLUENE	1.0	1.0 U	UG/L
M,P-XYLENE	1.0	1.0 U	UG/L
O-XYLENE	1.0	1.0 U	UG/L

SURROGATE RECOVERIES	QC LIMITS		
CHLOROFLUOROBENZENE (PID)	(77 - 113 %)	85	%

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client: The Retec Group, Inc.
Project: Grenada Monitoring 2/05
Sample Matrix: Water

Service Request: K2501365
Date Collected: 02/21/2005
Date Received: 02/22/2005

Polynuclear Aromatic Hydrocarbons

Sample Name: Supply Well
Lab Code: K2501365-001

Extraction Method: EPA 3520C
Analysis Method: 8270C SIM

Units: ug/L
Basis: NA
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Naphthalene	ND	U	10.0	1	02/28/05	03/11/05	KWG0503207	
2-Methylnaphthalene	ND	U	10.0	1	02/28/05	03/11/05	KWG0503207	
Acenaphthylene	ND	U	10.0	1	02/28/05	03/11/05	KWG0503207	
Acenaphthene	ND	U	10.0	1	02/28/05	03/11/05	KWG0503207	
Dibenzofuran	ND	U	10.0	1	02/28/05	03/11/05	KWG0503207	
Fluorene	ND	U	10.0	1	02/28/05	03/11/05	KWG0503207	
Pentachlorophenol	ND	U	1.0	1	02/28/05	03/11/05	KWG0503207	
Phenanthrene	ND	U	10.0	1	02/28/05	03/11/05	KWG0503207	
Anthracene	ND	U	10.0	1	02/28/05	03/11/05	KWG0503207	
Fluoranthene	ND	U	10.0	1	02/28/05	03/11/05	KWG0503207	
Pyrene	ND	U	10.0	1	02/28/05	03/11/05	KWG0503207	
Benz(a)anthracene	ND	U	10.0	1	02/28/05	03/11/05	KWG0503207	
Chrysene	ND	U	10.0	1	02/28/05	03/11/05	KWG0503207	
Benzo(b)fluoranthene	ND	U	10.0	1	02/28/05	03/11/05	KWG0503207	
Benzo(k)fluoranthene	ND	U	10.0	1	02/28/05	03/11/05	KWG0503207	
Benzo(a)pyrene	ND	U	10.0	1	02/28/05	03/11/05	KWG0503207	
Indeno(1,2,3-cd)pyrene	ND	U	10.0	1	02/28/05	03/11/05	KWG0503207	
Dibenz(a,h)anthracene	ND	U	10.0	1	02/28/05	03/11/05	KWG0503207	
Benzo(g,h,i)perylene	ND	U	10.0	1	02/28/05	03/11/05	KWG0503207	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Fluorene-d10	72	37-107	03/11/05	Acceptable
2,4,6-Tribromophenol	97	10-145	03/11/05	Acceptable
Fluoranthene-d10	81	18-137	03/11/05	Acceptable
Terphenyl-d14	92	18-153	03/11/05	Acceptable

Comments:

M. Luo

B. Shanks
Koppers / Beazer East
AI: 876
HWC

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916-853-1800 FAX 916-853-1860

Grenada County

December 9, 2004
P:\PROJECTS\BEAZER\GRENADA\2201.064\EPA Sept 04 comment response doc

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: Response to EPA's September 21, 2004 Letter
Regarding Notice of Technical Inadequacy (NOTI)
Complete Phase II RCRA Facility Investigation Report,
Response to Comments, dated May 18, 2004
Koppers Industries/Beazer East, Inc.,
Tie Plant, Mississippi
EPA I.D. No. MSD 007 027 543

Dear Mr. Johnston:

On behalf of Beazer East, Inc. (Beazer), this letter provides a response to the United States Environmental Protection Agency's (EPA's) comment letter dated September 21, 2004. The EPA's letter provided comments regarding the May 18, 2004 *Response to EPA's April 10, 2004 Letter Regarding the Complete Phase II RCRA Facility Investigation Report for Koppers Industries/Beazer East, Inc., Tie Plant, Mississippi, Dated July 2003*. The EPA's September 21, 2004 comments are provided below; each comment is followed by Beazer's response.

A. Phase II RFI Activities

Comment 1:

The facility stated that the metal-based preservatives have not been used at the site and therefore, metals are not an issue. Based on the information submitted by Beazer's, it appears that the metals are not the issue at this time. However, this issue may reoccur based up on the information arisen/collected from other sources in any future.

Response 1:

Comment acknowledged, no response required.

Comment 2:

Figure 2-10 indicates the location of the plant production well H054 at the site. This well is used for fire-suppression and non-potable sanitary services. The sampling results show undetected levels of various PAHs in 2000. The records indicate that this well was only sampled in 2000. How many times was this well sampled? This is a plant production well and located in the highly contaminated area, so EPA recommends to sample this well once in 2 years.

Response 2:

Plant production well H054 has been sampled once in 2000, as reported in the July 2003 Complete Phase II RFI Report. Well H054 is located outside the delineated extent of the groundwater plume, as documented in the July 2003 Complete Phase II RFI Report. Beazer reviewed Koppers Industries' (KI) use of water from the plant production well H054. KI stated that water from this well is used for fire protection, process makeup, and sanitary purposes. KI confirmed that water from well H054 is not considered potable and is not used for drinking purposes at the site. KI provides a separate source of water for employees to drink at the site. While not required for additional delineation, in light of the multiple uses of water from the production well, Beazer concurs that additional sampling of well H054 is appropriate. At this time, Beazer will sample well H054 on an annual basis for pentachlorophenol, polynuclear aromatic hydrocarbons, and benzene, toluene, ethylbenzene and total xylenes. When a comprehensive site groundwater monitoring plan is developed, it may be appropriate to include this well in that program.

Comment 3:

During the December 2002 meeting, EPA said that the dioxins and furans in the ground water will be addressed in the Corrective Measures Study, <u>not</u> if necessary.

Response 3:

Comment acknowledged, no response required.

Comment 4:

The microbial enumeration is not evaluated adequately for the MNA evaluation. However, EPA concurs that these conditions will be evaluated for potential remedies in the Corrective Measures Study.

Response 4:

Various site and plume characteristics will be further evaluated during the Corrective Measures Study, to assess whether MNA is applicable as part of the site remedy. This work will advance the assessment of multiple lines of MNA evidence, as started in the Complete Phase II RFI Report. These lines of evidence are likely to include microbial characterization, and a range of other data types, including measures of historical plume behavior, electron acceptor utilization and metabolic by-product generation. The key objective of this work will be to determine if natural processes impose adequate limitations on plume migration.

B. Comments on the Human Health Risk Assessment

Comment 1:

A regression equation is used to derive a predicted TCDD-TEQ concentration based on the measured Hepta-CDD concentration. The regression equation shown on Page 9 differs from that shown on Table A-1 and the predicted TEQ levels shown on Table A-3 do not appear to be reproducible using either of these equations.

Response 1:

The regression equations presented on *Page 9* of the response to EPA's comments and *Table A-1* are incorrect as noted. The equation is correctly shown in *Table A-2* and has been corrected in revised *Table A-1*. The correct equation describing the relationship between HpCDD and TEQ using the WHO TEF values is expressed as

$$TEQ = 0.281964 + 0.01523518 \times HpCDD$$

where:

TEQ = 2,3,7,8-TCDD TEQ concentration in even numbered samples (µg/kg)
HpCDD = 1,2,3,4,6,7,8-HpCDD concentration in even numbered samples (µg/kg)

The estimated TEQ Concentrations presented in *Table A-3* were correctly derived using the correct equation as presented above.

Comment 3:

A predicted air concentration is shown for naphthalene based on the surface soil concentration and a derived volatilization factor. The value obtained by dividing the stated soil concentration by the volatilization factor [441 ÷ 3.44E4 = 0.0128] does not agree with the value of shown on Page 12 (0.0128 mg/m^3).

Response 3:

This comment appears to be related to Response 4 and not Response 3 and is correct in noting inconsistencies. The response has been re-written below using the correct volatilization factor (3.44E4).

> A more site-specific evaluation of naphthalene was then conducted using the method recommended in EPA's guidance (EPA 2001) for developing site-specific volatilization factors for estimating screening concentrations (Equation 4-8). The parameter input values provided in the guidance were used for this exercise, except for the Q/Cvol term. For this term, the values provided in Exhibit D-3 (EPA 2001) for Atlanta, GA were used because it is likely more representative of the meteorology of Grenada than the default assumptions. In the calculation of the volatilization factor, the size of the source area was assumed to be

28 acres. This value was selected to represent the active portion of the process area, where elevated concentrations were detected. A volatilization factor of 3.44E4 m^3/kg was derived.

Using this approach with the exposure point concentration of naphthalene in Process Area surface soil of 441 mg/kg, the estimated concentration in air is 0.0128 mg/m^3. Accounting for the worker's exposure time of 8 hours per day, 235 days per year for 25 years, yields a time-adjusted concentration of 0.002754 mg/m3. This concentration is less than the reference concentration for naphthalene of 0.003 mg/m^3. Accordingly, this pathway does not pose unacceptable potential risk for the most highly exposed receptor evaluated in the risk assessment.

Comment 9:

The reviewer reiterates the original comment recommending the use of absorption factors for PCP and PAHs as recommended in EPA RAGS Part E (Dermal) (EPA, 2001). These values are EPA recommendations for human exposure to contaminants in soil so no adjustments are needed here.

References

EPA 1989. Risk Assessment Guidance for Superfund, Volume I, Human Health Evaluation Manual, Part A. Interim Final, EPA OERR, December 1989.

EPA 2000. Supplemental Guidance to RAGS: Region 4 Bulletins, Human Health Risk Assessment Bulletins. EPA Region 4, Website version updated 2000. [http://www.epa.gov/region4/waste/oftecser/healthbul/htm]

EPA 2001. Risk Assessment Guidance for Superfund, Volume 1: Human Health Evaluation Manual, Part E, Supplemental Guidance for Dermal Risk Assessment, Interim OSWER 9285.7-02EP, September 2001. [http://www.epa.gov/superfund/programs/risk/ragse/index.htm]

Response 9:

Beazer has estimated potential risks associated with potential exposures of receptors to soil using dermal absorption factors for pentachlorophenol and PAHs from EPA (2001). During this effort, it was discovered that the exposure point concentrations for 2,3,7,8-TCDD-TE in Process Area surface and subsurface soil[1] (3.97 µg/kg) used in the July 2003 RFI risk assessment were incorrect. The exposure point concentration used in the July 2003 report was estimated assuming that sample location S-8 was unavailable for potential exposure because it is within the sediment disposal area and that all other 2,3,7,8-TCDD sampling locations were available for potential exposure. In fact, two additional 2,3,7,8-TCDD sample locations (S-3 and S-5) are within the sediment disposal area and are, therefore, not available for potential exposure. The exposure point concentration for 2,3,7,8-TCDD-TE in the Process

[1] Recall that all samples collected for analysis of dioxins and furans were from 0-2 feet below ground surface. The exposure point concentrations estimated from these sampling data therefore represent both surface soil and subsurface soil.

Area was accordingly re-estimated omitting the concentrations from S-3, S-5, and S-8 (see attachment). The revised exposure point concentration for 2,3,7,8-TCDD-TE in the Process Area is 2.14 µg/kg.

The following table summarizes three sets of potential risks associated with contacting soil at the Site:

- Potential risks as reported in the July 2003 RFI risk assessment (including the incorrect exposure point concentration for 2,3,7,8-TCDD-TE);
- Potential risks using the corrected exposure point concentration for 2,3,7,8-TCDD-TE in the Process Area; and
- Potential risks using the corrected exposure point concentration for 2,3,7,8-TCDD-TE in the Process Area and dermal soil absorption factors for pentachlorophenol and PAH from EPA (2001) as recommended in EPA's comment.

The results of this effort (see documentation in attachment) indicate that potential risks increase when EPA's dermal absorption factors are employed, however in no case does the potential risk exceed $1x10^{-4}$. All potential risks for trespassers, construction workers, and utility workers remain less than $1x10^{-5}$ and all potential risks for KI workers remain less than $1x10^{-4}$. The attachment includes risk summary tables for all receptors assumed to be exposed to soil. In the attachment, tables showing potential risks using the corrected EPC for 2,3,7,8-TCDD-TE are presented first, followed by tables showing potential risks using the corrected EPC and EPA's dermal absorption factors. Table headers describe the specific scenario summarized in each table. As agreed during the November 2004 meeting, Beazer will provide under separate cover an addendum to the risk assessment, including complete documentation of potential risks for all receptors using EPA's dermal absorption factors, as well as a revised uncertainty analysis, describing the impact of using these factors.

Receptor – Area	Potential Risks Using Dermal Soil RAFs from July 2003 RFI RA	Potential Risks Using Dermal Soil RAFs from July 2003 RFI RA with Corrected 2,3,7,8-TCDD-TE Concentration	Potential Risks Using Dermal Soil AFs from EPA (2001)
KI Worker – Process Area	$9x10^{-5}$	$7x10^{-5}$	$9x10^{-5}$
KI Worker – North Area	$4x10^{-5}$	$4x10^{-5}$	$8x10^{-5}$
KI Worker – South Area	$1x10^{-5}$	$1x10^{-5}$	$3x10^{-5}$
Trespasser – Process Area	$5x10^{-6}$	$4x10^{-6}$	$9x10^{-6}$
Trespasser – North Area	$2x10^{-6}$	$2x10^{-6}$	$5x10^{-6}$
Trespasser – South Area	$1x10^{-6}$	$1x10^{-6}$	$5x10^{-6}$
Construction Worker – Process Area	$4x10^{-6}$	$3x10^{-6}$	$4x10^{-6}$
Construction Worker – North Area	$1x10^{-6}$	$1x10^{-6}$	$1x10^{-6}$
Construction Worker – South Area	$7x10^{-7}$	$7x10^{-7}$	$1x10^{-6}$
Utility Worker – Process Area	$1x10^{-5}$	$7x10^{-6}$	$9x10^{-6}$

Receptor – Area	Potential Risks Using Dermal Soil RAFs from July 2003 RFI RA	Potential Risks Using Dermal Soil RAFs from July 2003 RFI RA with Corrected 2,3,7,8-TCDD-TE Concentration	Potential Risks Using Dermal Soil AFs from EPA (2001)
Utility Worker – North Area	$3x10^{-6}$	$3x10^{-6}$	$3x10^{-6}$
Utility Worker – South Area	$2x10^{-6}$	$2x10^{-6}$	$3x10^{-6}$

C. Comments on the Eco-Risk Assessment

Comment 1:

The facility concluded that the PAH concentrations in one onsite sample collected in 1998 may pose potentially unacceptable risk to benthic macroinvertebrates in the Northern Stream. Additional sampling of this location in 2000 indicated lower concentrations of total PAH. The facility concluded that no potential effects were expected to occur at either the onsite or offsite locations. Interpretation of the data for onsite areas of the Northern Stream indicates that these areas will be a continuing source of contamination for the foreseeable future. The sediment concentrations of PAH found in the onsite areas of the Northern Stream to effects data found in the literature are compared. There is moderate to severe risk to the benthic community onsite and offsite in the Northern Stream. The onsite sediment concentrations are consistent with observed benthic organism mortality in the range of 34 to 97% with a range in the frequency of occurrence of 43 to 100%. The offsite sediment concentrations are consistent with observed benthic organism mortality in the range of 34 to 38% with a range in the frequency of occurrence of 43 to 50%. [Table 1 – based on data from Swartz (1999)]. Since no site-specific toxicity data is available, EPA is forced to rely on the best information available at this time to evaluate risk at this site.

Response 1:

Beazer plans to conduct whole sediment toxicity tests at four locations from the on-Site portion of the Northern Stream and one location in the Northern Stream upstream of the railroad trestle using *Hyalella azteca* as a test species and mortality and growth as toxicity endpoints. Beazer will submit a workplan for the sediment toxicity tests to EPA under separate cover by the end of January 2005. Following these toxicity tests, Beazer will prepare a summary of the findings as a letter report for submittal to EPA.

Comment 2:

The facility may wish to conduct sediment toxicity testing to reduce the uncertainties associated with data derived from the literature. This is an acceptable option to further evaluate this site and can be discussed.

Response 2:

Please see response to Comment 1.

Comment 3:

The Northern Stream source areas should be evaluated for erosion (sediment transport) that could contribute to the spread of PAH contamination downstream of the facility. Excavation of contaminated sediments may be necessary to control the source(s) of PAH contaminations. Areas to be excavated can be based on the erosion potential and the concentrations of PAH at this site.

Response 3:

Beazer disagrees that concentrations of PAH in Northern Stream sediments located on the property act as a source of PAH to off-Site areas of the Northern Stream. Comparison of concentrations of PAHs detected in 1998 in sediments from the Northern Stream downstream of the Site (3 to 12 ppm total PAH) are markedly lower than on-site concentrations collected in 1998 (7 to 213 ppm total PAH). In 2000, concentrations in on-Site sediment samples declined to a range of 0.3 to 67 ppm total PAH. Although no off-Site samples were collected in 2000 (because 1998 concentrations at off-Site locations were low), it is likely that off-Site concentrations have similarly declined. Additionally, the topography of this portion of the Northern Stream is flat, making erosion from on-Site areas to off-Site areas unlikely. Moreover, as indicated above, Beazer plans to conduct toxicity tests at on-Site locations, which will include measurement of PAH concentrations in sediment. These data will be used to directly assess whether sediments pose a potential risk to benthic macroinvertebrates in the Northern Stream. Given this direct measurement of the endpoint of interest (benthic community health), Beazer does not believe that measuring sediment transport potential will provide any additional information of value at this time. Consequently, decisions regarding potential remediation of sediments in the on-Site portion of the Northern Stream will be based upon the results of toxicity tests, not on the potential for erosion.

Comment 4:

Table 5-22: This table is inconsistent with Table 3-18 and Figure 4-49 regarding the total PAH concentrations in sediments of the Northern Stream. Please address this.

Reference

Swartz, Richard C. 1999. Consensus Sediment Quality Guidelines for Polycyclic Aromatic Hydrocarbon Mixtures. Environmental Toxicology and Chemistry ***18****:780-787.*

Response 4:

Table 5-22 (see attachment) has been corrected to display revised concentrations of Total PAH. These concentrations were estimated including half-detection limit concentrations for non-detected PAH in a given sample. Note that these concentrations differ from the Total PAH concentrations depicted in Table 3-18 and Figure 4-49, which are total *detected* PAH concentrations and therefore do not include half-detection limit concentrations for non-detected PAH.

The computed ratios of Total PAH to ecological criteria shown in Table 5-22 differ only slightly from the ratios presented in the earlier version of Table 5-22. The revised Total PAH concentrations showed no

new exceedances of the PEC. The following paragraph is provided to replace the analogous paragraph in the RFI risk assessment:

> "Comparison of total PAH concentrations at the upstream location in the Northern Stream with the TEC and the PEC reveals that the upstream concentration of total PAH in sediments is lower than the TEC, indicating no potential adverse effects to the aquatic community (Table 5-22). At on-site locations in the Northern Stream, of the four samples collected in 1998, total PAH concentrations at two locations were lower than the PEC, and concentrations at two other locations exceeded the PEC by three- and nine-fold. Of the six on-site locations sampled in 2000, one was below the TEC, two were below the PEC, and three exceeded the PEC up to three-fold. Downstream of the Site, concentrations of total PAH in all four samples were less than the PEC and exceeded the TEC by two- to 14-fold."

The conclusions of the ecological evaluation presented in the July 2003 RFI risk assessment remain valid and are repeated here:

> "In the Northern Stream on-site, the total PAH concentration in only one sample (KGNSS04-0-3) exceeded the PEC by more than three-fold. At all other locations (and at all downstream locations), total PAH concentrations were less than or were within two-fold of the PEC. Given the uncertainty and conservatism in the use of the "consensus-based" SQGs, an exceedance of the PEC for total PAH at only one sampling location indicates that adverse effects to the benthic community are not anticipated at the majority of the Northern Stream. Moreover, resampling of sediments in 2000 in the vicinity of the location with high PAH in 1998 (KGNSS04-0-3) as well as other locations found that the elevated PAH concentration had either decreased substantially, or that the elevated detection in 1998 was an anomaly. The location is adjacent to a railroad trestle and it is possible that residual creosote from the treated railroad timbers or a splinter from one of the timbers was included in the 1998 sample. Further, the absence of any completed transport pathway between the on-site process area and the Northern Stream also suggests the elevated PAH concentration is likely not Site-related, but is rather a localized occurrence.
>
> Therefore, while the concentrations of PAH in sediments may have the potential to pose adverse effects to some types of ecological receptors (i.e., benthic macroinvertebrates) in a limited portion of the on-site Northern Stream, any such effects are expected to decrease with time as PAH concentrations decrease and to be limited to a small on-site portion of the Northern Stream and not represent a potential risk to the Northern Stream as a whole or wildlife and aquatic life that may inhabit the stream."

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

Sincerely,

GeoTrans, Inc.

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

Attachment

cc: Doug McCurry, EPA
Jerry Cain, MDEQ
Tim Basilone, KI
Tom Henderson, KI
Mike Bollinger, Beazer
Paul Anderson, AMEC

ATTACHMENT

Calculation of Exposure Point Concentrations

All Samples		Process Area		North Area	
Sample	TEQ µg/kg	Sample	TEQ µg/kg	Sample	TEQ µg/kg
S- 1	0.005	S- 1	0.005		
S- 2	2.720	S- 2	2.720		
S- 3	4.126	S- 3	(a) 4.12607		
S- 4	1.059	S- 4	1.059		
S- 5	24.062	S- 5	(a) 24.0619		
S- 6	3.177	S- 6	3.177		
S- 7	1.271	S- 7	1.271		
S- 8	10.642	S- 8	(a) 10.64188		
S- 9	10.722	S- 9	10.722		
S- 10	0.465	S- 10	0.465		
S- 11	2.497	S- 11	2.497		
S- 12	1.348	S- 12	1.348		
S- 13	1.578	S- 13	1.578		
S- 14	0.526	S- 14	0.526		
S- 15	1.190	S- 15	1.190		
S- 16	0.322			S- 16	0.322
S- 17	1.024	S- 17	1.024		
S- 18	0.709	S- 18	0.709		
S- 19	0.490	S- 19	0.490		
S- 20	0.632	S- 20	0.632		
S- 21	0.170	S- 2	0.170		
S- 22	0.495	S- 22	0.495		
S- 23	0.592	S- 23	0.592		
S- 24	0.375	S- 24	0.375		
S- 25	0.193	S- 25	0.193		
S- 26	0.587	S- 26	0.587		
S- 27	0.671	S- 27	0.671		
S- 28	0.876	S- 28	0.876		
S- 29	0.354			S- 29	0.354
S- 30	0.510			S- 30	0.510
S- 31	0.405			S- 31	0.405
S- 32	1.440			S- 32	1.440
Average =			1.39		0.606162
Std deviation =			2.14		0.471505
95% UCL =			2.14		1.055723

All Concentrations in µg/kg
(a) Sample result at S-8, S-3, and S-5 not included in Exposure Point Concentration because these locations are within the CAMU area

Table 5-17(Page 1 of 2)

Summary of Potential Risks Using Corrected EPC for 2,3,7,8-TCDD-TE in Process Area
Kil Facility, Grenada, Mississippi
Kil Workers

	Process Area						North Yard Area					
	Excess Lifetime Cancer Risk			Hazard Index			Excess Lifetime Cancer Risk			Hazard Index		
Constituent	Soil Ingestion and Dermal Contact	Dust Inhalation	Total	Soil Ingestion and Dermal Contact	Dust Inhalation	Total	Soil Ingestion and Dermal Contact	Dust Inhalation	Total	Soil Ingestion and Dermal Contact	Dust Inhalation	Total
1,1,1-Trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	ND	ND	NA	ND	ND	NA	ND	ND	NA	ND	ND	NA
1,4-Dichlorobenzene	ND	ND	NA	ND	ND	NA	ND	ND	NA	ND	ND	NA
2,3,5,6-Tetrachlorophenol	NA	NA	NA	3.8E-03	5.3E-05	3.8E-03	ND	ND	NA	ND	ND	NA
2,3,7,8-TCDD TEQ	2.4E-05	7.4E-07	2.5E-05	NA	NA	NA	2.1E-05	3.7E-07	2.1E-05	NA	NA	NA
2,4,6-Trichlorophenol	4.0E-09	5.5E-11	4.1E-09	1.0E-05	1.4E-07	1.0E-05	ND	ND	NA	ND	ND	NA
2,4-Dichlorophenol	NA	NA	NA	2.6E-03	3.7E-05	2.7E-03	ND	ND	NA	ND	ND	NA
2,4-Dimethylphenol	NA	NA	NA	1.3E-03	1.6E-05	1.3E-03	ND	ND	NA	ND	ND	NA
2,4-Dinitrophenol	NA	NA	NA	1.9E-02	2.7E-04	2.0E-02	ND	ND	NA	ND	ND	NA
2-Chlorophenol	NA	NA	NA	1.8E-05	2.5E-07	1.8E-05	NA	NA	NA	2.0E-05	2.2E-07	2.0E-05
2-Fluorobiphenyl	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methyl-4,6-dinitrophenol	NA	NA	NA	4.1E-02	5.7E-04	4.2E-02	ND	ND	NA	ND	ND	NA
2-Methylnaphthalene	NA	NA	NA	5.7E-05	3.5E-05	9.2E-05	NA	NA	NA	NA	NA	NA
Dibenzofuran	NA	NA	NA	2.1E-03	2.8E-05	2.1E-03	NA	NA	NA	NA	NA	NA
2-Nitrophenol	NA	NA	NA	1.3E-05	1.8E-07	1.3E-05	ND	ND	NA	ND	ND	NA
4-Chloro-3-methylphenol	NA	NA	NA	1.5E-04	2.1E-06	1.6E-04	NA	NA	NA	2.1E-06	2.3E-08	2.1E-06
4-Nitrophenol	NA	NA	NA	7.3E-03	1.0E-04	7.4E-03	NA	NA	NA	1.1E-04	1.2E-06	1.1E-04
Acenaphthene	NA	NA	NA	9.0E-04	2.5E-05	9.2E-04	NA	NA	NA	3.1E-04	3.2E-06	3.1E-04
Acenaphthylene	NA	NA	NA	3.5E-04	9.7E-06	3.6E-04	ND	ND	NA	ND	ND	NA
Acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	NA	NA	NA	4.1E-04	1.1E-05	4.2E-04	NA	NA	NA	4.1E-05	4.3E-07	4.1E-05
Arsenic	5.6E-07	3.1E-07	8.7E-07	3.5E-03	1.9E-04	3.6E-03	9.4E-07	4.0E-07	1.3E-06	5.8E-03	2.5E-04	6.1E-03
Benz(a)anthracene	4.9E-06	1.0E-07	5.0E-06	6.2E-04	3.1E-05	6.5E-04	3.9E-07	5.2E-09	3.9E-07	5.0E-05	1.6E-06	5.1E-05
Benzene	1.2E-09	9.0E-12	1.2E-09	1.6E-05	1.0E-07	1.6E-05	ND	ND	NA	ND	ND	NA
Benzo(a)pyrene	2.3E-05	4.9E-07	2.4E-05	3.0E-04	1.5E-05	3.1E-04	3.5E-06	4.6E-08	3.5E-06	4.4E-05	1.4E-06	4.6E-05
Benzo(b)fluoranthene	3.0E-06	6.5E-08	3.1E-06	3.9E-04	1.9E-05	4.1E-04	6.9E-07	9.2E-09	7.0E-07	8.8E-05	2.8E-06	9.1E-05
Benzo(g,h,i)perylene	NA	NA	NA	2.9E-04	8.1E-06	3.0E-04	NA	NA	NA	2.9E-04	3.0E-06	2.9E-04
Benzo(k)fluoranthene	1.5E-07	3.1E-09	1.5E-07	1.9E-04	9.4E-06	2.0E-04	2.6E-08	3.5E-10	2.7E-08	3.4E-05	1.1E-06	3.5E-05
Bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromoform	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	3.4E-07	NA	3.4E-07	1.6E-03	2.1E-05	1.6E-03	2.1E-08	NA	2.1E-08	9.7E-05	7.2E-07	9.7E-05
Carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (Total)	NA	1.7E-06	1.7E-06	8.8E-04	3.8E-03	4.7E-03	NA	2.0E-06	2.0E-06	2.1E-03	4.6E-03	6.7E-03
Chrysene	8.8E-08	1.9E-09	9.0E-08	1.1E-03	5.6E-05	1.2E-03	6.0E-09	8.0E-11	6.0E-09	7.6E-05	2.4E-06	7.9E-05
cis-1,3-Dichloropropene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	NA	NA	NA	5.4E-04	7.8E-06	5.5E-04	NA	NA	NA	2.6E-04	3.6E-06	2.6E-04
Dibenzo(a,h)anthracene	7.5E-06	1.6E-07	7.6E-06	9.5E-05	4.8E-06	1.0E-04	1.2E-05	1.6E-07	1.2E-05	1.6E-04	4.9E-06	1.6E-04
Ethylbenzene	NA	NA	NA	1.9E-06	9.0E-09	1.9E-06	ND	ND	NA	ND	ND	NA
Fluoranthene	NA	NA	NA	2.7E-02	7.6E-04	2.8E-02	NA	NA	NA	2.7E-04	2.8E-06	2.7E-04
Fluorene	NA	NA	NA	1.7E-03	4.6E-05	1.7E-03	NA	NA	NA	6.0E-05	6.3E-07	6.1E-05
Indeno(1,2,3-cd)pyrene	1.6E-06	3.4E-08	1.6E-06	2.1E-04	1.0E-05	2.2E-04	5.4E-07	7.2E-09	5.5E-07	6.9E-05	2.2E-06	7.1E-05
Methylene Chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Butyl alcohol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	NA	NA	NA	5.1E-03	3.2E-03	8.3E-03	NA	NA	NA	2.7E-04	6.4E-05	3.4E-04
Pentachlorophenol	3.4E-06	NA	3.4E-06	2.6E-03	3.7E-05	2.7E-03	1.9E-08	NA	1.9E-08	1.5E-05	1.7E-07	1.5E-05
Phenanthrene	NA	NA	NA	7.2E-03	2.0E-04	7.4E-03	NA	NA	NA	2.8E-04	3.0E-06	2.9E-04
Phenol	NA	NA	NA	4.4E-06	5.9E-07	5.0E-06	NA	NA	NA	2.4E-06	1.7E-07	2.5E-06
Pyrene	NA	NA	NA	3.5E-03	9.9E-05	3.6E-03	NA	NA	NA	4.2E-04	4.4E-06	4.2E-04
Styrene	NA	NA	NA	6.3E-07	6.0E-09	6.3E-07	ND	ND	NA	ND	ND	NA
Tetrachloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	NA	NA	NA	3.7E-07	9.0E-08	4.6E-07	ND	ND	NA	ND	ND	NA
trans-1,3-Dichloropropene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylene (total)	NA	NA	NA	3.2E-07	4.5E-09	3.3E-07	NA	NA	NA	2.2E-08	2.3E-10	2.2E-08
Total	6.9E-05	3.6E-06	7.3E-05	1.4E-01	9.7E-03	1.5E-01	3.9E-05	3.0E-06	4.2E-05	1.1E-02	4.9E-03	1.6E-02

NA - Not Analyzed
ND - Not Detected

Table 5-17(Page 2 of 2)

Summary of Potential Risks Using Corrected EPC for 2,3,7,8-TCDD-TE in Process Area KII Facility, Grenada, Mississippi KII Workers

	South Yard Area						Process Cooling Reservoir					
	Excess Lifetime Cancer Risk			Hazard Index			Excess Lifetime Cancer Risk			Hazard Index		
Constituent	Soil Ingestion and Dermal Contact	Dust Inhalation	Total	Soil Ingestion and Dermal Contact	Dust Inhalation	Total	Sediment Ingestion and Dermal Contact	Surface Water Ingestion and Dermal Contact	Total	Sediment Ingestion and Dermal Contact	Surface Water Ingestion and Dermal Contact	Total
1,1,1-Trichloroethane	NA	NA	NA	6.5E-08	2.1E-10	6.5E-08	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	ND	ND	NA	ND	ND	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	ND	ND	NA	ND	ND	NA	NA	NA	NA	NA	NA	NA
2,3,5,6-Tetrachlorophenol	ND	ND	NA	ND	ND	NA	NA	NA	NA	3.6E-04	NA	3.6E-04
2,3,7,8-TCDD TEQ	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	ND	ND	NA	ND	ND	NA	5.7E-09	NA	5.7E-09	1.5E-05	NA	1.5E-05
2,4-Dichlorophenol	NA	NA	NA	1.1E-04	1.2E-06	1.1E-04	NA	NA	NA	2.4E-04	NA	2.4E-04
2,4-Dimethylphenol	NA	NA	NA	1.4E-05	6.0E-08	1.5E-05	NA	NA	NA	7.1E-05	NA	7.1E-05
2,4-Dinitrophenol	NA	NA	NA	2.5E-04	2.8E-06	2.5E-04	NA	NA	NA	7.2E-04	NA	7.2E-04
2-Chlorophenol	NA	NA	NA	1.1E-05	1.2E-07	1.1E-05	NA	NA	NA	1.4E-04	NA	1.4E-04
2-Fluorobiphenyl	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methyl-4,6-dinitrophenol	ND	ND	NA	ND	ND	NA	NA	NA	NA	1.9E-02	NA	1.9E-02
2-Methylnaphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitrophenol	NA	NA	NA	2.0E-05	2.2E-07	2.0E-05	NA	NA	NA	9.0E-05	NA	9.0E-05
4-Chloro-3-methylphenol	ND	ND	NA	ND	ND	NA	NA	NA	NA	1.4E-05	NA	1.4E-05
4-Nitrophenol	ND	ND	NA	ND	ND	NA	NA	NA	NA	7.2E-03	NA	7.2E-03
Acenaphthene	NA	NA	NA	1.1E-03	1.1E-05	1.1E-03	NA	NA	NA	2.9E-04	NA	2.9E-04
Acenaphthylene	ND	ND	NA	ND	ND	NA	NA	NA	NA	8.5E-05	6.1E-06	9.1E-05
Acetone	NA	NA	NA	7.4E-07	5.5E-09	7.4E-07	NA	NA	NA	NA	NA	NA
Anthracene	NA	NA	NA	3.0E-04	3.2E-06	3.0E-04	NA	NA	NA	7.3E-04	4.2E-06	7.3E-04
Arsenic	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benz(a)anthracene	1.3E-06	1.8E-08	1.3E-06	1.7E-04	5.3E-06	1.8E-04	8.5E-07	5.7E-08	9.1E-07	1.1E-04	8.0E-06	1.2E-04
Benzene	3.1E-10	1.5E-12	3.2E-10	4.0E-06	1.7E-08	4.0E-06	2.9E-11	NA	2.9E-11	3.7E-07	NA	3.7E-07
Benzo(a)pyrene	5.9E-06	7.8E-08	5.9E-06	7.5E-05	2.4E-06	7.7E-05	3.8E-06	5.1E-07	4.3E-06	4.8E-05	7.2E-06	5.6E-05
Benzo(b)fluoranthene	9.0E-07	1.2E-08	9.2E-07	1.2E-04	3.6E-06	1.2E-04	5.3E-07	1.2E-07	6.5E-07	6.8E-05	1.7E-05	8.5E-05
Benzo(g,h,i)perylene	NA	NA	NA	1.4E-04	1.4E-06	1.4E-04	NA	NA	NA	7.7E-05	9.7E-06	8.7E-05
Benzo(k)fluoranthene	4.2E-08	5.6E-10	4.3E-08	5.4E-05	1.7E-06	5.5E-05	2.7E-08	5.5E-09	3.2E-08	3.4E-05	7.7E-06	4.2E-05
Bromodichloromethane	ND	ND	NA	ND	ND	NA	NA	NA	NA	NA	NA	NA
Bromoform	ND	ND	NA	ND	ND	NA	NA	NA	NA	NA	NA	NA
Carbazole	6.7E-11	NA	6.7E-11	3.1E-07	2.3E-09	3.2E-07	3.9E-07	2.3E-11	3.9E-07	1.8E-03	1.1E-07	1.8E-03
Carbon disulfide	ND	ND	NA	ND	ND	NA	NA	NA	NA	NA	NA	NA
Chromium (Total)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	1.9E-08	2.5E-10	1.9E-08	2.4E-04	7.6E-06	2.5E-04	1.0E-08	1.5E-09	1.2E-08	1.3E-04	2.1E-05	1.5E-04
cis-1,3-Dichloropropene	ND	ND	NA	ND	ND	NA	NA	NA	NA	NA	NA	NA
Copper	NA	NA	NA	9.0E-05	1.3E-06	9.1E-05	NA	NA	NA	NA	NA	NA
Dibenzo(a,h)anthracene	8.4E-07	1.1E-08	8.6E-07	1.1E-05	3.4E-07	1.1E-05	3.6E-06	1.4E-07	3.7E-06	4.6E-05	2.0E-06	4.8E-05
Ethylbenzene	NA	NA	NA	2.5E-07	9.2E-10	2.6E-07	NA	NA	NA	2.0E-07	NA	2.0E-07
Fluoranthene	NA	NA	NA	1.9E-03	2.0E-05	1.9E-03	NA	NA	NA	1.1E-03	1.7E-05	1.1E-03
Fluorene	NA	NA	NA	8.9E-04	9.4E-06	9.0E-04	NA	NA	NA	7.8E-04	1.8E-06	7.8E-04
Indeno(1,2,3-cd)pyrene	5.1E-07	6.7E-09	5.1E-07	6.5E-05	2.0E-06	6.7E-05	2.7E-07	8.2E-08	3.5E-07	3.4E-05	1.1E-05	4.5E-05
Methylene Chloride	1.1E-10	1.7E-13	1.1E-10	6.7E-07	3.5E-10	6.7E-07	NA	NA	NA	NA	NA	NA
n-Butyl alcohol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	NA	NA	NA	1.4E-03	3.3E-04	1.8E-03	NA	NA	NA	1.7E-03	1.2E-05	1.7E-03
Pentachlorophenol	1.5E-07	NA	1.5E-07	1.1E-04	1.3E-06	1.1E-04	NA	NA	NA	NA	NA	NA
Phenanthrene	NA	NA	NA	3.4E-03	3.6E-05	3.4E-03	NA	ND	NA	1.5E-03	ND	1.5E-03
Phenol	NA	NA	NA	2.8E-07	2.1E-08	3.1E-07	NA	NA	NA	2.1E-04	NA	2.1E-04
Pyrene	NA	NA	NA	2.2E-03	2.3E-05	2.2E-03	NA	NA	NA	1.9E-05	1.9E-05	3.9E-05
Styrene	ND	ND	NA	ND	ND	NA	NA	NA	NA	1.6E-04	NA	1.6E-04
Tetrachloroethene	2.8E-10	4.0E-13	2.8E-10	1.5E-06	7.9E-10	1.5E-06	3.2E-11	NA	3.2E-11	1.7E-07	NA	1.7E-07
Toluene	NA	NA	NA	1.7E-07	3.2E-08	2.1E-07	NA	NA	NA	NA	NA	NA
trans-1,3-Dichloropropene	ND	ND	NA	ND	ND	NA	2.5E-10	NA	2.5E-10	2.3E-07	NA	2.3E-07
Trichloroethene	1.3E-10	1.0E-12	1.4E-10	3.1E-06	7.0E-12	3.1E-06	NA	NA	NA	NA	NA	NA
Xylene (total)	NA	NA	NA	5.3E-08	5.6E-10	5.4E-08	NA	NA	NA	NA	NA	NA
Total	9.7E-06	1.3E-07	9.8E-06	1.3E-02	4.7E-04	1.3E-02	9.4E-06	9.1E-07	1.0E-05	3.7E-02	1.4E-04	3.7E-02

NA - Not Analyzed
ND - Not Detected

Table 5-18 (Page 1 of 2)
Summary of Potential Risks Using Corrected EPC for 2,3,7,8-TCDD-TE in Process Area
KII Facility, Grenada, Mississippi
Trespassers

	Process Area						North Yard Area						South Yard Area		
	Excess Lifetime Cancer Risk			Hazard Index			Excess Lifetime Cancer Risk			Hazard Index			Excess Lifetime Cancer Risk		
Constituent	Soil Ingestion and Dermal Contact	Dust Inhalation	Total	Soil Ingestion and Dermal Contact	Dust Inhalation	Total	Soil Ingestion and Dermal Contact	Dust Inhalation	Total	Soil Ingestion and Dermal Contact	Dust Inhalation	Total	Soil Ingestion and Dermal Contact	Dust Inhalation	Total
1,1,1-Trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	ND	ND	NA	ND	ND	NA	ND	ND	NA	ND	ND	NA	ND	ND	NA
1,4-Dichlorobenzene	ND	ND	NA	ND	ND	NA	ND	ND	NA	ND	ND	NA	ND	ND	NA
2,3,5,6-Tetrachlorophenol	NA	NA	NA	6.2E-04	9.2E-07	6.2E-04	ND	ND	NA	ND	ND	NA	ND	ND	NA
2,3,7,8-TCDD TEQ	1.5E-06	3.6E-09	1.5E-06	NA	NA	NA	1.2E-06	3.0E-09	1.2E-06	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	1.8E-10	2.7E-13	1.8E-10	1.7E-06	2.5E-09	1.7E-06	ND	ND	NA	ND	ND	NA	ND	ND	NA
2,4-Dichlorophenol	NA	NA	NA	4.3E-04	6.4E-07	4.3E-04	ND	ND	NA	ND	ND	NA	NA	NA	NA
2,4-Dimethylphenol	NA	NA	NA	4.7E-04	2.7E-07	4.7E-04	ND	ND	NA	ND	ND	NA	NA	NA	NA
2,4-Dinitrophenol	NA	NA	NA	3.2E-03	4.7E-06	3.2E-03	ND	ND	NA	ND	ND	NA	NA	NA	NA
2-Chlorophenol	NA	NA	NA	2.9E-06	4.3E-09	2.9E-06	NA	NA	NA	4.4E-06	6.5E-09	4.4E-06	NA	NA	NA
2-Fluorobiphenyl	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methyl-4,6-dinitrophenol	NA	NA	NA	6.7E-03	1.0E-05	6.7E-03	ND	ND	NA	ND	ND	NA	ND	ND	NA
2-Methylnaphthalene	NA	NA	NA	1.9E-05	6.1E-07	2.0E-05	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	NA	NA	NA	4.8E-04	4.9E-07	4.8E-04	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitrophenol	NA	NA	NA	2.2E-06	3.2E-09	2.2E-06	ND	ND	NA	ND	ND	NA	NA	NA	NA
4-Chloro-3-methylphenol	NA	NA	NA	2.5E-05	3.8E-08	2.5E-05	NA	NA	NA	4.5E-07	6.7E-10	4.5E-07	ND	ND	NA
4-Nitrophenol	NA	NA	NA	1.2E-03	1.8E-06	1.2E-03	NA	NA	NA	2.3E-05	3.5E-08	2.4E-05	ND	ND	NA
Acenaphthene	NA	NA	NA	3.0E-04	4.4E-07	3.0E-04	NA	NA	NA	6.5E-05	9.4E-08	6.5E-05	NA	NA	NA
Acenaphthylene	NA	NA	NA	1.2E-04	1.7E-07	1.2E-04	ND	ND	NA	ND	ND	NA	ND	ND	NA
Acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	NA	NA	NA	1.4E-04	2.0E-07	1.4E-04	NA	NA	NA	8.6E-06	1.3E-08	8.6E-06	NA	NA	NA
Arsenic	2.6E-08	1.5E-09	2.8E-08	5.8E-04	3.4E-06	5.8E-04	5.6E-08	3.3E-09	6.0E-08	1.3E-03	7.3E-06	1.3E-03	NA	NA	NA
Benz(a)anthracene	2.8E-07	5.1E-10	2.8E-07	1.3E-04	5.4E-07	1.3E-04	2.3E-08	4.2E-11	2.3E-08	1.1E-05	4.6E-08	1.1E-05	2.0E-07	3.6E-10	2.0E-07
Benzene	6.6E-11	4.4E-14	6.6E-11	3.0E-06	1.8E-09	3.0E-06	ND	ND	NA	ND	ND	NA	4.7E-11	3.1E-14	4.7E-11
Benzo(a)pyrene	1.3E-06	2.4E-09	1.3E-06	6.0E-05	2.6E-07	6.1E-05	2.1E-07	3.8E-10	2.1E-07	9.5E-06	4.1E-08	9.5E-06	8.8E-07	1.6E-09	8.8E-07
Benzo(b)fluoranthene	1.7E-07	3.2E-10	1.7E-07	7.9E-05	3.4E-07	8.0E-05	4.1E-08	7.5E-11	4.1E-08	1.9E-05	8.0E-08	1.9E-05	1.4E-07	2.5E-10	1.4E-07
Benzo(g,h,i)perylene	NA	NA	NA	9.7E-05	1.4E-07	9.7E-05	NA	NA	NA	6.0E-05	8.7E-08	6.0E-05	NA	NA	NA
Benzo(k)fluoranthene	8.4E-09	1.5E-11	8.4E-09	3.8E-05	1.6E-07	3.9E-05	1.6E-09	2.9E-12	1.6E-09	7.2E-06	3.1E-08	7.2E-06	6.3E-09	1.1E-11	6.3E-09
Bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	NA
Bromoform	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	NA
Carbazole	2.1E-08	NA	2.1E-08	3.6E-04	3.6E-07	3.6E-04	1.2E-09	NA	1.2E-09	2.1E-05	2.1E-08	2.1E-05	1.0E-11	NA	1.0E-11
Carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	NA
Chromium (Total)	NA	8.2E-09	8.2E-09	2.3E-04	6.6E-05	2.9E-04	NA	1.6E-08	1.6E-08	4.5E-04	1.3E-04	5.9E-04	NA	NA	NA
Chrysene	5.0E-09	9.2E-12	5.1E-09	2.3E-04	9.9E-07	2.3E-04	3.6E-10	6.5E-13	3.6E-10	1.6E-05	7.0E-08	1.6E-05	2.8E-09	5.2E-12	2.8E-09
cis-1,3-Dichloropropene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	NA
Copper	NA	NA	NA	7.1E-05	1.4E-07	7.1E-05	NA	NA	NA	5.6E-05	1.1E-07	5.6E-05	NA	NA	NA
Dibenzo(a,h)anthracene	4.3E-07	7.8E-10	4.3E-07	2.0E-05	8.4E-08	2.0E-05	7.3E-07	1.3E-09	7.3E-07	3.3E-05	1.4E-07	3.4E-05	1.3E-07	2.3E-10	1.3E-07
Ethylbenzene	NA	NA	NA	3.2E-07	1.6E-10	3.2E-07	ND	ND	NA	ND	ND	NA	NA	NA	NA
Fluoranthene	NA	NA	NA	9.1E-03	1.3E-05	9.2E-03	NA	NA	NA	5.6E-05	8.2E-08	5.7E-05	NA	NA	NA
Fluorene	NA	NA	NA	5.6E-04	8.1E-07	5.6E-04	NA	NA	NA	1.3E-05	1.8E-08	1.3E-05	NA	NA	NA
Indeno(1,2,3-cd)pyrene	9.2E-08	1.7E-10	9.2E-08	4.2E-05	1.8E-07	4.2E-05	3.2E-08	5.9E-11	3.2E-08	1.5E-05	6.3E-08	1.5E-05	7.6E-08	1.4E-10	7.6E-08
Methylene Chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.6E-11	3.6E-15	1.6E-11
n-Butyl alcohol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	NA	NA	NA	1.7E-03	5.5E-05	1.8E-03	NA	NA	NA	5.8E-05	1.9E-06	6.0E-05	NA	NA	NA
Pentachlorophenol	1.6E-07	NA	1.6E-07	4.3E-04	6.5E-07	4.3E-04	1.2E-09	NA	1.2E-09	3.2E-06	4.8E-09	3.2E-06	2.2E-08	NA	2.2E-08
Phenanthrene	NA	NA	NA	2.4E-03	3.5E-06	2.4E-03	NA	NA	NA	6.0E-05	8.7E-08	6.0E-05	NA	NA	NA
Phenol	NA	NA	NA	1.0E-06	1.0E-08	1.0E-06	NA	NA	NA	5.0E-07	5.1E-09	5.1E-07	NA	NA	NA
Pyrene	NA	NA	NA	1.2E-03	1.7E-06	1.2E-03	NA	NA	NA	8.7E-05	1.3E-07	8.7E-05	NA	NA	NA
Styrene	NA	NA	NA	1.1E-07	1.1E-10	1.1E-07	ND	ND	NA	ND	ND	NA	ND	ND	NA
Tetrachloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.1E-11	8.1E-15	4.1E-11
Toluene	NA	NA	NA	6.3E-08	1.6E-09	6.5E-08	ND	ND	NA	ND	ND	NA	NA	NA	NA
trans-1,3-Dichloropropene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	NA
Trichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.0E-11	2.0E-14	2.0E-11
Xylene (total)	NA	NA	NA	5.5E-08	7.8E-11	5.5E-08	NA	NA	NA	4.8E-09	6.8E-12	4.8E-09	NA	NA	NA
Total	4.0E-06	1.8E-08	4.0E-06	3.1E-02	1.7E-04	3.1E-02	2.3E-06	2.4E-08	2.4E-06	2.3E-03	1.4E-04	2.5E-03	1.4E-06	2.6E-09	1.4E-06

NA - Not Analyzed
ND - Not Detected

Table 6-18 (Page 2 of 2)
Summary of Potential Risks Using Corrected EPC for 2,3,7,8-TCDD-TE in Process Area
Kil Facility, Grenada, Mississippi
Trespassers

	Process Cooling Reservoir									Northern Stream On-Site		Northern Stream Off-Site	
	Hazard Index			Excess Lifetime Cancer Risk			Hazard Index			Sediment Ingestion and Dermal Contact		Sediment Ingestion and Dermal Contact	
Constituent	Soil Ingestion and Dermal Contact	Dust Inhalation	Total	Sediment Ingestion and Dermal Contact	Surface Water Ingestion and Dermal Contact	Total	Sediment Ingestion and Dermal Contact	Surface Water Ingestion and Dermal Contact	Total	Excess Lifetime Cancer Risk	Hazard Index	Excess Lifetime Cancer Risk	Hazard Index
1,1,1-Trichloroethane	3.4E-08	1.6E-11	3.4E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,3,5,6-Tetrachlorophenol	ND	ND	NA	NA	NA	NA	5.2E-04	NA	5.2E-04	NA	NA	NA	NA
2,3,7,8-TCDD TEQ	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	ND	ND	NA	2.3E-09	NA	2.3E-09	2.1E-05	NA	2.1E-05	NA	NA	NA	NA
2,4-Dichlorophenol	5.9E-05	8.8E-08	5.9E-05	NA	NA	NA	3.5E-04	NA	3.5E-04	NA	NA	NA	NA
2,4-Dimethylphenol	7.6E-06	4.4E-09	7.6E-06	NA	NA	NA	1.3E-04	NA	1.3E-04	NA	NA	NA	NA
2,4-Dinitrophenol	1.3E-04	2.0E-07	1.3E-04	NA	NA	NA	1.0E-03	NA	1.0E-03	NA	NA	NA	NA
2-Chlorophenol	5.7E-06	8.5E-09	5.7E-06	NA	NA	NA	2.1E-04	NA	2.1E-04	NA	NA	NA	NA
2-Fluorobiphenyl	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methyl-4,6-dinitrophenol	ND	ND	NA	NA	NA	NA	2.8E-02	NA	2.8E-02	NA	NA	NA	NA
2-Methylnaphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.1E-07	NA	NA
Dibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.8E-06	NA	NA
2-Nitrophenol	1.1E-05	1.6E-08	1.1E-05	NA	NA	NA	1.3E-04	NA	1.3E-04	NA	NA	NA	NA
4-Chloro-3-methylphenol	ND	ND	NA	NA	NA	NA	2.1E-05	NA	2.1E-05	NA	NA	NA	NA
4-Nitrophenol	ND	ND	NA	NA	NA	NA	1.0E-02	NA	1.0E-02	NA	NA	NA	NA
Acenaphthene	5.6E-04	8.2E-07	5.7E-04	NA	NA	NA	5.4E-04	NA	5.4E-04	NA	8.5E-08	NA	NA
Acenaphthylene	ND	ND	NA	NA	NA	NA	1.6E-04	2.1E-05	1.8E-04	NA	2.2E-06	NA	1.1E-06
Acetone	3.9E-07	4.0E-10	3.9E-07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	1.6E-04	2.3E-07	1.6E-04	NA	NA	NA	1.4E-03	1.5E-05	1.4E-03	NA	8.9E-08	NA	NA
Arsenic	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benz(a)anthracene	9.1E-05	3.9E-07	9.1E-05	3.7E-07	5.8E-08	4.3E-07	1.7E-04	2.9E-05	2.0E-04	1.3E-08	5.8E-06	1.6E-09	7.1E-07
Benzene	2.1E-06	1.2E-09	2.1E-06	1.2E-11	NA	1.2E-11	5.7E-07	NA	5.7E-07	NA	NA	NA	NA
Benzo(a)pyrene	4.0E-05	1.7E-07	4.0E-05	1.7E-06	5.2E-07	2.2E-06	7.6E-05	2.6E-05	1.0E-04	8.9E-08	4.1E-06	1.6E-08	7.4E-07
Benzo(b)fluoranthene	6.2E-05	2.6E-07	6.2E-05	2.3E-07	1.2E-07	3.6E-07	1.1E-04	6.1E-05	1.7E-04	1.7E-08	7.8E-06	2.4E-09	1.1E-06
Benzo(g,h,i)perylene	7.2E-05	1.1E-07	7.3E-05	NA	NA	NA	1.4E-04	3.6E-05	1.8E-04	NA	8.8E-06	NA	1.6E-06
Benzo(k)fluoranthene	2.9E-05	1.2E-07	2.9E-05	1.2E-08	5.6E-09	1.7E-08	5.3E-05	2.8E-05	8.1E-05	7.6E-10	3.4E-06	1.2E-10	5.5E-07
Bromodichloromethane	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromoform	ND	ND	NA	NA	NA	NA	NA	NA	NA	5+6	5+6	NA	NA
Carbazole	1.7E-07	1.7E-10	1.7E-07	1.8E-07	4.1E-12	1.8E-07	2.9E-03	6.8E-08	2.9E-03	NA	NA	NA	NA
Carbon disulfide	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (Total)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	1.3E-04	5.5E-07	1.3E-04	4.6E-09	1.5E-09	6.1E-09	2.1E-04	7.6E-05	2.9E-04	1.3E-10	6.1E-06	1.5E-11	6.9E-07
cis-1,3-Dichloropropene	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	4.9E-05	9.3E-08	4.9E-05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzo(a,h)anthracene	5.8E-06	2.5E-08	5.8E-06	1.6E-06	1.4E-07	1.7E-06	7.2E-05	7.2E-06	7.9E-05	9.4E-09	4.3E-07	3.2E-09	1.5E-07
Ethylbenzene	1.4E-07	6.7E-11	1.4E-07	NA	NA	NA	2.9E-07	NA	2.9E-07	NA	NA	NA	NA
Fluoranthene	1.0E-03	1.5E-06	1.0E-03	NA	NA	NA	2.0E-03	6.0E-05	2.1E-03	NA	2.2E-05	NA	2.6E-06
Fluorene	4.7E-04	6.8E-07	4.7E-04	NA	NA	NA	1.5E-03	6.3E-06	1.5E-03	NA	1.6E-07	NA	NA
Indeno(1,2,3-cd)pyrene	3.4E-05	1.5E-07	3.5E-05	1.2E-07	8.4E-08	2.0E-07	5.3E-05	4.2E-05	9.5E-05	6.8E-09	3.1E-06	1.2E-09	5.5E-07
Methylene Chloride	3.5E-07	2.5E-11	3.6E-07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Butyl alcohol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	7.5E-04	2.4E-05	7.8E-04	NA	NA	NA	3.2E-03	3.8E-05	3.2E-03	NA	1.7E-07	NA	NA
Pentachlorophenol	6.1E-05	9.1E-08	6.1E-05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	1.8E-03	2.6E-06	1.8E-03	NA	ND	NA	2.7E-03	ND	2.7E-03	NA	5.8E-07	NA	2.3E-07
Phenol	1.5E-07	1.5E-09	1.5E-07	NA	NA	NA	3.5E-04	NA	3.5E-04	NA	2.4E-07	NA	3.1E-08
Pyrene	1.2E-03	1.7E-06	1.2E-03	NA	NA	NA	3.5E-05	7.0E-05	1.1E-04	NA	NA	NA	NA
Styrene	ND	ND	NA	NA	NA	NA	2.4E-04	NA	2.4E-04	NA	5.2E-06	NA	5.6E-07
Tetrachloroethene	8.0E-07	5.8E-11	8.0E-07	1.5E-11	NA	1.5E-11	2.8E-07	NA	2.8E-07	NA	NA	NA	NA
Toluene	9.4E-08	2.3E-09	9.6E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,3-Dichloropropene	ND	ND	NA	1.3E-10	NA	1.3E-10	4.2E-07	NA	4.2E-07	NA	NA	NA	NA
Trichloroethene	1.7E-06	5.1E-13	1.7E-06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylene (total)	2.9E-08	4.0E-11	2.9E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total	6.7E-03	3.4E-05	6.7E-03	4.2E-06	9.4E-07	5.1E-06	5.6E-02	5.2E-04	5.7E-02	1.4E-07	7.3E-05	2.5E-08	1.1E-05

NA - Not Analyzed
ND - Not Detected

Table 5-19
Summary of Potential Risks Using Corrected EPC for 2,3,7,8-TCDD-TE in Process Area
KII Facility, Grenada, Mississippi
Construction Worker

	Process Area						North Yard Area						South Yard Area					
	Excess Lifetime Cancer Risk			Hazard Index			Excess Lifetime Cancer Risk			Hazard Index			Excess Lifetime Cancer Risk			Hazard Index		
Constituent	Soil Ingestion and Dermal Contact	Dust Inhalation	Total	Soil Ingestion and Dermal Contact	Dust Inhalation	Total	Soil Ingestion and Dermal Contact	Dust Inhalation	Total	Soil Ingestion and Dermal Contact	Dust Inhalation	Total	Soil Ingestion and Dermal Contact	Dust Inhalation	Total	Soil Ingestion and Dermal Contact	Dust Inhalation	Total
1,1,1-Trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	NA	ND	ND	NA
1,1-Dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	NA	ND	ND	NA
1,2-Dichloropropane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	NA	ND	ND	NA
1,3-Dichlorobenzene	NA	NA	NA	1.5E-07	1.1E-09	1.5E-07	ND	ND	NA	ND	ND	NA	ND	ND	NA	ND	ND	NA
1,4-Dichlorobenzene	1.5E-12	1.1E-14	1.5E-12	1.5E-07	1.5E-10	1.5E-07	ND	ND	NA	ND	ND	NA	ND	ND	NA	ND	ND	NA
2,3,5,6-Tetrachlorophenol	NA	NA	NA	1.3E-03	1.2E-05	1.3E-03	ND	ND	NA	ND	ND	NA	ND	ND	NA	ND	ND	NA
2,3,7,8-TCDD TEQ	1.5E-06	2.7E-08	1.5E-06	NA	NA	NA	7.4E-07	1.4E-08	7.5E-07	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	1.4E-09	1.3E-11	1.4E-09	8.7E-05	8.1E-07	8.8E-05	ND	ND	NA	ND	ND	NA	ND	ND	NA	ND	ND	NA
2,4-Dichlorophenol	NA	NA	NA	9.8E-04	9.2E-06	9.9E-04	ND	ND	NA	ND	ND	NA	NA	NA	NA	2.4E-04	2.2E-06	2.4E-04
2,4-Dimethylphenol	NA	NA	NA	6.6E-04	3.8E-06	6.7E-04	ND	ND	NA	ND	ND	NA	NA	NA	NA	2.8E-05	1.6E-07	2.8E-05
2,4-Dinitrophenol	NA	NA	NA	6.9E-03	6.5E-05	7.0E-03	NA	NA	NA	3.0E-03	2.8E-05	3.0E-03	NA	NA	NA	7.8E-04	7.2E-06	7.8E-04
2-Chlorophenol	NA	NA	NA	7.8E-05	7.2E-07	7.8E-05	NA	NA	NA	1.9E-05	1.8E-07	1.9E-05	NA	NA	NA	2.5E-05	2.3E-07	2.5E-05
2-Fluorobiphenyl	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.0E-05	2.3E-07	3.0E-05	ND	ND	NA	ND	ND	NA
2-Methyl-4,6-dinitrophenol	NA	NA	NA	1.4E-02	1.3E-04	1.5E-02	ND	ND	NA	ND	ND	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	NA	NA	NA	1.1E-04	3.5E-05	1.4E-04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	NA	NA	NA	3.5E-03	2.8E-05	3.5E-03	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitrophenol	NA	NA	NA	9.2E-04	8.6E-06	9.3E-04	ND	ND	NA	ND	ND	NA	NA	NA	NA	6.4E-05	5.9E-07	6.4E-05
4-Chloro-3-methylphenol	NA	NA	NA	5.8E-05	5.3E-07	5.7E-05	NA	NA	NA	3.7E-06	3.4E-08	3.7E-06	ND	ND	NA	ND	ND	NA
4-Nitrophenol	NA	NA	NA	2.6E-03	2.4E-05	2.6E-03	NA	NA	NA	8.4E-05	7.8E-07	8.4E-05	ND	ND	NA	ND	ND	NA
Acenaphthene	NA	NA	NA	1.0E-03	1.4E-05	1.0E-03	NA	NA	NA	3.8E-04	5.3E-06	3.8E-04	NA	NA	NA	2.2E-03	3.1E-05	2.2E-03
Acenaphthylene	NA	NA	NA	5.9E-04	8.3E-06	6.0E-04	ND	ND	NA	ND	ND	NA	ND	ND	NA	ND	ND	NA
Acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.3E-06	1.0E-08	1.3E-06
Anthracene	NA	NA	NA	3.9E-04	5.5E-06	4.0E-04	NA	NA	NA	1.3E-05	1.9E-07	1.4E-05	NA	NA	NA	3.9E-04	5.5E-06	3.9E-04
Arsenic	3.8E-08	1.4E-08	5.2E-08	5.9E-03	2.2E-04	6.2E-03	3.3E-08	1.2E-08	4.5E-08	5.1E-03	1.9E-04	5.3E-03	NA	NA	NA	NA	NA	NA
Benz(a)anthracene	1.6E-07	2.1E-09	1.6E-07	5.0E-04	1.5E-05	5.2E-04	6.7E-09	8.8E-11	6.8E-09	2.1E-05	6.6E-07	2.2E-05	9.3E-08	1.2E-09	9.5E-08	3.0E-04	9.2E-06	3.1E-04
Benzene	9.8E-11	4.5E-13	9.9E-11	3.1E-05	1.3E-07	3.1E-05	ND	ND	NA	ND	ND	NA	6.9E-11	3.1E-13	6.9E-11	2.2E-05	8.8E-08	2.2E-05
Benzo(a)pyrene	7.5E-07	9.8E-09	7.6E-07	2.4E-04	7.4E-06	2.5E-04	5.7E-08	7.5E-10	5.8E-08	1.8E-05	5.7E-07	1.9E-05	4.1E-07	5.4E-09	4.2E-07	1.3E-04	4.1E-06	1.4E-04
Benzo(b)fluoranthene	9.4E-08	1.2E-09	9.6E-08	3.0E-04	9.3E-06	3.1E-04	1.2E-08	1.5E-10	1.2E-08	3.8E-05	1.2E-06	3.9E-05	6.4E-08	8.4E-10	6.5E-08	2.0E-04	6.3E-06	2.1E-04
Benzo(g,h,i)perylene	NA	NA	NA	2.7E-04	3.8E-06	2.7E-04	NA	NA	NA	8.7E-05	1.2E-06	8.8E-05	NA	NA	NA	1.8E-04	2.5E-06	1.8E-04
Benzo(k)fluoranthene	4.7E-09	6.2E-11	4.7E-09	1.5E-04	4.6E-06	1.5E-04	4.6E-10	6.0E-12	4.6E-10	1.5E-05	4.5E-07	1.5E-05	3.0E-09	3.9E-11	3.0E-09	9.5E-05	2.9E-06	9.8E-05
Bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	NA	ND	ND	NA
Bromoform	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	NA	ND	ND	NA
Carbazole	9.5E-09	NA	9.5E-09	1.1E-03	8.8E-06	1.1E-03	1.8E-09	NA	1.8E-09	2.1E-04	1.7E-06	2.2E-04	6.9E-10	NA	6.9E-10	8.1E-05	6.3E-07	8.1E-05
Carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	NA	ND	ND	NA
Chromium (Total)	NA	4.8E-08	4.8E-08	1.1E-03	2.7E-03	3.8E-03	NA	5.0E-08	5.0E-08	1.2E-03	2.9E-03	4.0E-03	NA	NA	NA	NA	NA	NA
Chrysene	2.9E-09	3.8E-11	2.9E-09	9.3E-04	2.9E-05	9.6E-04	1.0E-10	1.3E-12	1.0E-10	3.3E-05	1.0E-06	3.4E-05	1.3E-09	1.8E-11	1.4E-09	4.3E-04	1.3E-05	4.4E-04
cis-1,3-Dichloropropene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	NA	ND	ND	NA
Copper	NA	NA	NA	2.2E-03	2.3E-05	2.3E-03	NA	NA	NA	2.5E-04	2.5E-06	2.5E-04	NA	NA	NA	2.5E-04	2.6E-06	2.5E-04
Dibenzo(a,h)anthracene	2.2E-07	2.9E-09	2.2E-07	7.0E-05	2.2E-06	7.2E-05	2.0E-07	2.6E-09	2.0E-07	6.4E-05	2.0E-06	6.6E-05	6.0E-08	7.9E-10	6.1E-08	1.9E-05	5.9E-07	2.0E-05
Ethylbenzene	NA	NA	NA	4.8E-06	1.5E-08	4.8E-06	ND	ND	NA	ND	ND	NA	NA	NA	NA	5.9E-07	1.8E-09	5.9E-07
Fluoranthene	NA	NA	NA	2.2E-02	3.2E-04	2.3E-02	NA	NA	NA	8.5E-05	1.2E-06	8.6E-05	NA	NA	NA	2.5E-03	3.5E-05	2.5E-03
Fluorene	NA	NA	NA	1.8E-03	2.5E-05	1.8E-03	NA	NA	NA	1.9E-05	2.7E-07	1.9E-05	NA	NA	NA	1.1E-03	1.6E-05	1.2E-03
Indeno(1,2,3-cd)pyrene	4.9E-08	6.5E-10	5.0E-08	1.6E-04	4.9E-06	1.6E-04	9.1E-09	1.2E-10	9.3E-09	2.9E-05	9.0E-07	3.0E-05	3.6E-08	4.7E-10	3.6E-08	1.1E-04	3.5E-06	1.2E-04
Methylene Chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.9E-13	1.3E-15	7.9E-13	1.2E-07	6.7E-11	1.2E-07
n-Butyl alcohol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	NA	NA	NA	5.8E-03	1.8E-03	7.6E-03	NA	NA	NA	9.1E-05	2.9E-05	1.2E-04	NA	NA	NA	1.8E-03	5.8E-04	2.4E-03
Pentachlorophenol	1.0E-07	NA	1.0E-07	2.0E-03	1.8E-05	2.0E-03	1.0E-09	NA	1.0E-09	2.0E-05	1.8E-07	2.0E-05	1.9E-08	NA	1.9E-08	3.7E-04	3.4E-06	3.7E-04
Phenanthrene	NA	NA	NA	7.5E-03	1.1E-04	7.6E-03	NA	NA	NA	9.2E-05	1.3E-06	9.4E-05	NA	NA	NA	4.4E-03	6.2E-05	4.4E-03
Phenol	NA	NA	NA	1.9E-06	1.5E-07	2.1E-06	NA	NA	NA	8.9E-07	7.0E-08	9.6E-07	NA	NA	NA	7.3E-07	5.7E-08	7.8E-07
Pyrene	NA	NA	NA	3.9E-03	5.6E-05	4.0E-03	NA	NA	NA	1.3E-04	1.8E-06	1.3E-04	NA	NA	NA	2.9E-03	4.0E-05	2.9E-03
Styrene	NA	NA	NA	1.6E-06	9.9E-09	1.6E-06	ND	ND	NA	ND	ND	NA	ND	ND	NA	ND	ND	NA
Tetrachloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.9E-11	2.9E-14	1.9E-11	2.8E-06	1.4E-09	2.8E-06
Toluene	NA	NA	NA	3.6E-06	5.7E-07	4.2E-06	ND	ND	NA	ND	ND	NA	NA	NA	NA	4.1E-07	6.5E-08	4.7E-07
trans-1,3-Dichloropropene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	NA	ND	ND	NA
Trichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.3E-11	1.0E-13	1.3E-11	7.4E-06	1.8E-11	7.4E-06
Xylene (total)	NA	NA	NA	1.2E-06	1.1E-08	1.2E-06	NA	NA	NA	9.2E-09	8.3E-11	9.2E-09	NA	NA	NA	1.2E-07	1.1E-09	1.2E-07
Total	2.9E-06	1.1E-07	3.0E-06	9.0E-02	5.7E-03	9.6E-02	1.1E-06	8.0E-08	1.1E-06	1.1E-02	3.1E-03	1.4E-02	6.9E-07	8.8E-09	7.0E-07	1.9E-02	8.3E-04	1.9E-02

NA - Not Analyzed
ND - Not Detected

Table 5-20
Summary of Potential
Risks Using Corrected
EPC for 2,3,7,8-TCDD-TE
In Process Area
KII Facility, Grenada, Mississippi
Utility Worker

	Process Area						North Yard Area						South Yard Area					
	Excess Lifetime Cancer Risk Soil Ingestion and Dermal			Hazard Index Soil Ingestion and Dermal			Excess Lifetime Cancer Risk Soil Ingestion and Dermal			Hazard Index Soil Ingestion and Dermal			Excess Lifetime Cancer Risk Soil Ingestion and Dermal			Hazard Index Soil Ingestion and Dermal		
Constituent	Contact	Dust Inhalation	Total	Contact	Dust Inhalation	Total	Contact	Dust Inhalation	Total	Contact	Dust Inhalation	Total	Contact	Dust Inhalation	Total	Contact	Dust Inhalation	Total
1,1,1-Trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	NA	ND	ND	NA
1,1-Dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	NA	ND	ND	NA
1,2-Dichloropropane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	NA	ND	ND	NA
1,3-Dichlorobenzene	NA	NA	NA	1 4E-08	4 4E-11	1 4E-08	ND	ND	NA	ND	ND	NA	ND	ND	NA	ND	ND	NA
1,4-Dichlorobenzene	3 7E-12	1 0E-14	3 7E-12	1 4E-08	5 8E-12	1 4E-08	ND	ND	NA	ND	ND	NA	ND	ND	NA	ND	ND	NA
2,3,5,6-Tetrachlorophenol	NA	NA	NA	1 4E-04	4 7E-07	1 4E-04	ND	ND	NA	ND	ND	NA	ND	ND	NA	ND	ND	NA
2,3,7,8-TCDD TEQ	3 7E-06	2 6E-08	3 7E-06	NA	NA	NA	1 8E-06	1 3E-08	1 8E-06	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	3,6E-09	1 2E-11	3 6E-09	9 1E-06	3 1E-08	9 1E-06	ND	ND	NA	ND	ND	NA	ND	ND	NA	ND	ND	NA
2,4-Dichlorophenol	NA	NA	NA	1 0E-04	3 5E-07	1 0E-04	ND	ND	NA	ND	ND	NA	NA	NA	NA	2 5E-05	8 6E-08	2 5E-05
2,4-Dimethylphenol	NA	NA	NA	6 0E-05	1 5E-07	6 0E-05	ND	ND	NA	ND	ND	NA	NA	NA	NA	2 5E-06	6 2E-09	2 5E-06
2,4-Dinitrophenol	NA	NA	NA	7 2E-04	2 5E-06	7 3E-04	NA	NA	NA	3 1E-04	1 1E-06	3 1E-04	NA	NA	NA	8 1E-05	2 8E-07	8 1E-05
2-Chlorophenol	NA	NA	NA	8 1E 06	2 8E-08	8 1E-06	NA	NA	NA	2 0E-06	6 7E-09	2 0E-06	NA	NA	NA	2 6E-06	8 8E-09	2 6E-06
2-Fluorobiphenyl	NA	NA	NA	NA	NA	NA	NA	NA	NA	2 9E-06	9 0E-09	2 9E 06	ND	ND	NA	ND	ND	NA
2-Methyl-4,6-dinitrophenol	NA	NA	NA	1 5E-03	5 2E-06	1 5E-03	ND	ND	NA	ND	ND	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	NA	NA	NA	1 0E-05	1 3E-06	1 1E-05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	NA	NA	NA	3 4E-04	1 1E-06	3 4E-04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitrophenol	NA	NA	NA	9 6E-05	3 3E-07	9 6E-05	ND	ND	NA	ND	ND	NA	NA	NA	NA	6 6E-06	2 3E-08	6 7E-06
4-Chloro-3-methylphenol	NA	NA	NA	5 9E-06	2 0E-08	5 9E-06	NA	NA	NA	3 8E-07	1 3E-09	3 9E-07	ND	ND	NA	ND	ND	NA
4-Nitrophenol	NA	NA	NA	2 7E-04	9 3E 07	2 7E-04	NA	NA	NA	8 7E-06	3 0E-08	8 7E-06	ND	ND	NA	ND	ND	NA
Acenaphthene	NA	NA	NA	9 3E-05	5 5E-07	9 3E-05	NA	NA	NA	3 4E-05	2 0E-07	3 4E 05	NA	NA	NA	2 0E-04	1 2E-06	2 0E-04
Acenaphthylene	NA	NA	NA	5 4E-05	3 2E-07	5 4E-05	ND	ND	NA	ND	ND	NA	ND	ND	NA	ND	ND	NA
Acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1 3E-07	3 9E-10	1 3E-07
Anthracene	NA	NA	NA	3 6E-05	2 1E-07	3 6E-05	NA	NA	NA	1 2E-06	7 2E-09	1 2E 06	NA	NA	NA	3 5E 05	2 1E-07	3 6E 05
Arsenic	9 9E-08	1 4E-08	1 1E-07	6 2E-04	8 4E-06	6 2E-04	8 5E-08	1 2E-08	9 7E-08	5 3E-04	7 2E-06	5 4E-04	NA	NA	NA	NA	NA	NA
Benz(a)anthracene	3 9E-07	2 0E-09	3 9E-07	5 0E 05	6 0E-07	5 1E-05	1 7E-08	8 5E-11	1 7E-08	2 2E-06	2 6E-08	2 2E-06	2 3E-07	1 2E 09	2 4E 07	3 0E-05	3 6E-07	3 0E-05
Benzene	2 5E-10	4 3E-13	2 5E-10	3 2E 06	4 8E-09	3 2E-06	ND	ND	NA	ND	ND	NA	1 7E-10	3 0E-13	1 7E-10	2 2E-06	3 4E-09	2 2E-06
Benzo(a)pyrene	1 9E-06	9 5E-09	1 9E-06	2 4E-05	2 8E-07	2 4E-05	1 4E-07	7 2E-10	1 4E-07	1 8E-06	2 2E-08	1 9E-06	1 0E-06	5 2E-09	1 0F-06	1 3E-05	1 6F-07	1 3E 05
Benzo(b)fluoranthene	2 4F-07	1 2E-09	2 4E-07	3 0E-05	3 6E-07	3 1E-05	2 9E-08	1 5E-10	3 0E-08	3 8E-06	4 5E-08	3 8E-06	1 6E-07	8 1E-10	1 6F-07	2 0E-05	2 4E-07	2 1E-05
Benzo(g,h,i)perylene	NA	NA	NA	2 5E-05	1 5E-07	2 5E-05	NA	NA	NA	7 9E-06	4 7E-08	8 0E-06	NA	NA	NA	1 6F-05	9 7E-08	1 6E-05
Benzo(k)fluoranthene	1 2E-08	5 9F-11	1 2E-08	1 5E-05	1 8F-07	1 5E-05	1 1E-09	5 8E-12	1 1E-09	1 5E-06	1 7E-08	1 5E-06	7 4F-09	3 7E-11	7 5E-09	9 5F-06	1 1E-07	9 6E-06
Bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	NA	ND	ND	NA
Bromoform	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	NA	ND	ND	NA
Carbazole	2 3E-08	NA	2 3F-08	1 1E-04	3 4F-07	1 1E-04	4 5E-09	NA	4 5E-09	2 1E-05	6 5E-08	2 1E 05	1 7E 09	NA	1 7E-09	7 9E-06	2 4E-08	8 0E-06
Carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	NA	ND	ND	NA
Chromium (Total)	NA	4 6E-08	4 6E-08	1 1E-04	1 0E-04	2 1E-04	NA	4 8E-08	4 8E-08	1 1E-04	1 1E-04	2 2E-04	NA	NA	NA	NA	NA	NA
Chrysene	7 3E-09	3 7E-11	7 3E-09	9 3E-05	1 1E-06	9 4E-05	2 6E-10	1 3E-12	2 6E-10	3 3E-06	3 9E-08	3 3E-06	3 4E-09	1 7E-11	3 4F-09	4 3E 05	5 1E-07	4 3E 05
cis-1,3-Dichloropropene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	NA	ND	ND	NA
Copper	NA	NA	NA	2 4F-04	8 7E-07	2 4E-04	NA	NA	NA	2 7E-05	9 7E-08	2 7E-05	NA	NA	NA	2 7E-05	9 8E 08	2 7E-05
Dibenzo(a,h)anthracene	5 5F-07	2 8E-09	5 5E-07	7 0E-06	8 3E-08	7 1E-06	5 0F-07	2 5E-09	5 0E-07	6 4E-06	7 6E-08	6 5E-06	1 5E-07	7 6E-10	1 5E-07	1 9E-06	2 3E 08	1 9E-06
Ethylbenzene	NA	NA	NA	5 0E-07	5 8E-10	5 0E-07	ND	ND	NA	ND	ND	NA	NA	NA	NA	6 1E-08	7 1E-11	6 1E-08
Fluoranthene	NA	NA	NA	2 0E-03	1 2E-05	2 1E-03	NA	NA	NA	7 8E-06	4 6E-08	7 8E-06	NA	NA	NA	2 2E 04	1 3E-06	2 3E-04
Fluorene	NA	NA	NA	1 6E-04	9 5E-07	1 6E-04	NA	NA	NA	1 7E-06	1 0E-08	1 8E-06	NA	NA	NA	1 0E-04	6 2E-07	1 1E-04
Indeno(1,2,3-cd)pyrene	1 2E-07	6 2E-10	1 2E 07	1 6E-05	1 9F-07	1 6E 05	2 3E-08	1 2F-10	2 3E-08	2 9E-06	3 5E-08	3 0E-06	9 0E-08	4 5E-10	9 0E-08	1 1E-05	1 4E-07	1 2F-05
Methylene Chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1 9E-12	1 3E-15	1 9E 12	1 2F-08	2 6E-12	1 2F-08
n Butyl alcohol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	NA	NA	NA	5 3E-04	7 0E-05	6 0E-04	NA	NA	NA	8 3E-06	1 1E-06	9 4E-06	NA	NA	NA	1 7E-04	2 2E-05	1 9E-04
Pentachlorophenol	2 6E-07	NA	2 6E-07	2 1E-04	7 1E-07	2 1E-04	2 6F-09	NA	2 6E-09	2 0E-06	7 0E-09	2 1E-06	4 9E 08	NA	4 9E-08	3 8E-05	1 3E-07	3 9E-05
Phenanthrene	NA	NA	NA	6 9E-04	4 1E-06	6 9E-04	NA	NA	NA	8 4E-06	5 0E-08	8 5E-06	NA	NA	NA	4 0E-04	2 4E-06	4 0E-04
Phenol	NA	NA	NA	1 9F-07	5 8E-09	1 9E-07	NA	NA	NA	8 6E-08	2 7E-09	9 0E-08	NA	NA	NA	7 2E-08	2 2F-09	7 4E-08
Pyrene	NA	NA	NA	3 6E-04	2 1E-06	3 6E-04	NA	NA	NA	1 2E-05	7 0E-08	1 2E-05	NA	NA	NA	2 6E 04	1 5E-06	2 6E-04
Styrene	NA	NA	NA	1 6E 07	3 8E-10	1 6E-07	ND	ND	NA	ND	ND	NA	ND	ND	NA	ND	ND	NA
Tetrachloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4 7E 11	2 8E-14	4 7E-11	2 5E-07	5 6E-11	2 5E-07
Toluene	NA	NA	NA	3 7E-07	2 2E-08	3 9E 07	ND	ND	NA	ND	ND	NA	NA	NA	NA	4 2E-08	2 5E 09	4 4E-08
trans-1,3 Dichloropropene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	NA	ND	ND	NA
Trichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3 1E-11	9 6C-14	3 1E-11	7 3L-07	6 8E-13	7 3E-07
Xylene (total)	NA	NA	NA	1 2E-07	4 2E-10	1 2E 07	NA	NA	NA	9 5E-10	3 2E 12	9 5E-10	NA	NA	NA	1 3E-08	4 3E-11	1 3E-08
Total	7 3E-06	1 0E-07	7 4E-06	8 8E-03	2 2E-04	9 0E-03	2 6E-06	7 7E-08	2 7E-06	1 1E-03	1 2E-04	1 2E-03	1 7E-06	8 5E-09	1 7E-06	1 7E-03	3 2E-05	1 8E-03

NA - Not Analyzed
ND - Not Detected

Alternate Table 5-17 (Page 1 of 2)

Summary of Potential Risks Using EPA Default Dermal Absorption Factors and Corrected EPC for 2,3,7,8-TCDD-TE
Kil Facility, Grenada, Mississippi
Kil Workers

	Process Area						North Yard Area					
	Excess Lifetime Cancer Risk			Hazard Index			Excess Lifetime Cancer Risk			Hazard Index		
Constituent	Soil Ingestion and Dermal Contact	Dust Inhalation	Total	Soil Ingestion and Dermal Contact	Dust Inhalation	Total	Soil Ingestion and Dermal Contact	Dust Inhalation	Total	Soil Ingestion and Dermal Contact	Dust Inhalation	Total
1,1,1-Trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	ND	ND	NA	ND	ND	NA	ND	ND	NA	ND	ND	NA
1,4-Dichlorobenzene	ND	ND	NA	ND	ND	NA	ND	ND	NA	ND	ND	NA
2,3,5,6-Tetrachlorophenol	NA	NA	NA	4.0E-03	5.3E-05	4.0E-03	ND	ND	NA	ND	ND	NA
2,3,7,8-TCDD TEQ	2.4E-05	7.4E-07	2.5E-05	NA	NA	NA	1.8E-05	3.7E-07	1.9E-05	NA	NA	NA
2,4,6-Trichlorophenol	4.2E-09	5.5E-11	4.3E-09	1.1E-05	1.4E-07	1.1E-05	ND	ND	NA	ND	ND	NA
2,4-Dichlorophenol	NA	NA	NA	2.8E-03	3.7E-05	2.8E-03	ND	ND	NA	ND	ND	NA
2,4-Dimethylphenol	NA	NA	NA	1.2E-03	1.6E-05	1.2E-03	ND	ND	NA	ND	ND	NA
2,4-Dinitrophenol	NA	NA	NA	2.1E-02	2.7E-04	2.1E-02	ND	ND	NA	ND	ND	NA
2-Chlorophenol	NA	NA	NA	1.9E-05	2.5E-07	1.9E-05	NA	NA	NA	3.0E-05	2.2E-07	3.0E-05
2-Fluorobiphenyl	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methyl-4,6-dinitrophenol	NA	NA	NA	4.3E-02	5.7E-04	4.4E-02	ND	ND	NA	ND	ND	NA
2-Methylnaphthalene	NA	NA	NA	5.7E-05	3.5E-05	9.2E-05	NA	NA	NA	NA	NA	NA
Dibenzofuran	NA	NA	NA	2.1E-03	2.8E-05	2.1E-03	NA	NA	NA	NA	NA	NA
2-Nitrophenol	NA	NA	NA	1.4E-05	1.8E-07	1.4E-05	ND	ND	NA	ND	ND	NA
4-Chloro 3-methylphenol	NA	NA	NA	1.6E-04	2.1E-06	1.6E-04	NA	NA	NA	3.1E-06	2.3E-08	3.1E-06
4-Nitrophenol	NA	NA	NA	7.7E-03	1.0E-04	7.8E-03	NA	NA	NA	1.6E-04	1.2E-06	1.6E-04
Acenaphthene	NA	NA	NA	9.4E-04	2.5E-05	9.7E-04	NA	NA	NA	3.7E-04	3.2E-06	3.7E-04
Acenaphthylene	NA	NA	NA	3.6E-04	9.7E-06	3.7E-04	ND	ND	NA	ND	ND	NA
Acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	NA	NA	NA	4.3E-04	1.1E-05	4.4E-04	NA	NA	NA	4.9E-05	4.3E-07	5.0E-05
Arsenic	6.7E-07	3.1E-07	9.8E-07	4.2E-03	1.9E-04	4.4E-03	2.5E-06	4.0E-07	2.9E-06	1.6E-02	2.5E-04	1.6E-02
Benz(a)anthracene	6.5E-06	1.0E-07	6.6E-06	8.3E-04	3.1E-05	8.6E-04	1.3E-06	5.2E-09	1.3E-06	1.6E-04	1.6E-06	1.6E-04
Benzene	1.2E-09	9.0E-12	1.2E-09	1.5E-05	1.0E-07	1.5E-05	ND	ND	NA	ND	ND	NA
Benzo(a)pyrene	3.1E-05	4.9E-07	3.1E-05	3.9E-04	1.5E-05	4.1E-04	1.1E-05	4.6E-08	1.1E-05	1.4E-04	1.4E-06	1.5E-04
Benzo(b)fluoranthene	4.0E-06	6.5E-08	4.1E-06	5.2E-04	1.9E-05	5.4E-04	2.2E-06	9.2E-09	2.3E-06	2.9E-04	2.8E-06	2.9E-04
Benzo(g,h,i)perylene	NA	NA	NA	3.0E-04	8.1E-06	3.1E-04	NA	NA	NA	3.4E-04	3.0E-06	3.5E-04
Benzo(k)fluoranthene	2.0E-07	3.1E-09	2.0E-07	2.5E-04	9.4E-06	2.6E-04	8.6E-08	3.5E-10	8.6E-08	1.1E-04	1.1E-06	1.1E-04
Bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromoform	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	3.4E-07	NA	3.4E-07	1.6E-03	2.1E-05	1.6E-03	2.1E-08	NA	2.1E-08	9.7E-05	7.2E-07	9.7E-05
Carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (Total)	NA	1.7E-06	1.7E-06	9.1E-04	3.8E-03	4.7E-03	NA	2.0E-06	2.0E-06	2.4E-03	4.6E-03	7.0E-03
Chrysene	1.2E-07	1.9E-09	1.2E-07	1.5E-03	5.6E-05	1.6E-03	1.9E-08	8.0E-11	2.0E-08	2.5E-04	2.4E-06	2.5E-04
cis-1,3-Dichloropropene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	NA	NA	NA	5.4E-04	7.8E-06	5.5E-04	NA	NA	NA	2.6E-04	3.6E-06	2.6E-04
Dibenzo(a,h)anthracene	9.9E-06	1.6E-07	1.0E-05	1.3E-04	4.8E-06	1.3E-04	4.0E-05	1.6E-07	4.0E-05	5.1E-04	4.9E-06	5.2E-04
Ethylbenzene	NA	NA	NA	1.8E-06	9.0E-09	1.8E-06	ND	ND	NA	ND	ND	NA
Fluoranthene	NA	NA	NA	2.9E-02	7.6E-04	2.9E-02	NA	NA	NA	3.2E-04	2.8E-06	3.3E-04
Fluorene	NA	NA	NA	1.7E-03	4.6E-05	1.8E-03	NA	NA	NA	7.3E-05	6.3E-07	7.3E-05
Indeno(1,2,3-cd)pyrene	2.1E-06	3.4E-08	2.2E-06	2.7E-04	1.0E-05	2.8E-04	1.8E-06	7.2E-09	1.8E-06	2.3E-04	2.2E-06	2.3E-04
Methylene Chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Butyl alcohol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	NA	NA	NA	5.4E-03	3.2E-03	8.5E-03	NA	NA	NA	3.3E-04	6.4E-05	4.0E-04
Pentachlorophenol	4.0E-06	NA	4.0E-06	3.1E-03	3.7E-05	3.2E-03	4.9E-06	NA	4.9E-06	3.8E-05	1.7E-07	3.9E-05
Phenanthrene	NA	NA	NA	7.5E-03	2.0E-04	7.7E-03	NA	NA	NA	3.4E-04	3.0E-06	3.5E-04
Phenol	NA	NA	NA	4.4E-06	5.9E-07	5.0E-06	NA	NA	NA	2.4E-06	1.7E-07	2.5E-06
Pyrene	NA	NA	NA	3.7E-03	9.9E-05	3.8E-03	NA	NA	NA	5.0E-04	4.4E-06	5.0E-04
Styrene	NA	NA	NA	6.1E-07	6.0E-09	6.2E-07	ND	ND	NA	ND	ND	NA
Tetrachloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	NA	NA	NA	3.6E-07	9.0E-08	4.5E-07	ND	ND	NA	ND	ND	NA
trans-1,3-Dichloropropene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylene (total)	NA	NA	NA	3.1E-07	4.5E-09	3.2E-07	NA	NA	NA	1.8E-08	2.3E-10	1.8E-08
Total	8.3E-05	3.6E-06	8.6E-05	1.5E-01	9.7E-03	1.5E-01	7.8E-05	3.0E-06	8.1E-05	2.3E-02	4.9E-03	2.8E-02

NA - Not Analyzed
ND - Not Detected

Alternate Table 5-17 (Page 2 of 2)

Summary of Potential Risks Using EPA Default Dermal Absorption Factors and Corrected EPC for 2,3,7,8-TCDD-TE
Kil Facility, Grenada, Mississippi
Kil Workers

	South Yard Area						Process Cooling Reservoir					
	Excess Lifetime Cancer Risk			Hazard Index			Excess Lifetime Cancer Risk			Hazard Index		
Constituent	Soil Ingestion and Dermal Contact	Dust Inhalation	Total	Soil Ingestion and Dermal Contact	Dust Inhalation	Total	Sediment Ingestion and Dermal Contact	Surface Water Ingestion and Dermal Contact	Total	Sediment Ingestion and Dermal Contact	Surface Water Ingestion and Dermal Contact	Total
1,1,1-Trichloroethane	NA	NA	NA	3.6E-08	2.1E-10	3.7E-08	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	ND	ND	NA	ND	ND	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	ND	ND	NA	ND	ND	NA	NA	NA	NA	NA	NA	NA
2,3,5,6-Tetrachlorophenol	ND	ND	NA	ND	ND	NA	NA	NA	NA	4.7E-04	NA	4.7E-04
2,3,7,8-TCDD TEQ	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	ND	ND	NA	ND	ND	NA	7.3E-09	NA	7.3E-09	1.9E-05	NA	1.9E-05
2,4-Dichlorophenol	NA	NA	NA	1.6E-04	1.2E-06	1.6E-04	NA	NA	NA	3.1E-04	NA	3.1E-04
2,4-Dimethylphenol	NA	NA	NA	8.1E-06	6.0E-08	8.2E-06	NA	NA	NA	4.7E-05	NA	4.7E-05
2,4-Dinitrophenol	NA	NA	NA	3.7E-04	2.8E-06	3.7E-04	NA	NA	NA	9.3E-04	NA	9.3E-04
2-Chlorophenol	NA	NA	NA	1.6E-05	1.2E-07	1.6E-05	NA	NA	NA	1.9E-04	NA	1.9E-04
2-Fluorobiphenyl	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methyl-4,6-dinitrophenol	ND	ND	NA	ND	ND	NA	NA	NA	NA	2.5E-02	NA	2.5E-02
2-Methylnaphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitrophenol	NA	NA	NA	3.0E-05	2.2E-07	3.0E-05	NA	NA	NA	1.2E-04	NA	1.2E-04
4-Chloro-3-methylphenol	ND	ND	NA	ND	ND	NA	NA	NA	NA	1.9E-05	NA	1.9E-05
4-Nitrophenol	ND	ND	NA	ND	ND	NA	NA	NA	NA	9.3E-03	NA	9.3E-03
Acenaphthene	NA	NA	NA	1.3E-03	1.1E-05	1.3E-03	NA	NA	NA	3.4E-04	NA	3.4E-04
Acenaphthylene	ND	ND	NA	ND	ND	NA	NA	NA	NA	9.8E-05	6.1E-06	1.0E-04
Acetone	NA	NA	NA	4.2E-07	5.5E-09	4.2E-07	NA	NA	NA	NA	NA	NA
Anthracene	NA	NA	NA	3.6E-04	3.2E-06	3.7E-04	NA	NA	NA	8.5E-04	4.2E-06	8.5E-04
Arsenic	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benz(a)anthracene	4.3E-06	1.8E-08	4.4E-06	5.5E-04	5.3E-06	5.6E-04	2.1E-06	5.7E-08	2.1E-06	2.7E-04	8.0E-06	2.7E-04
Benzene	2.2E-10	1.5E-12	2.2E-10	2.8E-06	1.7E-08	2.8E-06	2.4E-11	NA	2.4E-11	3.0E-07	NA	3.0E-07
Benzo(a)pyrene	1.9E-05	7.8E-08	1.9E-05	2.4E-04	2.4E-06	2.5E-04	9.3E-08	5.1E-07	9.8E-06	1.2E-04	7.2E-06	1.3E-04
Benzo(b)fluoranthene	2.9E-06	1.2E-08	3.0E-06	3.8E-04	3.6E-06	3.8E-04	1.3E-06	1.2E-07	1.4E-06	1.7E-04	1.7E-05	1.8E-04
Benzo(g,h,i)perylene	NA	NA	NA	1.7E-04	1.4E-06	1.7E-04	NA	NA	NA	8.9E-05	9.7E-06	9.9E-05
Benzo(k)fluoranthene	1.4E-07	5.6E-10	1.4E-07	1.7E-04	1.7E-06	1.8E-04	6.5E-08	5.5E-09	7.0E-08	8.3E-05	7.7E-06	9.1E-05
Bromodichloromethane	ND	ND	NA	ND	ND	NA	NA	NA	NA	NA	NA	NA
Bromoform	ND	ND	NA	ND	ND	NA	NA	NA	NA	NA	NA	NA
Carbazole	6.7E-11	NA	6.7E-11	3.1E-07	2.3E-09	3.2E-07	3.9E-07	2.3E-11	3.9E-07	1.8E-03	1.1E-07	1.8E-03
Carbon disulfide	ND	ND	NA	ND	ND	NA	NA	NA	NA	NA	NA	NA
Chromium (Total)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	6.2E-08	2.5E-10	6.2E-08	7.9E-04	7.6E-06	8.0E-04	2.6E-08	1.5E-09	2.7E-08	3.3E-04	2.1E-05	3.5E-04
cis-1,3-Dichloropropene	ND	ND	NA	ND	ND	NA	NA	NA	NA	NA	NA	NA
Copper	NA	NA	NA	9.1E-05	1.3E-06	9.2E-05	NA	NA	NA	NA	NA	NA
Dibenzo(a,h)anthracene	2.8E-06	1.1E-08	2.8E-06	3.5E-05	3.4E-07	3.6E-05	8.8E-06	1.4E-07	8.9E-06	1.1E-04	2.0E-06	1.1E-04
Ethylbenzene	NA	NA	NA	2.0E-07	9.2E-10	2.0E-07	NA	NA	NA	1.8E-07	NA	1.8E-07
Fluoranthene	NA	NA	NA	2.3E-03	2.0E-05	2.3E-03	NA	NA	NA	1.3E-03	1.7E-05	1.3E-03
Fluorene	NA	NA	NA	1.1E-03	9.4E-06	1.1E-03	NA	NA	NA	9.1E-04	1.8E-06	9.1E-04
Indeno(1,2,3-cd)pyrene	1.6E-06	6.7E-09	1.7E-06	2.1E-04	2.0E-06	2.1E-04	6.5E-07	8.2E-08	7.3E-07	8.3E-05	1.1E-05	9.5E-05
Methylene Chloride	6.0E-11	1.7E-13	6.1E-11	3.8E-07	3.5E-10	3.8E-07	NA	NA	NA	NA	NA	NA
n-Butyl alcohol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	NA	NA	NA	1.7E-03	3.3E-04	2.1E-03	NA	NA	NA	2.0E-03	1.2E-05	2.0E-03
Pentachlorophenol	3.8E-07	NA	3.8E-07	2.9E-04	1.3E-06	2.9E-04	NA	NA	NA	NA	NA	NA
Phenanthrene	NA	NA	NA	4.1E-03	3.6E-05	4.1E-03	NA	ND	NA	1.7E-03	ND	1.7E-03
Phenol	NA	NA	NA	2.8E-07	2.1E-08	3.1E-07	NA	NA	NA	2.1E-04	NA	2.1E-04
Pyrene	NA	NA	NA	2.7E-03	2.3E-05	2.7E-03	NA	NA	NA	2.2E-05	1.9E-05	4.2E-05
Styrene	ND	ND	NA	ND	ND	NA	NA	NA	NA	1.4E-04	NA	1.4E-04
Tetrachloroethene	1.6E-10	4.0E-13	1.6E-10	8.4E-07	7.9E-10	8.4E-07	2.2E-11	NA	2.2E-11	1.2E-07	NA	1.2E-07
Toluene	NA	NA	NA	1.4E-07	3.2E-08	1.7E-07	NA	NA	NA	NA	NA	NA
trans-1,3-Dichloropropene	ND	ND	NA	ND	ND	NA	1.3E-10	NA	1.3E-10	1.2E-07	NA	1.2E-07
Trichloroethene	7.6E-11	1.0E-12	7.7E-11	1.8E-06	7.0E-12	1.8E-06	NA	NA	NA	NA	NA	NA
Xylene (total)	NA	NA	NA	4.2E-08	5.6E-10	4.3E-08	NA	NA	NA	NA	NA	NA
Total	3.1E-05	1.3E-07	3.2E-05	1.7E-02	4.7E-04	1.8E-02	2.3E-05	9.1E-07	2.4E-05	4.7E-02	1.4E-04	4.7E-02

NA - Not Analyzed
ND - Not Detected

Alternate Table 5-18 (Page 1 of 2)
Summary of Potential Risks Using EPA Default Dermal Absorption Factors and Corrected EPC for 2,3,7,8-TCDD-TE
Kil Facility, Grenada, Mississippi
Trespassers

	Process Area						North Yard Area						South Yard Area		
	Excess Lifetime Cancer Risk			Hazard Index			Excess Lifetime Cancer Risk			Hazard Index			Excess Lifetime Cancer Risk		
Constituent	Soil Ingestion and Dermal Contact	Dust Inhalation	Total	Soil Ingestion and Dermal Contact	Dust Inhalation	Total	Soil Ingestion and Dermal Contact	Dust Inhalation	Total	Soil Ingestion and Dermal Contact	Dust Inhalation	Total	Soil Ingestion and Dermal Contact	Dust Inhalation	Total
1,1,1-Trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	ND	ND	NA	ND	ND	NA	ND	ND	NA	ND	ND	NA	ND	ND	NA
1,4-Dichlorobenzene	ND	ND	NA	ND	ND	NA	ND	ND	NA	ND	ND	NA	ND	ND	NA
2,3,5,6-Tetrachlorophenol	NA	NA	NA	9.1E-04	9.2E-07	9.1E-04	ND	ND	NA	ND	ND	NA	ND	ND	NA
2,3,7,8-TCDD TEQ	1.3E-06	3.6E-09	1.3E-06	NA	NA	NA	1.1E-06	3.0E-09	1.1E-06	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	2.7E-10	2.7E-13	2.7E-10	2.5E-06	2.5E-09	2.5E-06	ND	ND	NA	ND	ND	NA	ND	ND	NA
2,4-Dichlorophenol	NA	NA	NA	6.3E-04	6.4E-07	6.3E-04	ND	ND	NA	ND	ND	NA	NA	NA	NA
2,4-Dimethylphenol	NA	NA	NA	2.7E-04	2.7E-07	2.7E-04	ND	ND	NA	ND	ND	NA	NA	NA	NA
2,4-Dinitrophenol	NA	NA	NA	4.7E-03	4.7E-06	4.7E-03	ND	ND	NA	ND	ND	NA	NA	NA	NA
2-Chlorophenol	NA	NA	NA	4.3E-06	4.3E-09	4.3E-06	NA	NA	NA	6.4E-06	6.5E-09	6.4E-06	NA	NA	NA
2-Fluorobiphenyl	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methyl-4,6-dinitrophenol	NA	NA	NA	9.9E-03	1.0E-05	9.9E-03	ND	ND	NA	ND	ND	NA	ND	ND	NA
2-Methylnaphthalene	NA	NA	NA	1.9E-05	6.1E-07	2.0E-05	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	NA	NA	NA	4.8E-04	4.9E-07	4.8E-04	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitrophenol	NA	NA	NA	3.2E-06	3.2E-09	3.2E-06	ND	ND	NA	ND	ND	NA	NA	NA	NA
4-Chloro-3-methylphenol	NA	NA	NA	3.7E-05	3.8E-08	3.7E-05	NA	NA	NA	6.6E-07	6.7E-10	6.6E-07	ND	ND	NA
4-Nitrophenol	NA	NA	NA	1.8E-03	1.8E-06	1.8E-03	NA	NA	NA	3.5E-05	3.5E-08	3.5E-05	ND	ND	NA
Acenaphthene	NA	NA	NA	3.6E-04	4.4E-07	3.6E-04	NA	NA	NA	7.8E-05	9.4E-08	7.8E-05	NA	NA	NA
Acenaphthylene	NA	NA	NA	1.4E-04	1.7E-07	1.4E-04	ND	ND	NA	ND	ND	NA	ND	ND	NA
Acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	NA	NA	NA	1.6E-04	2.0E-07	1.6E-04	NA	NA	NA	1.0E-05	1.3E-08	1.0E-05	NA	NA	NA
Arsenic	6.9E-08	1.5E-09	7.1E-08	1.5E-03	3.4E-06	1.5E-03	1.5E-07	3.3E-09	1.5E-07	3.3E-03	7.3E-06	3.3E-03	NA	NA	NA
Benz(a)anthracene	8.9E-07	5.1E-10	8.9E-07	4.0E-04	5.4E-07	4.1E-04	7.4E-08	4.2E-11	7.4E-08	3.4E-05	4.6E-08	3.4E-05	6.3E-07	3.6E-10	6.3E-07
Benzene	4.7E-11	4.4E-14	4.7E-11	2.1E-06	1.8E-09	2.1E-06	ND	ND	NA	ND	ND	NA	3.3E-11	3.1E-14	3.3E-11
Benzo(a)pyrene	4.2E-06	2.4E-09	4.2E-06	1.9E-04	2.6E-07	1.9E-04	6.6E-07	3.8E-10	6.6E-07	3.0E-05	4.1E-08	3.0E-05	2.8E-06	1.6E-09	2.8E-06
Benzo(b)fluoranthene	5.5E-07	3.2E-10	5.5E-07	2.5E-04	3.4E-07	2.5E-04	1.3E-07	7.5E-11	1.3E-07	6.0E-05	8.0E-08	6.0E-05	4.3E-07	2.5E-10	4.3E-07
Benzo(g,h,i)perylene	NA	NA	NA	1.2E-04	1.4E-07	1.2E-04	NA	NA	NA	7.2E-05	8.7E-08	7.2E-05	NA	NA	NA
Benzo(k)fluoranthene	2.7E-08	1.5E-11	2.7E-08	1.2E-04	1.6E-07	1.2E-04	5.0E-09	2.9E-12	5.0E-09	2.3E-05	3.1E-08	2.3E-05	2.0E-08	1.1E-11	2.0E-08
Bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	NA
Bromoform	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	NA
Carbazole	2.1E-08	NA	2.1E-08	3.6E-04	3.6E-07	3.6E-04	1.2E-09	NA	1.2E-09	2.1E-05	2.1E-08	2.1E-05	1.0E-11	NA	1.0E-11
Carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	NA
Chromium (Total)	NA	8.2E-09	8.2E-09	2.6E-04	6.6E-05	3.2E-04	NA	1.6E-08	1.6E-08	5.2E-04	1.3E-04	6.5E-04	NA	NA	NA
Chrysene	1.6E-08	9.2E-12	1.6E-08	7.3E-04	9.9E-07	7.4E-04	1.1E-09	6.5E-13	1.1E-09	5.2E-05	7.0E-08	5.2E-05	9.1E-09	5.2E-12	9.1E-09
cis-1,3-Dichloropropene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	NA
Copper	NA	NA	NA	7.2E-05	1.4E-07	7.3E-05	NA	NA	NA	5.7E-05	1.1E-07	5.7E-05	NA	NA	NA
Dibenzo(a,h)anthracene	1.4E-06	7.8E-10	1.4E-06	6.2E-05	8.4E-08	6.2E-05	2.3E-06	1.3E-09	2.3E-06	1.1E-04	1.4E-07	1.1E-04	4.0E-07	2.3E-10	4.0E-07
Ethylbenzene	NA	NA	NA	2.6E-07	1.6E-10	2.6E-07	ND	ND	NA	ND	ND	NA	NA	NA	NA
Fluoranthene	NA	NA	NA	1.1E-02	1.3E-05	1.1E-02	NA	NA	NA	6.8E-05	8.2E-08	6.8E-05	NA	NA	NA
Fluorene	NA	NA	NA	6.7E-04	8.1E-07	6.7E-04	NA	NA	NA	1.5E-05	1.8E-08	1.5E-05	NA	NA	NA
Indeno(1,2,3-cd)pyrene	2.9E-07	1.7E-10	2.9E-07	1.3E-04	1.6E-07	1.3E-04	1.0E-07	5.9E-11	1.0E-07	4.7E-05	6.3E-08	4.7E-05	2.4E-07	1.4E-10	2.4E-07
Methylene Chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	9.2E-12	3.6E-15	9.2E-12
n-Butyl alcohol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	NA	NA	NA	2.1E-03	5.5E-05	2.1E-03	NA	NA	NA	7.0E-05	1.9E-06	7.1E-05	NA	NA	NA
Pentachlorophenol	3.9E-07	NA	3.9E-07	1.1E-03	6.5E-07	1.1E-03	2.9E-09	NA	2.9E-09	8.1E-06	4.8E-09	8.1E-06	5.5E-08	NA	5.5E-08
Phenanthrene	NA	NA	NA	2.9E-03	3.5E-06	2.9E-03	NA	NA	NA	7.2E-05	8.7E-08	7.2E-05	NA	NA	NA
Phenol	NA	NA	NA	1.0E-06	1.0E-08	1.0E-06	NA	NA	NA	5.0E-07	5.1E-09	5.1E-07	NA	NA	NA
Pyrene	NA	NA	NA	1.4E-03	1.7E-06	1.4E-03	NA	NA	NA	1.1E-04	1.3E-07	1.1E-04	NA	NA	NA
Styrene	NA	NA	NA	8.7E-08	1.1E-10	8.7E-08	ND	ND	NA	ND	ND	NA	ND	ND	NA
Tetrachloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.4E-11	8.1E-15	2.4E-11
Toluene	NA	NA	NA	5.1E-08	1.6E-09	5.2E-08	ND	ND	NA	ND	ND	NA	NA	NA	NA
trans-1,3-Dichloropropene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	NA
Trichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.2E-11	2.0E-14	1.2E-11
Xylene (total)	NA	NA	NA	4.4E-08	7.8E-11	4.4E-08	NA	NA	NA	3.8E-09	6.8E-12	3.8E-09	NA	NA	NA
Total	9.2E-06	1.8E-08	9.2E-06	4.3E-02	1.7E-04	4.3E-02	4.6E-06	2.4E-08	4.6E-06	4.8E-03	1.4E-04	5.0E-03	4.6E-06	2.6E-09	4.6E-06

NA - Not Analyzed
ND - Not Detected

Alternate Table 5-18 (Page 2 of 2)
Summary of Potential Risks Using EPA Default Dermal Absorption Factors and Corrected EPC for 2,3,7,8-TCDD-TE
KII Facility, Grenada, Mississippi
Trespassers

	Process Cooling Reservoir									Northern Stream On-Site		Northern Stream Off-Site	
	Hazard Index			Excess Lifetime Cancer Risk			Hazard Index			Sediment Ingestion and Dermal Contact		Sediment Ingestion and Dermal Contact	
Constituent	Soil Ingestion and Dermal Contact	Dust Inhalation	Total	Sediment Ingestion and Dermal Contact	Surface Water Ingestion and Dermal Contact	Total	Sediment Ingestion and Dermal Contact	Surface Water Ingestion and Dermal Contact	Total	Excess Lifetime Cancer Risk	Hazard Index	Excess Lifetime Cancer Risk	Hazard Index
1,1,1-Trichloroethane	2.0E-08	1.6E-11	2.0E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,3,5,6-Tetrachlorophenol	ND	ND	NA	NA	NA	NA	7.6E-04	NA	7.6E-04	NA	NA	NA	NA
2,3,7,8-TCDD TEQ	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	ND	ND	NA	3.4E-09	NA	3.4E-09	3.0E-05	NA	3.0E-05	NA	NA	NA	NA
2,4-Dichlorophenol	8.7E-05	8.8E-08	8.7E-05	NA	NA	NA	5.1E-04	NA	5.1E-04	NA	NA	NA	NA
2,4-Dimethylphenol	4.3E-06	4.4E-09	4.3E-06	NA	NA	NA	7.6E-05	NA	7.6E-05	NA	NA	NA	NA
2,4-Dinitrophenol	2.0E-04	2.0E-07	2.0E-04	NA	NA	NA	1.5E-03	NA	1.5E-03	NA	NA	NA	NA
2-Chlorophenol	8.3E-06	8.5E-09	8.3E-06	NA	NA	NA	3.0E-04	NA	3.0E-04	NA	NA	NA	NA
2-Fluorobiphenyl	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methyl-4,6-dinitrophenol	ND	ND	NA	NA	NA	NA	4.1E-02	NA	4.1E-02	NA	NA	NA	NA
2-Methylnaphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.1E-07	NA	NA
Dibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.8E-06	NA	NA
2-Nitrophenol	1.6E-05	1.6E-08	1.6E-05	NA	NA	NA	1.9E-04	NA	1.9E-04	NA	NA	NA	NA
4-Chloro-3-methylphenol	ND	ND	NA	NA	NA	NA	3.0E-05	NA	3.0E-05	NA	NA	NA	NA
4-Nitrophenol	ND	ND	NA	NA	NA	NA	1.5E-02	NA	1.5E-02	NA	NA	NA	NA
Acenaphthene	6.8E-04	6.2E-07	6.8E-04	NA	NA	NA	6.5E-04	NA	6.5E-04	NA	1.0E-07	NA	NA
Acenaphthylene	ND	ND	NA	NA	NA	NA	1.9E-04	2.1E-05	2.1E-04	NA	2.7E-06	NA	1.3E-05
Acetone	2.3E-07	4.0E-10	2.3E-07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	1.9E-04	2.3E-07	1.9E-04	NA	NA	NA	1.6E-03	1.5E-05	1.6E-03	NA	1.1E-07	NA	NA
Arsenic	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benz(a)anthracene	2.9E-04	3.9E-07	2.9E-04	1.2E-06	5.8E-08	1.2E-06	5.4E-04	2.9E-05	5.7E-04	4.1E-08	1.9E-05	4.9E-09	2.3E-06
Benzene	1.5E-06	1.2E-09	1.5E-06	8.8E-12	NA	8.8E-12	4.0E-07	NA	4.0E-07	NA	NA	NA	NA
Benzo(a)pyrene	1.3E-04	1.7E-07	1.3E-04	5.3E-06	5.2E-07	5.8E-06	2.4E-04	2.6E-05	2.7E-04	2.8E-07	1.3E-05	5.1E-08	2.3E-06
Benzo(b)fluoranthene	2.0E-04	2.6E-07	2.0E-04	7.5E-07	1.2E-07	8.7E-07	3.4E-04	6.1E-05	4.0E-04	5.4E-08	2.5E-05	7.7E-09	3.5E-06
Benzo(g,h,i)perylene	8.7E-05	1.1E-07	8.7E-05	NA	NA	NA	1.7E-04	3.6E-05	2.1E-04	NA	1.1E-05	NA	1.9E-06
Benzo(k)fluoranthene	9.1E-05	1.2E-07	9.2E-05	3.7E-08	5.6E-09	4.3E-08	1.7E-04	2.8E-05	2.0E-04	2.4E-09	1.1E-05	3.8E-10	1.7E-06
Bromodichloromethane	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromoform	ND	ND	NA	NA	NA	NA	NA	NA	NA	5+6	5+6	NA	NA
Carbazole	1.7E-07	1.7E-10	1.7E-07	1.8E-07	4.1E-12	1.8E-07	2.9E-03	6.8E-08	2.9E-03	NA	NA	NA	NA
Carbon disulfide	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (Total)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	4.1E-04	5.5E-07	4.1E-04	1.5E-08	1.5E-09	1.6E-08	6.7E-04	7.6E-05	7.5E-04	4.3E-10	1.9E-05	4.8E-11	2.2E-06
cis-1,3-Dichloropropene	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	5.0E-05	9.3E-08	5.0E-05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzo(a,h)anthracene	1.8E-05	2.5E-08	1.8E-05	5.0E-06	1.4E-07	5.1E-06	2.3E-04	7.2E-06	2.4E-04	3.0E-08	1.4E-06	1.0E-08	4.7E-07
Ethylbenzene	1.1E-07	6.7E-11	1.1E-07	NA	NA	NA	2.4E-07	NA	2.4E-07	NA	NA	NA	NA
Fluoranthene	1.2E-03	1.5E-06	1.2E-03	NA	NA	NA	2.4E-03	6.0E-05	2.5E-03	NA	2.7E-05	NA	3.1E-06
Fluorene	5.6E-04	6.8E-07	5.7E-04	NA	NA	NA	1.7E-03	6.3E-06	1.8E-03	NA	1.9E-07	NA	NA
Indeno(1,2,3-cd)pyrene	1.1E-04	1.5E-07	1.1E-04	3.7E-07	8.4E-08	4.6E-07	1.7E-04	4.2E-05	2.1E-04	2.2E-08	9.9E-06	3.8E-09	1.7E-06
Methylene Chloride	2.0E-07	2.5E-11	2.0E-07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Butyl alcohol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	9.1E-04	2.4E-05	9.3E-04	NA	NA	NA	3.8E-03	3.8E-05	3.9E-03	NA	2.0E-07	NA	NA
Pentachlorophenol	1.5E-04	9.1E-08	1.5E-04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	2.2E-03	2.6E-06	2.2E-03	NA	ND	NA	3.3E-03	ND	3.3E-03	NA	6.9E-07	NA	2.8E-07
Phenol	1.5E-07	1.5E-09	1.5E-07	NA	NA	NA	3.5E-04	NA	3.5E-04	NA	2.4E-07	NA	3.1E-06
Pyrene	1.4E-03	1.7E-06	1.4E-03	NA	NA	NA	4.3E-05	7.0E-05	1.1E-04	NA	NA	NA	NA
Styrene	ND	ND	NA	NA	NA	NA	1.9E-04	NA	1.9E-04	NA	4.1E-06	NA	4.5E-07
Tetrachloroethene	4.6E-07	5.8E-11	4.6E-07	8.4E-12	NA	8.4E-12	1.6E-07	NA	1.6E-07	NA	NA	NA	NA
Toluene	7.5E-08	2.3E-09	7.7E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,3-Dichloropropene	ND	ND	NA	4.9E-11	NA	4.9E-11	1.6E-07	NA	1.6E-07	NA	NA	NA	NA
Trichloroethene	9.6E-07	5.1E-13	9.6E-07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylene (total)	2.3E-08	4.0E-11	2.3E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total	9.0E-03	3.4E-05	9.0E-03	1.3E-05	9.4E-07	1.4E-05	7.9E-02	5.2E-04	8.0E-02	4.3E-07	1.5E-04	7.8E-08	2.1E-05

NA - Not Analyzed
ND - Not Detected

Alternate Table 5-19
Risks Using EPA Default
Dermal Absorption
Factors and Corrected
EPC for 2,3,7,8-TCDD-TE
KII Facility, Grenada, Mississippi
Construction Worker

	Process Area						North Yard Area						South Yard Area					
	Excess Lifetime Cancer Risk			Hazard Index			Excess Lifetime Cancer Risk			Hazard Index			Excess Lifetime Cancer Risk			Hazard Index		
	Soil Ingestion and Dermal	Dust		Soil Ingestion and Dermal	Dust		Soil Ingestion and Dermal	Dust		Soil Ingestion and Dermal	Dust		Soil Ingestion and Dermal	Dust		Soil Ingestion and Dermal	Dust	
Constituent	Contact	Inhalation	Total	Contact	Inhalation	Total	Contact	Inhalation	Total	Contact	Inhalation	Total	Contact	Inhalation	Total	Contact	Inhalation	Total
1,1,1-Trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	NA	ND	ND	NA
1,1-Dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	NA	ND	ND	NA
1,2-Dichloropropane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	NA	ND	ND	NA
1,3-Dichlorobenzene	NA	NA	NA	1.2E-07	1.1E-09	1.2E-07	ND	ND	NA	ND	ND	NA	ND	ND	NA	ND	ND	NA
1,4-Dichlorobenzene	1.2E-12	1.1E-14	1.2E-12	1.2E-07	1.5E-10	1.2E-07	ND	ND	NA	ND	ND	NA	ND	ND	NA	ND	ND	NA
2,3,5,6-Tetrachlorophenol	NA	NA	NA	1.6E-03	1.2E-05	1.6E-03	ND	ND	NA	ND	ND	NA	ND	ND	NA	ND	ND	NA
2,3,7,8-TCDD TEQ	1.4E-06	2.7E-08	1.4E-06	NA	NA	NA	7.0E-07	1.4E-08	7.1E-07	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	1.6E-09	1.3E-11	1.6E-09	1.0E-04	8.1E-07	1.0E-04	ND	ND	NA	ND	ND	NA	ND	ND	NA	ND	ND	NA
2,4-Dichlorophenol	NA	NA	NA	1.2E-03	9.2E-06	1.2E-03	ND	ND	NA	ND	ND	NA	NA	NA	NA	2.8E-04	2.2E-06	2.8E-04
2,4-Dimethylphenol	NA	NA	NA	4.9E-04	3.8E-06	4.9E-04	ND	ND	NA	ND	ND	NA	NA	NA	NA	2.0E-05	1.6E-07	2.1E-05
2,4-Dinitrophenol	NA	NA	NA	8.2E-03	6.5E-05	8.3E-03	NA	NA	NA	3.5E-03	2.8E-05	3.8E-03	NA	NA	NA	9.2E-04	7.2E-06	9.2E-04
2-Chlorophenol	NA	NA	NA	9.2E-05	7.2E-07	9.3E-05	NA	NA	NA	2.2E-05	1.8E-07	2.2E-05	NA	NA	NA	2.9E-05	2.3E-07	2.9E-05
2-Fluorobiphenyl	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.0E-05	2.3E-07	3.0E-05	ND	ND	NA	ND	ND	NA
2-Methyl-4,6-dinitrophenol	NA	NA	NA	1.7E-02	1.3E-04	1.7E-02	ND	ND	NA	ND	ND	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	NA	NA	NA	1.1E-04	3.5E-05	1.4E-04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	NA	NA	NA	3.5E-03	2.8E-05	3.5E-03	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitrophenol	NA	NA	NA	1.1E-03	8.6E-06	1.1E-03	ND	ND	NA	ND	ND	NA	NA	NA	NA	7.5E-05	5.9E-07	7.6E-05
4-Chloro-3-methylphenol	NA	NA	NA	6.7E-05	5.3E-07	6.7E-05	NA	NA	NA	4.4E-06	3.4E-08	4.4E-06	ND	ND	NA	ND	ND	NA
4-Nitrophenol	NA	NA	NA	3.1E-03	2.4E-05	3.1E-03	NA	NA	NA	9.9E-05	7.8E-07	1.0E-04	ND	ND	NA	ND	ND	NA
Acenaphthene	NA	NA	NA	1.1E-03	1.4E-05	1.2E-03	NA	NA	NA	4.2E-04	5.3E-06	4.3E-04	NA	NA	NA	2.5E-03	3.1E-05	2.5E-03
Acenaphthylene	NA	NA	NA	6.6E-04	8.3E-06	6.7E-04	ND	ND	NA	ND	ND	NA	ND	ND	NA	ND	ND	NA
Acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.0E-06	1.0E-08	1.0E-06
Anthracene	NA	NA	NA	4.4E-04	5.5E-06	4.5E-04	NA	NA	NA	1.5E-05	1.9E-07	1.5E-05	NA	NA	NA	4.4E-04	5.5E-06	4.4E-04
Arsenic	6.3E-08	1.4E-08	7.7E-08	9.8E-03	2.2E-04	1.0E-02	5.4E-08	1.2E-08	6.6E-08	8.4E-03	1.9E-04	8.6E-03	NA	NA	NA	NA	NA	NA
Benz(a)anthracene	3.1E-07	2.1E-09	3.1E-07	9.9E-04	1.5E-05	1.0E-03	1.3E-08	8.8E-11	1.3E-08	4.2E-05	6.6E-07	4.3E-05	1.8E-07	1.2E-09	1.9E-07	5.9E-04	9.2E-06	6.0E-04
Benzene	8.6E-11	4.5E-13	8.7E-11	2.7E-05	1.3E-07	2.8E-05	ND	ND	NA	ND	ND	NA	6.0E-11	3.1E-13	6.0E-11	1.9E-05	8.8E-08	1.9E-05
Benzo(a)pyrene	1.5E-06	9.8E-09	1.5E-06	4.7E-04	7.4E-06	4.8E-04	1.1E-07	7.5E-10	1.1E-07	3.6E-05	5.7E-07	3.7E-05	8.2E-07	5.4E-09	8.2E-07	2.6E-04	4.1E-06	2.7E-04
Benzo(b)fluoranthene	1.9E-07	1.2E-09	1.9E-07	6.0E-04	9.3E-06	6.1E-04	2.3E-08	1.5E-10	2.3E-08	7.4E-05	1.2E-06	7.5E-05	1.3E-07	8.4E-10	1.3E-07	4.0E-04	6.3E-06	4.1E-04
Benzo(g,h,i)perylene	NA	NA	NA	3.0E-04	3.8E-06	3.1E-04	NA	NA	NA	9.8E-05	1.2E-06	9.9E-05	NA	NA	NA	2.0E-04	2.5E-06	2.0E-04
Benzo(k)fluoranthene	9.3E-09	6.2E-11	9.3E-09	3.0E-04	4.6E-06	3.0E-04	9.0E-10	6.0E-12	9.1E-10	2.9E-05	4.5E-07	2.9E-05	5.9E-09	3.9E-11	5.9E-09	1.9E-04	2.9E-06	1.9E-04
Bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	NA	ND	ND	NA
Bromoform	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	NA	ND	ND	NA
Carbazole	9.5E-09	NA	9.5E-09	1.1E-03	8.8E-06	1.1E-03	1.8E-09	NA	1.8E-09	2.1E-04	1.7E-06	2.2E-04	6.9E-10	NA	6.9E-10	8.1E-05	6.3E-07	8.1E-05
Carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	NA	ND	ND	NA
Chromium (Total)	NA	4.8E-08	4.8E-08	1.2E-03	2.7E-03	3.9E-03	NA	5.0E-08	5.0E-08	1.3E-03	2.9E-03	4.1E-03	NA	NA	NA	NA	NA	NA
Chrysene	5.7E-09	3.8E-11	5.8E-09	1.8E-03	2.9E-05	1.9E-03	2.0E-10	1.3E-12	2.0E-10	6.4E-05	1.0E-06	6.5E-05	2.6E-09	1.8E-11	2.7E-09	8.4E-04	1.3E-05	8.6E-04
cis-1,3-Dichloropropene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	NA	ND	ND	NA
Copper	NA	NA	NA	2.2E-03	2.3E-05	2.3E-03	NA	NA	NA	2.5E-04	2.5E-06	2.5E-04	NA	NA	NA	2.5E-04	2.6E-06	2.6E-04
Dibenzo(a,h)anthracene	4.3E-07	2.9E-09	4.3E-07	1.4E-04	2.2E-06	1.4E-04	3.9E-07	2.6E-09	4.0E-07	1.3E-04	2.0E-06	1.3E-04	1.2E-07	7.9E-10	1.2E-07	3.8E-05	5.9E-07	3.8E-05
Ethylbenzene	NA	NA	NA	4.4E-06	1.5E-08	4.4E-06	ND	ND	NA	ND	ND	NA	NA	NA	NA	5.4E-07	1.8E-09	5.4E-07
Fluoranthene	NA	NA	NA	2.5E-02	3.2E-04	2.5E-02	NA	NA	NA	9.5E-05	1.2E-06	9.7E-05	NA	NA	NA	2.8E-03	3.5E-05	2.8E-03
Fluorene	NA	NA	NA	2.0E-03	2.5E-05	2.0E-03	NA	NA	NA	2.1E-05	2.7E-07	2.2E-05	NA	NA	NA	1.3E-03	1.6E-05	1.3E-03
Indeno(1,2,3-cd)pyrene	9.7E-08	6.5E-10	9.8E-08	3.1E-04	4.9E-06	3.2E-04	1.8E-08	1.2E-10	1.8E-08	5.8E-05	9.0E-07	5.9E-05	7.1E-08	4.7E-10	7.1E-08	2.3E-04	3.5E-06	2.3E-04
Methylene Chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.3E-13	1.3E-15	6.3E-13	9.7E-08	6.7E-11	9.7E-08
n-Butyl alcohol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	NA	NA	NA	8.5E-03	1.8E-03	8.3E-03	NA	NA	NA	1.0E-04	2.9E-05	1.3E-04	NA	NA	NA	2.1E-03	5.8E-04	2.6E-03
Pentachlorophenol	1.8E-07	NA	1.8E-07	3.1E-03	1.8E-05	3.1E-03	1.8E-09	NA	1.8E-09	3.1E-05	1.8E-07	3.1E-05	3.0E-08	NA	3.0E-08	5.8E-04	3.4E-06	5.9E-04
Phenanthrene	NA	NA	NA	8.5E-03	1.1E-04	8.6E-03	NA	NA	NA	1.0E-04	1.3E-06	1.0E-04	NA	NA	NA	4.9E-03	6.2E-05	5.0E-03
Phenol	NA	NA	NA	1.9E-06	1.5E-07	2.1E-06	NA	NA	NA	8.9E-07	7.0E-08	9.6E-07	NA	NA	NA	7.3E-07	5.7E-08	7.8E-07
Pyrene	NA	NA	NA	4.4E-03	5.6E-05	4.5E-03	NA	NA	NA	1.5E-04	1.8E-06	1.5E-04	NA	NA	NA	3.2E-03	4.0E-05	3.2E-03
Styrene	NA	NA	NA	1.4E-06	9.9E-09	1.5E-06	ND	ND	NA	ND	ND	NA	ND	ND	NA	ND	ND	NA
Tetrachloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.5E-11	2.9E-14	1.5E-11	2.0E-06	1.4E-09	2.0E-06
Toluene	NA	NA	NA	3.3E-06	5.7E-07	3.9E-06	ND	ND	NA	ND	ND	NA	NA	NA	NA	3.7E-07	6.5E-08	4.4E-07
trans-1,3-Dichloropropene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	NA	ND	ND	NA
Trichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.0E-11	1.0E-13	1.0E-11	5.9E-06	1.8E-11	5.9E-06
Xylene (total)	NA	NA	NA	1.1E-06	1.1E-08	1.1E-06	NA	NA	NA	8.4E-09	8.3E-11	8.5E-09	NA	NA	NA	1.1E-07	1.1E-09	1.1E-07
Total	4.2E-06	1.1E-07	4.3E-06	1.1E-01	5.7E-03	1.1E-01	1.3E-06	8.0E-08	1.4E-06	1.5E-02	3.1E-03	1.8E-02	1.4E-06	8.8E-09	1.4E-06	2.2E-02	8.3E-04	2.3E-02

NA - Not Analyzed
ND - Not Detected

Alternate Table 6-20
Summary of Potential
Risks Using EPA Default
Dermal Absorption
Factors and Corrected EPC for 2,3,7,8-TCDD-TE
KII Facility, Grenada, Mississippi
Utility Worker

	Process Area						North Yard Area						South Yard Area					
	Excess Lifetime Cancer Risk			Hazard Index			Excess Lifetime Cancer Risk			Hazard Index			Excess Lifetime Cancer Risk			Hazard Index		
Constituent	Soil Ingestion and Dermal Contact	Dust Inhalation	Total	Soil Ingestion and Dermal Contact	Dust Inhalation	Total	Soil Ingestion and Dermal Contact	Dust Inhalation	Total	Soil Ingestion and Dermal Contact	Dust Inhalation	Total	Soil Ingestion and Dermal Contact	Dust Inhalation	Total	Soil Ingestion and Dermal Contact	Dust Inhalation	Total
1,1,1-Trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	NA	ND	ND	NA
1,1-Dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	NA	ND	ND	NA
1,2-Dichloropropane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	NA	ND	ND	NA
1,3-Dichlorobenzene	NA	NA	NA	1.2E-08	4.4E-11	1.2E-08	ND	ND	NA	ND	ND	NA	ND	ND	NA	ND	ND	NA
1,4-Dichlorobenzene	3.2E-12	1.0E-14	3.2E-12	1.2E-08	5.8E-12	1.2E-08	ND	ND	NA	ND	ND	NA	ND	ND	NA	ND	ND	NA
2,3,5,6-Tetrachlorophenol	NA	NA	NA	1.5E-04	4.7E-07	1.5E-04	ND	ND	NA	ND	ND	NA	ND	ND	NA	ND	ND	NA
2,3,7,8-TCDD TEQ	3.6E-06	2.6E-08	3.6E-06	NA	NA	NA	1.8E-06	1.3E-08	1.8E-06	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	4.0E-09	1.2E-11	4.0E-09	1.0E-05	3.1E-08	1.0E-05	ND	ND	NA	ND	ND	NA	ND	ND	NA	ND	ND	NA
2,4-Dichlorophenol	NA	NA	NA	1.1E-04	3.5E-07	1.1E-04	ND	ND	NA	ND	ND	NA	NA	NA	NA	2.8E-05	8.6E-08	2.8E-05
2,4-Dimethylphenol	NA	NA	NA	4.8E-05	1.5E-07	4.8E-05	ND	ND	NA	ND	ND	NA	NA	NA	NA	2.0E-06	6.2E-09	2.0E-06
2,4-Dinitrophenol	NA	NA	NA	8.1E-04	2.5E-06	8.1E-04	NA	NA	NA	3.5E-04	1.1E-06	3.5E-04	NA	NA	NA	9.0E-05	2.8E-07	9.0E-05
2-Chlorophenol	NA	NA	NA	9.0E-06	2.8E-08	9.1E-06	NA	NA	NA	2.2E-06	6.7E-09	2.2E-06	NA	NA	NA	2.9E-06	8.8E-09	2.9E-06
2-Fluorobiphenyl	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.9E-06	9.0E-09	2.9E-06	ND	ND	NA	ND	ND	NA
2-Methyl-4,6-dinitrophenol	NA	NA	NA	1.7E-03	5.2E-06	1.7E-03	ND	ND	NA	ND	ND	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	NA	NA	NA	1.0E-05	1.3E-06	1.1E-05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	NA	NA	NA	3.4E-04	1.1E-06	3.4E-04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitrophenol	NA	NA	NA	1.1E-04	3.3E-07	1.1E-04	ND	ND	NA	ND	ND	NA	NA	NA	NA	7.4E-06	2.3E-08	7.4E-06
4-Chloro-3-methylphenol	NA	NA	NA	6.6E-06	2.0E-08	6.6E-06	NA	NA	NA	4.3E-07	1.3E-09	4.3E-07	ND	ND	NA	ND	ND	NA
4-Nitrophenol	NA	NA	NA	3.0E-04	9.3E-07	3.0E-04	NA	NA	NA	9.7E-06	3.0E-08	9.7E-06	ND	ND	NA	ND	ND	NA
Acenaphthene	NA	NA	NA	1.0E-04	5.5E-07	1.0E-04	NA	NA	NA	3.7E-05	2.0E-07	3.8E-05	NA	NA	NA	2.2E-04	1.2E-06	2.2E-04
Acenaphthylene	NA	NA	NA	5.9E-05	3.2E-07	5.9E-05	ND	ND	NA	ND	ND	NA	ND	ND	NA	ND	ND	NA
Acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.1E-07	3.9E-10	1.1E-07
Anthracene	NA	NA	NA	3.9E-05	2.1E-07	3.9E-05	NA	NA	NA	1.3E-06	7.2E-09	1.3E-06	NA	NA	NA	3.9E-05	2.1E-07	3.9E-05
Arsenic	1.4E-07	1.4E-08	1.5E-07	8.7E-04	8.4E-06	8.8E-04	1.2E-07	1.2E-08	1.3E-07	7.5E-04	7.2E-06	7.6E-04	NA	NA	NA	NA	NA	NA
Benz(a)anthracene	6.5E-07	2.0E-09	6.5E-07	8.3E-05	6.0E-07	8.4E-05	2.8E-08	8.5E-11	2.8E-08	3.6E-06	2.6E-08	3.6E-06	3.9E-07	1.2E-09	3.9E-07	4.9E-05	3.6E-07	5.0E-05
Benzene	2.3E-10	4.3E-13	2.3E-10	2.9E-06	4.8E-09	2.9E-06	ND	ND	NA	ND	ND	NA	1.6E-10	3.0E-13	1.6E-10	2.0E-06	3.4E-09	2.0E-06
Benzo(a)pyrene	3.1E-06	9.5E-09	3.1E-06	4.0E-05	2.8E-07	4.0E-05	2.4E-07	7.2E-10	2.4E-07	3.0E-06	2.2E-08	3.1E-06	1.7E-06	5.2E-09	1.7E-06	2.2E-05	1.6E-07	2.2E-05
Benzo(b)fluoranthene	3.9E-07	1.2E-09	3.9E-07	5.0E-05	3.6E-07	5.0E-05	4.9E-08	1.5E-10	4.9E-08	6.2E-06	4.5E-08	6.3E-06	2.6E-07	8.1E-10	2.7E-07	3.4E-05	2.4E-07	3.4E-05
Benzo(g,h,i)perylene	NA	NA	NA	2.7E-05	1.5E-07	2.7E-05	NA	NA	NA	8.6E-06	4.7E-08	8.7E-06	NA	NA	NA	1.8E-05	9.7E-08	1.8E-05
Benzo(k)fluoranthene	1.9E-08	5.9E-11	1.9E-08	2.5E-05	1.8E-07	2.5E-05	1.9E-09	5.8E-12	1.9E-09	2.4E-06	1.7E-08	2.4E-06	1.2E-08	3.7E-11	1.2E-08	1.6E-05	1.1E-07	1.6E-05
Bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	NA	ND	ND	NA
Bromoform	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	NA	ND	ND	NA
Carbazole	2.3E-08	NA	2.3E-08	1.1E-04	3.4E-07	1.1E-04	4.5E-09	NA	4.5E-09	2.1E-05	6.5E-08	2.1E-05	1.7E-09	NA	1.7E-09	7.9E-06	2.4E-08	8.0E-06
Carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	NA	ND	ND	NA
Chromium (Total)	NA	4.6E-08	4.6E-08	1.1E-04	1.0E-04	2.2E-04	NA	4.8E-08	4.8E-08	1.2E-04	1.1E-04	2.3E-04	NA	NA	NA	NA	NA	NA
Chrysene	1.2E-08	3.7E-11	1.2E-08	1.5E-04	1.1E-06	1.6E-04	4.2E-10	1.3E-12	4.2E-10	5.4E-06	3.9E-08	5.4E-06	5.5E-09	1.7E-11	5.6E-09	7.1E-05	5.1E-07	7.1E-05
cis-1,3-Dichloropropene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	NA	ND	ND	NA
Copper	NA	NA	NA	2.4E-04	8.7E-07	2.4E-04	NA	NA	NA	2.7E-05	9.7E-08	2.7E-05	NA	NA	NA	2.7E-05	9.8E-08	2.7E-05
Dibenzo(a,h)anthracene	9.0E-07	2.8E-09	9.1E-07	1.2E-05	8.3E-08	1.2E-05	8.2E-07	2.5E-09	8.3E-07	1.1E-05	7.6E-08	1.1E-05	2.5E-07	7.6E-10	2.5E-07	3.2E-06	2.3E-08	3.2E-06
Ethylbenzene	NA	NA	NA	4.7E-07	5.8E-10	4.7E-07	ND	ND	NA	ND	ND	NA	NA	NA	NA	5.8E-08	7.1E-11	5.8E-08
Fluoranthene	NA	NA	NA	2.2E-03	1.2E-05	2.2E-03	NA	NA	NA	8.5E-06	4.6E-08	8.5E-06	NA	NA	NA	2.4E-04	1.3E-06	2.5E-04
Fluorene	NA	NA	NA	1.7E-04	9.5E-07	1.8E-04	NA	NA	NA	1.9E-06	1.0E-08	1.9E-06	NA	NA	NA	1.1E-04	6.2E-07	1.1E-04
Indeno(1,2,3-cd)pyrene	2.0E-07	6.2E-10	2.0E-07	2.6E-05	1.9E-07	2.6E-05	3.8E-08	1.2E-10	3.8E-08	4.8E-06	3.5E-08	4.9E-06	1.5E-07	4.5E-10	1.5E-07	1.9E-05	1.4E-07	1.9E-05
Methylene Chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.7E-12	1.3E-15	1.7E-12	1.0E-08	2.6E-12	1.0E-08
n Butyl alcohol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	NA	NA	NA	5.8E-04	7.0E-05	6.5E-04	NA	NA	NA	9.1E-06	1.1E-06	1.0E-05	NA	NA	NA	1.8E-04	2.2E-05	2.1E-04
Pentachlorophenol	3.6E-07	NA	3.6E-07	2.8E-04	7.1E-07	2.8E-04	3.6E-09	NA	3.6E-09	2.8E-06	7.0E-09	2.8E-06	6.8E-08	NA	6.8E-08	5.3E-05	1.3E-07	5.3E-05
Phenanthrene	NA	NA	NA	7.5E-04	4.1E-06	7.5E-04	NA	NA	NA	9.2E-06	5.0E-08	9.2E-06	NA	NA	NA	4.3E-04	2.4E-06	4.4E-04
Phenol	NA	NA	NA	1.9E-07	5.8E-09	1.9E-07	NA	NA	NA	8.8E-08	2.7E-09	9.0E-08	NA	NA	NA	7.2E-08	2.2E-09	7.4E-08
Pyrene	NA	NA	NA	3.9E-04	2.1E-06	3.9E-04	NA	NA	NA	1.3E-05	7.0E-08	1.3E-05	NA	NA	NA	2.8E-04	1.5E-06	2.9E-04
Styrene	NA	NA	NA	1.5E-07	3.8E-10	1.5E-07	ND	ND	NA	ND	ND	NA	ND	ND	NA	ND	ND	NA
Tetrachloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.0E-11	2.8E-14	4.1E-11	2.2E-07	5.6E-11	2.2E-07
Toluene	NA	NA	NA	3.5E-07	2.2E-08	3.7E-07	ND	ND	NA	ND	ND	NA	NA	NA	NA	4.0E-08	2.5E-09	4.2E-08
trans-1,3-Dichloropropene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	NA	ND	ND	NA
Trichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.7E-11	9.6E-14	2.7E-11	6.3E-07	6.8E-13	6.3E-07
Xylene (total)	NA	NA	NA	1.2E-07	4.2E-10	1.2E-07	NA	NA	NA	9.0E-10	3.2E-12	9.0E-10	NA	NA	NA	1.2E-08	4.3E-11	1.2E-08
Total	9.4E-06	1.0E-07	9.49E-06	1.0E-02	2.2E-04	1.0E-02	3.1E-06	7.7E-08	3.2E-06	1.4E-03	1.2E-04	1.5E-03	2.9E-06	8.5E-09	2.9E-06	2.0E-03	3.2E-05	2.0E-03

NA - Not Analyzed
ND - Not Detected

Table 5-22 Comparison of Total PAH in Northern Stream Sediment to Sediment Quality Guidelines
Koppers Industries, Inc., Grenada, Mississippi
Final Phase II RFI Report

Location	Sample ID	Total PAH (ug/kg)	Ratio of Sample Concentration to TEC	Ratio of Sample Concentration to PEC
Upstream	KGNSS01-0-3	381	0.2	0.02
On-Site	KGNSS02-0-3	6990	4	0.3
	KGNSS03-0-3&DUP	57600	36	3
	KGNSS04-0-3	213000	132	9
	KGNSS05-0-3	12250	8	0.5
	KGNSS-10	282	0.2	0.01
	KGNSS-11	29596	18	1
	KGNSS-12	67428	42	3
	KGNSS-13	40554	25	2
	KGNSS-14	12867	8	0.6
	KGNSS-15	12831	8	0.6
Off-Site	KGNSS06-0-3	3190	2	0.1
	KGNSS07-0-3	8150	5	0.4
	KGNSS08-0-3	12350	8	0.5
	KGNSS09-0-3	6900	4	0.3
		TEC =	1610	
		PEC =	22800	

TEC = Threshold Effects Concentration (ug/kg)
PEC = Probable Effects Concentration (ug/kg)

B. Shanks
Koppers Industries
Grenada County

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October 19, 2004
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Transmitted via Federal Express

RCRA Programs Branch
Waste Management Division
U.S. Environmental Protection Agency
61 Forsyth Street SW
Atlanta, GA 30303-8960

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

Subject: Complete Phase II RCRA Facility Investigation Report and Documentation of Environmental Indicator Determination
Koppers Industries/Beazer East, Inc.
Tie Plant, Mississippi
EPA I.D. No. MSD 007 027 543

Dear Mr. Johnston:

On behalf of Beazer East, Inc. (Beazer), this letter acknowledges discussions between Mr. Harbhajan Singh of your staff and Mr. Mike Bollinger of Beazer regarding the U.S. Environmental Protection Agency (EPA) letter dated September 21, 2004, regarding the Complete Phase II RCRA Facility Investigation Report (RFI) for the Koppers Industries/Beazer Tie Plant, Mississippi facility. Mr. Singh requested a meeting with Beazer to review the letter in order to facilitate completing the RFI for the Tie Plant facility. The Environmental Indicators and the conceptual corrective measures for the Tie Plant facility will also be discussed during this meeting.

The meeting between EPA, Beazer, and Beazer's consultants is scheduled for November 3, 2004 in the EPA offices. Beazer understands that a written response to your letter of September 21, 2004 will not be required by EPA prior to this meeting. In order to assist with the determination of the Environmental Indicators for the Tie Plant Facility, documentation for both the Current Human Exposure and Migration of Contaminated Groundwater determinations (CA725 and CA750) have been attached to this letter and transmitted via e-mail as a Word file directly to Mr. Singh.

Beazer appreciates the opportunity to meet with your staff and looks forward to continued progress at this facility. If you have any questions regarding this information, please contact Mr. Mike Bollinger at (412) 208-8864.

Sincerely,

GEOTRANS, INC.

Jennifer A. Abrahams, R.G.
Project Manager

Attachments

cc: Doug McCurry, EPA
Jerry Cain, MDEQ
Mike Bollinger, Beazer
Tim Basilone, KI
Paul Anderson, AMEC

DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION
Interim Final 2/5/99
RCRA Corrective Action
Environmental Indicator (EI) RCRIS code (CA725)

Current Human Exposures Under Control

Facility Name: Koppers Industries/Beazer East Grenada Facility
Facility Address: Tie Plant, Mississippi
Facility EPA ID #: MSD 007 027 543

1. Has **all** available relevant/significant information on known and reasonably suspected releases to soil, groundwater, surface water/sediments, and air, subject to RCRA Corrective Action (e.g., from Solid Waste Management Units (SWMU), Regulated Units (RU), and Areas of Concern (AOC)), been **considered** in this EI determination?

__X__ If yes - check here and continue with #2 below.

_____ If no - re-evaluate existing data, or

_____ if data are not available skip to #6 and enter "IN" (more information needed) status code.

BACKGROUND

Definition of Environmental Indicators (for the RCRA Corrective Action)

Environmental Indicators (EIs) are measures used by the RCRA Corrective Action program to go beyond programmatic activity measures (e.g., reports received and approved, etc.) to track changes in the quality of the environment. The two EIs developed to-date indicate the quality of the environment in relation to current human exposures to contamination and the migration of contaminated groundwater. An EI for non-human (ecological) receptors is intended to be developed in the future.

Definition of "Current Human Exposures Under Control" EI

A positive "Current Human Exposures Under Control" EI determination ("YE" status code) indicates that there are no "unacceptable" human exposures to "contamination" (i.e., contaminants in concentrations in excess of appropriate risk-based levels) that can be reasonably expected under current land- and groundwater-use conditions (for all "contamination" subject to RCRA corrective action at or from the identified facility (i.e., site-wide)).

Relationship of EI to Final Remedies

While Final remedies remain the long-term objective of the RCRA Corrective Action program the EI are near-term objectives which are currently being used as Program measures for the Government Performance and Results Act of 1993, GPRA). The "Current Human Exposures Under Control" EI is for reasonably expected human exposures under current land- and groundwater-use conditions ONLY, and do not consider potential future land- or groundwater-use conditions or ecological receptors. The RCRA Corrective Action program's overall mission to protect human health and the environment requires that Final remedies address these issues (i.e., potential future human exposure scenarios, future land and groundwater uses, and ecological receptors).

Duration / Applicability of EI Determinations

EI Determinations status codes should remain in RCRIS national database ONLY as long as they remain true (i.e., RCRIS status codes must be changed when the regulatory authorities become aware of contrary information).
+++++

Current Human Exposures Under Control
Environmental Indicator (EI) RCRIS code (CA725)

2. Are groundwater, soil, surface water, sediments, or air **media** known or reasonably suspected to be **"contaminated"**[1] above appropriately protective risk-based "levels" (applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from releases subject to RCRA Corrective Action (from SWMUs, RUs or AOCs)?

	Yes	No	?	Rationale / Key Contaminants
Groundwater	X	___	___	**Pentachlorophenol, PAHs , and benzene**
Air (indoors) [2]	___	___	___	
Surface Soil (e.g., <2 ft)	___	X	___	
Surface Water	___	X	___	
Sediment	___	X	___	
Subsurf. Soil (e.g., >2 ft)	X	___	___	**PAHs**
Air (outdoors)	___	___	___	

____ If no (for all media) - skip to #6, and enter "YE," status code after providing or citing appropriate "levels," and referencing sufficient supporting documentation demonstrating that these "levels" are not exceeded.

_X_ If yes (for any media) - continue after identifying key contaminants in each "contaminated" medium, citing appropriate "levels" (or provide an explanation for the determination that the medium could pose an unacceptable risk), and referencing supporting documentation.

____ If unknown (for any media) - skip to #6 and enter "IN" status code.

Rationale and Reference(s):

References

[1] Complete Phase II RCRA Facility Investigation Report, Grenada Facility, Grenada, Mississippi, Vol. 1, July 2003

[2] Interim Measures SWMU 11 Documentation Report, Koppers Industries/Beazer East Facility, Tie Plant, Mississippi, September 2000

Tables

1 Groundwater Sampling Results, Selected 1991 Data
2 Horizontal and Vertical Definition Groundwater Sampling Results
3 Plume Definition Groundwater Sampling Results
4 SWMU Soil Sampling Results
5 Statistical Summary of 1991 Soil Sampling Results
6 PCDD/PCDF Soil Sampling Results
7 Sediment Sampling Results, Selected 1991 Data
8 Northern Stream Sediment Sampling Results, Selected 1998 and 2000 Data
9 Surface Water Sampling Results, Selected 1991 Data

Rationale

Groundwater

Pentachlorophenol, benzene, and PAHs are present in groundwater beneath the Central Process Area, Former Wastewater Treatment System, the Drip Track Area, and the Old South Drip Pad/Track Area; the concentrations attenuate within a short distance of the Site boundary. The highest concentrations of PAHs in groundwater are observed in areas where mobile and residual dense non-aqueous phase liquid (DNAPL) are present. The majority of the PAHs detected in groundwater consist of naphthalene, the most soluble, and readily degradable PAH

compound. The limited size of the dissolved-phase groundwater plume at the Site is attributed to substantial natural attenuation of Site constituents, much of which is attributed to biodegradation. (Tables 1, 2, 3) [1].

Surface Soil, Surface Water, and Sediment

Pentachlorophenol, benzene, and total PAHs in surface soil have been detected at various portions of the Site at concentrations that are associated with potential risks that are within or below the EPA target risk range ($1x10^{-6}$ to $1x10^{-4}$) acceptable risk levels. (Tables 4, 5, and 6) [1]

Low pentachlorophenol concentrations (up to 0.63 mg/Kg) were detected in Northern Stream sediment samples. Total PAHs were detected in all sediment samples from the Northern Stream in concentrations that ranged from 0.119 to 194 mg/Kg. The Central Ditch sediment has been remediated through the implementation of the IM. Low concentrations of pentachlorophenol and benzene, and concentrations of total PAHs similar to those in the Northern Stream were detected in the Process Cooling Reservoir sediment.

Pentachlorophenol and benzene are not present in surface water on Site or downgradient on the Northern Stream, Central Ditch, or the Process Cooling Reservoir. Total PAHs were observed in the Process Cooling Reservoir at concentrations that did not exceed 41 µg/L. The surface water in the Central Ditch has been remediated through the implementation of the IM. (Tables 7, 8, and 9) [1][2]

Hazard indices associated with all the potential exposure to off-site and on-site surface soil, surface water, and sediment are less than 1, indicating that no adverse noncarcinogenic health effects are expected to occur.

Estimated potential carcinogenic risks associated with all the potential exposure to off-site and on-site surface soil, surface water, and sediment and exposure areas are within or below the EPA's target risk range ($1x10^{-6}$ to $1x10^{-4}$). [1]

Subsurface Soil

Total PAHs in soil have been detected at various portions of the Site, the PAHs are associated with the presence of DNAPL and residual DNAPL in the soil. The highest PAH soil concentrations were detected in the Central Process Area, the Former Wastewater Treatment System, the Drip Track Area, and the Old South Drip Pad/Track Area. Analytical data are summarized in Tables 4 and 5 [1]

Footnotes:

1 "Contamination" and "contaminated" describes media containing contaminants (in any form, NAPL and/or dissolved, vapors, or solids, that are subject to RCRA) in concentrations in excess of appropriately protective risk-based "levels" (for the media, that identify risks within the acceptable risk range).

2 Recent evidence (from the Colorado Dept. of Public Health and Environment, and others) suggest that unacceptable indoor air concentrations are more common in structures above groundwater with volatile contaminants than previously believed. This is a rapidly developing field and reviewers are encouraged to look to the latest guidance for the appropriate methods and scale of demonstration necessary to be reasonably certain that indoor air (in structures located above (and adjacent to) groundwater with volatile contaminants) does not present unacceptable risks.

Current Human Exposures Under Control
Environmental Indicator (EI) RCRIS code (CA725)

3. Are there **complete pathways** between "contamination" and human receptors such that exposures can be reasonably expected under the current (land- and groundwater-use) conditions?

Summary Exposure Pathway Evaluation Table

	Potential **Human Receptors** (Under Current Conditions)						
"Contaminated" Media	Residents	Workers	Day-Care	Construction	Trespassers	Recreation	Food[3]
Groundwater	-	no	-	no	no	-	-
~~Air (indoors)~~	-	-	-	-	-	-	-
~~Soil (surface, e.g., <2 ft)~~	-	-	-	-	-	-	-
~~Surface Water~~	-	-	-	-	-	-	-
~~Sediment~~	-	-	-	-	-	-	-
Soil (subsurface e.g., >2 ft)	-	no	-	no	no	-	-
~~Air (outdoors)~~	-	-	-	-	-	-	-

Instructions for Summary Exposure Pathway Evaluation Table:

1. Strike-out specific Media including Human Receptors' spaces for Media which are not "contaminated") as identified in #2 above.

2. Enter "yes" or "no" for potential "completeness" under each "Contaminated" Media -- Human Receptor combination (Pathway).

Note: In order to focus the evaluation to the most probable combinations some potential "Contaminated" Media - Human Receptor combinations (Pathways) do not have check spaces ("___"). While these combinations may not be probable in most situations they may be possible in some settings and should be added as necessary.

__X__ If no (pathways are not complete for any contaminated media-receptor combination) - skip to #6, and enter "YE" status code, after explaining and/or referencing condition(s) in-place, whether natural or man-made, preventing a complete exposure pathway from each contaminated medium (e.g., use optional Pathway Evaluation Work Sheet to analyze major pathways).

_____ If yes (pathways are complete for any "Contaminated" Media - Human Receptor combination) - continue after providing supporting explanation.

_____ If unknown (for any "Contaminated" Media - Human Receptor combination) - skip to #6 and enter "IN" status code

Rationale and Reference(s):

References

[1] Complete Phase II RCRA Facility Investigation Report, Grenada Facility, Grenada, Mississippi, Vol. 1, July 2003

Rationale

Receptors

The risk assessment evaluated potential exposure scenarios that were consistent with the current use of the property. The current use of the property is not expected to change in the foreseeable future. Therefore, potential exposure pathways that are inconsistent with the current site use were not evaluated because they are not reasonably likely to occur. The site is currently used for industrial purposes and does not include any residences, nor will residences be constructed at the property in the reasonably foreseeable future. Therefore, the potential residential exposures were not evaluated in the risk assessment. Similarly, the property is not currently used for the purposes of day care, nor

will it be used for such a purpose in the future. The risk assessment, therefore, did not include an evaluation of the use of the site for day care purposes.

The risk assessment included evaluation of a "trespasser" receptor, assumed to visit the site periodically for several years for recreational purposes. The exposures assumed for the trespasser receptor were consistent with the active industrial nature of the property. It is likely that little or no trespassing occurs at the property because workers are present most of the time. However, despite the fact that trespassers are not likely to access the property for recreational purposes given the presence of workers, the risk assessment included an evaluation of potential risks associated with such recreational activity. The results of the risk assessment indicated that potential risks associated with trespasser exposures were with or below EPA's target cancer risk range of $1x10^{-6}$ to $1x10^{-4}$ and below EPA's target noncarcinogenic hazard index of 1.

No cultivation of crops, either for private consumption or as a commercial enterprise, occurs at the property. Therefore, there is no exposure via consumption of food crops grown at the property. It is known that soybeans are cultivated in agricultural fields east of the property boundary. It is not likely that such crops are exposed to constituents from the property because site-related constituents in soil are not expected to be present at off-property locations. Because the depth to groundwater off-site is deeper than the roots of crops (depth to groundwater at this location is approximately 10 feet below ground surface), it is unlikely that off-site groundwater would be taken up by crop roots. Lastly, no irrigation or other wells are currently present in this off-property area, nor is it likely that a well would be installed for irrigation purposes, because municipal water is supplied to this region.

Groundwater and Soil

The human health risk assessment evaluated potential risks to receptors from potential exposure to constituents in groundwater and soil (as well as surface water and sediment). Potential receptors included trespassers, KII workers, utility workers, and construction workers. At the request of EPA, potential hypothetical future exposures of off-site groundwater users via future consumption of off-site or Site boundary groundwater as drinking water is also evaluated. It should be noted that potential future exposure to off-site groundwater is not a realistic future exposure pathway, because on-site and off-site potential receptors are supplied with municipal drinking water. However, this potential future exposure pathway has been evaluated for informational purposes only.

Soil exposures in the Process Area, the Northern Area, and the Southern Area were considered. Potential exposures to surface water and sediment in the Process Cooling Reservoir and sediment in the Northern Stream on-site and off-site were also evaluated.

Exposure point concentrations were estimated for constituents detected in at least one sample from each medium at the Site. All analytical data from previous investigations at the Site were used to estimate exposure point concentrations, with two exceptions. First, samples collected from SWMUs that have been addressed under regulatory approval were not included in the evaluation. Second, exposure point concentrations in off-site groundwater were estimated using samples collected from four off-site monitoring wells and three monitoring wells at the property boundary.

Hazard indices associated with all the potential exposure to off-site and on-site media (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.

Estimated potential carcinogenic risks 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) 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. [1]

[3] Indirect Pathway/Receptor (e.g., vegetables, fruits, crops, meat and dairy products, fish, shellfish, etc.)

Current Human Exposures Under Control
Environmental Indicator (EI) RCRIS code (CA725)

4. Can the **exposures** from any of the complete pathways identified in #3 be reasonably expected to be **"significant"**[4] (i.e., potentially "unacceptable" because exposures can be reasonably expected to be: 1) greater in magnitude (intensity, frequency and/or duration) than assumed in the derivation of the acceptable "levels" (used to identify the "contamination"); or 2) the combination of exposure magnitude (perhaps even though low) and contaminant concentrations (which may be substantially above the acceptable "levels") could result in greater than acceptable risks)?

_____ If no (exposures can not be reasonably expected to be significant (i.e., potentially "unacceptable") for any complete exposure pathway) - skip to #6 and enter "YE" status code after explaining and/or referencing documentation justifying why the exposures (from each of the complete pathways) to "contamination" (identified in #3) are not expected to be "significant."

_____ If yes (exposures could be reasonably expected to be "significant" (i.e., potentially "unacceptable") for any complete exposure pathway) - continue after providing a description (of each potentially "unacceptable" exposure pathway) and explaining and/or referencing documentation justifying why the exposures (from each of the remaining complete pathways) to "contamination" (identified in #3) are not expected to be "significant."

_____ If unknown (for any complete pathway) - skip to #6 and enter "IN" status code

Rationale and Reference(s):
See rationale for groundwater, soil (surface and subsurface), and sediment for number 3, above.

4 If there is any question on whether the identified exposures are "significant" (i.e., potentially "unacceptable") consult a human health Risk Assessment specialist with appropriate education, training and experience.

Current Human Exposures Under Control
Environmental Indicator (EI) RCRIS code (CA725)

5. Can the "significant" **exposures** (identified in #4) be shown to be within **acceptable** limits?

_____ If yes (all "significant" exposures have been shown to be within acceptable limits) - continue and enter "YE" after summarizing and referencing documentation justifying why all "significant" exposures to "contamination" are within acceptable limits (e.g., a site-specific Human Health Risk Assessment).

_____ If no (there are current exposures that can be reasonably expected to be "unacceptable")- continue and enter "NO" status code after providing a description of each potentially "unacceptable" exposure.

_____ If unknown (for any potentially "unacceptable" exposure) - continue and enter "IN" status code

Rationale and Reference(s):

Current Human Exposures Under Control
Environmental Indicator (EI) RCRIS code (CA725)

6. Check the appropriate RCRIS status codes for the Current Human Exposures Under Control EI event code (CA725), and obtain Supervisor (or appropriate Manager) signature and date on the EI determination below (and attach appropriate supporting documentation as well as a map of the facility):

__X__ YE - Yes, "Current Human Exposures Under Control" has been verified. Based on a review of the information contained in this EI Determination, "Current Human Exposures" are expected to be "Under Control" at the **Koppers Industries/Beazer East Grenada Site** facility, EPA ID# **MSD 007 027 543** located in **Grenada, Mississippi** is under current and reasonably expected conditions. This determination will be re-evaluated when the Agency/State becomes aware of significant changes at the facility.

____ NO - "Current Human Exposures" are NOT "Under Control."

____ IN - More information is needed to make a determination.

Completed by (signature)_____ Date_____
(print)_____
(title)_____

Supervisor (signature)_____ Date_____
(print)_____
(title)_____
(EPA Region or State)_____

Locations where References may be found:

1) EPA Region IV Offices
2) MDEQ offices
3) Koppers Facility
4) Beazer Offices

Contact telephone number and e-mail:

(name) Mike Bollinger
(phone #) 412-208-8864
(e-mail) bollinge@hanson.le.com

FINAL NOTE: THE HUMAN EXPOSURES EI IS A QUALITATIVE SCREENING OF EXPOSURES AND THE DETERMINATIONS WITHIN THIS DOCUMENT SHOULD NOT BE USED AS THE SOLE BASIS FOR RESTRICTING THE SCOPE OF MORE DETAILED (E.G., SITE-SPECIFIC) ASSESSMENTS OF RISK.

DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION
Interim Final 2/5/99
RCRA Corrective Action
Environmental Indicator (EI) RCRIS code (CA750)

Migration of Contaminated Groundwater Under Control

Facility Name: Koppers Industries/Beazer East Grenada Facility
Facility Address: Tie Plant, Mississippi
Facility EPA ID #: MSD 007 027 543

1. Has **all** available relevant/significant information on known and reasonably suspected releases to the groundwater media, subject to RCRA Corrective Action (e.g., from Solid Waste Management Units (SWMU), Regulated Units (RU), and Areas of Concern (AOC)), been **considered** in this EI determination?

__X__ If yes - check here and continue with #2 below.

_____ If no - re-evaluate existing data, or

_____ If data are not available, skip to #8 and enter "IN" (more information needed) status code.

BACKGROUND

Definition of Environmental Indicators (for the RCRA Corrective Action)

Environmental Indicators (EIs) are measures used by the RCRA Corrective Action program to go beyond programmatic activity measures (e.g., reports received and approved, etc.) to track changes in the quality of the environment. The two EIs developed to-date indicate the quality of the environment in relation to current human exposures to contamination and the migration of contaminated groundwater. An EI for non-human (ecological) receptors is intended to be developed in the future.

Definition of "Migration of Contaminated Groundwater Under Control" EI

A positive "Migration of Contaminated Groundwater Under Control" EI determination ("YE" status code) indicates that the migration of "contaminated" groundwater has stabilized, and that monitoring will be conducted to confirm that contaminated groundwater remains within the original "area of contaminated groundwater" (for all groundwater "contamination" subject to RCRA corrective action at or from the identified facility (i.e., site-wide)).

Relationship of EI to Final Remedies

While Final remedies remain the long-term objective of the RCRA Corrective Action program the EI are near-term objectives which are currently being used as Program measures for the Government Performance and Results Act of 1993, GPRA). The "Migration of Contaminated Groundwater Under Control" EI pertains ONLY to the physical migration (i.e., further spread) of contaminated ground water and contaminants within groundwater (e.g., non-aqueous phase liquids or NAPLs). Achieving this EI does not substitute for achieving other stabilization or final remedy requirements and expectations associated with sources of contamination and the need to restore, wherever practicable, contaminated groundwater to be suitable for its designated current and future uses.

Duration / Applicability of EI Determinations

EI Determinations status codes should remain in RCRIS national database ONLY as long as they remain true (i.e., RCRIS status codes must be changed when the regulatory authorities become aware of contrary information).

Migration of Contaminated Groundwater Under Control
Environmental Indicator (EI) RCRIS code (CA750)

2. Is **groundwater** known or reasonably suspected to be **"contaminated"**[1] above appropriately protective "levels" (i.e., applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from releases subject to RCRA Corrective Action, anywhere at, or from, the facility?

_X_ If yes - continue after identifying key contaminants, citing appropriate "levels," and referencing supporting documentation.

_____ If no - skip to #8 and enter "YE" status code, after citing appropriate "levels," and referencing supporting documentation to demonstrate that groundwater is not "contaminated."

_____ If unknown - skip to #8 and enter "IN" status code.

Rationale and Reference(s):

References

[1] Complete Phase II RCRA Facility Investigation Report, Grenada Facility, Grenada, Mississippi, Vol. 1, July 2003

[2] Interim Measures SWMU 11 Documentation Report, Koppers Industries/Beazer East Facility, Tie Plant, Mississippi, September 2000

Tables

1 Groundwater Sampling Results, Selected 1991 Data
2 Horizontal and Vertical Definition Groundwater Sampling Results
3 Plume Definition Groundwater Sampling Results

Rationale

Groundwater

Pentachlorophenol, benzene, and PAHs are present in groundwater beneath the Central Process Area, Former Wastewater Treatment System, the Drip Track Area, and the Old South Drip Pad/Track Area; the concentrations attenuate within a short distance of the Site boundary. The highest concentrations of PAHs in groundwater are observed in areas where mobile and residual dense non-aqueous phase liquid (DNAPL) are present. The majority of the PAHs detected in groundwater consist of naphthalene, the most soluble, and readily degradable PAH compound. The limited size of the dissolved-phase groundwater plume at the Site is attributed to substantial natural attenuation of Site constituents, much of which is attributed to biodegradation. (Tables 1, 2, 3) [1].

Footnotes:

[1]"Contamination" and "contaminated" describes media containing contaminants (in any form, NAPL and/or dissolved, vapors, or solids, that are subject to RCRA) in concentrations in excess of appropriate "levels" (appropriate for the protection of the groundwater resource and its beneficial uses).

Migration of Contaminated Groundwater Under Control
Environmental Indicator (EI) RCRIS code (CA750)

3. Has the **migration** of contaminated groundwater **stabilized** (such that contaminated groundwater is expected to remain within "existing area of contaminated groundwater"[2] as defined by the monitoring locations designated at the time of this determination)?

__X__ If yes - continue, after presenting or referencing the physical evidence (e.g., groundwater sampling/measurement/migration barrier data) and rationale why contaminated groundwater is expected to remain within the (horizontal or vertical) dimensions of the "existing area of groundwater contamination"[2]).

_____ If no (contaminated groundwater is observed or expected to migrate beyond the designated locations defining the "existing area of groundwater contamination"[2]) - skip to #8 and enter "NO" status code, after providing an explanation.

_____ If unknown - skip to #8 and enter "IN" status code.

Rationale and Reference(s):

References

[1] Complete Phase II RCRA Facility Investigation Report, Grenada Facility, Grenada, Mississippi, Vol. 1, July 2003

[2] Interim Measures SWMU 11 Documentation Report, Koppers Beazer/Beazer East Facility, Tie Plant, Mississippi, September 2000

Rationale

Pentachlorophenol, benzene, and PAHs are present in groundwater beneath the Central Process Area, Former Wastewater Treatment System, and the Drip Track Area. The concentrations of these constituents, however, attenuate within approximately 800 feet from source areas for pentachlorophenol, and near the facility property line for potentially carcinogenic PAHs (pcPAHs). This is a relatively small areal extent of constituent migration, given approximately 100 years of Site operation and an average groundwater flow velocity of 0.11 to 0.69 ft/day for the Upper Sand Zone.

The distribution of pentachlorophenol, benzene, and PAHs in the Upper and Lower Sand Zones reflect the downgradient migration of these constituents from their sources. The higher concentrations and larger areal extent of impacts associated with the benzene and total PAHs in the Lower Sand Zone relative to the same constituents in the Upper Sand Zone is likely due to one or a combination of the following:

1) Slightly higher groundwater velocities in the Lower Sand Zone;

2) Rainfall recharge continually attenuates the concentrations in the Upper Sand Zone; and

3) The Central Ditch is a gaining stream that affects the flow direction and velocity in the Upper Sand Zone, and consequently limits the downgradient extent of constituents in this zone.

The detection of pentachlorophenol at relatively higher concentrations in the Upper Sand Zone compared to the Lower Sand Zone suggests that this chemical is degrading more rapidly than benzene or PAHs, therefore pentachlorophenol concentrations decrease as they move either vertically or horizontally. In addition, the pentachlorophenol concentrations may exhibit this trend because it was originally introduced to the subsurface within an LNAPL.

DNAPL is present in the shallow and deeper subsurface saturated zones in the vicinity of the Central Process Area and the Former Wastewater Treatment System and is significantly contained by the Upper Low-Permeability Zone. DNAPL migration to the Central Ditch has been mitigated by the implementation of the IM. [1] [2]

2 "existing area of contaminated groundwater" is an area (with horizontal and vertical dimensions) that has been verifiably demonstrated to contain all relevant groundwater contamination for this determination, and is defined by designated (monitoring) locations proximate to the outer perimeter of "contamination" that can and will be sampled/tested in the future to physically verify that all "contaminated" groundwater remains within this area, and that the further migration of "contaminated" groundwater is not occurring. Reasonable allowances in the proximity of the monitoring locations are permissible to incorporate formal remedy decisions (i.e., including public participation) allowing a limited area for natural attenuation.

Migration of Contaminated Groundwater Under Control
Environmental Indicator (EI) RCRIS code (CA750)

4. Does "contaminated" groundwater **discharge** into **surface water** bodies?

____ If yes - continue after identifying potentially affected surface water bodies.

__X__ If no - skip to #7 (and enter a "YE" status code in #8, if #7 = yes) after providing an explanation and/or referencing documentation supporting that groundwater "contamination" does not enter surface water bodies.

_____ If unknown - skip to #8 and enter "IN" status code.

Rationale and Reference(s)

References

[1] Complete Phase II RCRA Facility Investigation Report, Grenada Facility, Grenada, Mississippi, Vol. 1, July 2003
[2] Interim Measures SWMU 11 Documentation Report, Koppers Beazer/Beazer East Facility, Tie Plant, Mississippi, September 2000

Rationale

Pentachlorophenol and benzene are not present in surface water on Site or downgradient in the Northern Stream, Central Ditch, or the Process Cooling Reservoir. This may be expected since pentachlorophenol is readily biodegradable and benzene would volatilze from surface water, if present. Total PAHs were observed in the Process Cooling Reservoir at concentrations that did not exceed 40 µg/L. The surface water in the Central Ditch has been remediated through the implementation of the IM. [1] [2]

Migration of Contaminated Groundwater Under Control
Environmental Indicator (EI) RCRIS code (CA750)

5. Is the **discharge** of "contaminated" groundwater into surface water likely to be **"insignificant"** (i.e., the maximum concentration[3] of each contaminant discharging into surface water is less than 10 times their appropriate groundwater "level," and there are no other conditions (e.g., the nature, and number, of discharging contaminants, or environmental setting), which significantly increase the potential for unacceptable impacts to surface water, sediments, or eco-systems at these concentrations)?

_____ If yes - skip to #7 (and enter "YE" status code in #8 if #7 = yes), after documenting: 1) the maximum known or reasonably suspected concentration[3] of key contaminants discharged above their groundwater "level," the value of the appropriate "level(s)," and if there is evidence that the concentrations are increasing; and 2) provide a statement of professional judgment/explanation (or reference documentation) supporting that the discharge of groundwater contaminants into the surface water is not anticipated to have unacceptable impacts to the receiving surface water, sediments, or eco-system.

_____ If no - (the discharge of "contaminated" groundwater into surface water is potentially significant) - continue after documenting: 1) the maximum known or reasonably suspected concentration[3] of each contaminant discharged above its groundwater "level," the value of the appropriate "level(s)," and if there is evidence that the concentrations are increasing; and 2) for any contaminants discharging into surface water in concentrations[3] greater than 100 times their appropriate groundwater "levels," the estimated total amount (mass in kg/yr) of each of these contaminants that are being discharged (loaded) into the surface water body (at the time of the determination), and identify if there is evidence that the amount of discharging contaminants is increasing.

_____ If unknown - enter "IN" status code in #8.

Rationale and Reference(s):

3 As measured in groundwater prior to entry to the groundwater-surface water/sediment interaction (e.g., hyporheic) zone.

Migration of Contaminated Groundwater Under Control
Environmental Indicator (EI) RCRIS code (CA750)

6. Can the **discharge** of "contaminated" groundwater into surface water be shown to be "**currently acceptable**" (i.e., not cause impacts to surface water, sediments or eco-systems that should not be allowed to continue until a final remedy decision can be made and implemented[4])?

_____ If yes - continue after either: 1) identifying the Final Remedy decision incorporating these conditions, or other site-specific criteria (developed for the protection of the site's surface water, sediments, and eco-systems), and referencing supporting documentation demonstrating that these criteria are not exceeded by the discharging groundwater; OR
2) providing or referencing an interim-assessment,[5] appropriate to the potential for impact, that shows the discharge of groundwater contaminants into the surface water is (in the opinion of a trained specialists, including ecologist) adequately protective of receiving surface water, sediments, and eco-systems, until such time when a full assessment and final remedy decision can be made. Factors which should be considered in the interim-assessment (where appropriate to help identify the impact associated with discharging groundwater) include: surface water body size, flow, use/classification/habitats and contaminant loading limits, other sources of surface water/sediment contamination, surface water and sediment sample results and comparisons to available and appropriate surface water and sediment "levels," as well as any other factors, such as effects on ecological receptors (e.g., via bio-assays/benthic surveys or site-specific ecological Risk Assessments), that the overseeing regulatory agency would deem appropriate for making the EI determination.

_____ If no - (the discharge of "contaminated" groundwater can not be shown to be "**currently acceptable**") - skip to #8 and enter "NO" status code, after documenting the currently unacceptable impacts to the surface water body, sediments, and/or eco-systems.

_____ If unknown - skip to 8 and enter "IN" status code.

Rationale and Reference(s): _____

_____

_____

_____

_____

_____

_____

_____

_____

_____

4 Note, because areas of inflowing groundwater can be critical habitats (e.g., nurseries or thermal refugia) for many species, appropriate specialist (e.g., ecologist) should be included in management decisions that could eliminate these areas by significantly altering or reversing groundwater flow pathways near surface water bodies.

5 The understanding of the impacts of contaminated groundwater discharges into surface water bodies is a rapidly developing field and reviewers are encouraged to look to the latest guidance for the appropriate methods and scale of demonstration to be reasonably certain that discharges are not causing currently unacceptable impacts to the surface waters, sediments or eco-systems.

Migration of Contaminated Groundwater Under Control
Environmental Indicator (EI) RCRIS code (CA750)

7. Will groundwater **monitoring** / measurement data (and surface water/sediment/ecological data, as necessary) be collected in the future to verify that contaminated groundwater has remained within the horizontal (or vertical, as necessary) dimensions of the "existing area of contaminated groundwater?"

__X__ If yes - continue after providing or citing documentation for planned activities or future sampling/measurement events. Specifically identify the well/measurement locations which will be tested in the future to verify the expectation (identified in #3) that groundwater contamination will not be migrating horizontally (or vertically, as necessary) beyond the "existing area of groundwater contamination."

_____ If no - enter "NO" status code in #8.

_____ If unknown - enter "IN" status code in #8.

Rationale and Reference(s):

References

[1] Complete Phase II RCRA Facility Investigation Report, Grenada Facility, Grenada, Mississippi, Vol. 1, July 2003
[2] Interim Measures SWMU 11 Documentation Report, Koppers Beazer/Beazer East Facility, Tie Plant, Mississippi, September 2000

Rationale

The Complete Phase II RFI monitored natural attenuation (MNA) evaluation concluded that biodegradation plays a substantial role in the behavior of dissolved phase constituents at the Site. This evaluation also concluded that the current constituent distributions are likely to be at least stable, and possibly receding. Therefore, an MNA remedy is considered appropriate to address dissolved phase constituents at the Site. It is recommended that this remedy be implemented by establishing a Natural Attenuation Monitoring Plan (NAMP) that provides the following:

1. efficient and early detection of any future expansion in the extent of dissolved phase constituents;
2. confirmation of the ongoing effectiveness of dissolved phase constituent biodegradation; and
3. ongoing evaluation of the rate of source depletion.

This NAMP has been developed with consideration of the following components of the Complete Phase II RFI:

1. vertical constituent distributions;
2. lateral extent of constituents;
3. trends in constituent indicators parameters; and
4. potential for additional constituent migration

The NAMP will be implemented upon EPA approval of the Complete Phase II RFI.

Migration of Contaminated Groundwater Under Control
Environmental Indicator (EI) RCRIS code (CA750)

8. Check the appropriate RCRIS status codes for the Migration of Contaminated Groundwater Under Control EI (event code CA750), and obtain Supervisor (or appropriate Manager) signature and date on the EI determination below (attach appropriate supporting documentation as well as a map of the facility).

__X__ YE - Yes, "Migration of Contaminated Groundwater Under Control" has been verified. Based on a review of the information contained in this EI determination, it has been determined that the "Migration of Contaminated Groundwater" is "Under Control" at the **Koppers Industries/Beazer East Grenada Site** facility, **EPA ID # MSD 007 027 543** at **Grenada, Mississippi**. Specifically, this determination indicates that the migration of "contaminated" groundwater is under control, and that monitoring will be conducted to confirm that contaminated groundwater remains within the "existing area of contaminated groundwater" This determination will be re-evaluated when the Agency becomes aware of significant changes at the facility.

____ NO - Unacceptable migration of contaminated groundwater is observed or expected.

____ IN - More information is needed to make a determination.

Completed by (signature)_____ Date _____
(print)_____
(title)_____

Supervisor (signature)_____ Date _____
(print)_____
(title)_____
(EPA Region or State)_____

Locations where References may be found:

1) EPA Region IV Offices
2) MDEQ Offices
3) Koppers Facility
4) Beazer Offices

Contact telephone number and e-mail:

(name) Mike Bollinger
(phone #) 412-208-8864
(e-mail) bollinge@hanson.le.com

AI: 876
Grenada County
RCRA Post Closure
Koppers Industries
B. Shanks

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

SEP 2 1 2004

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

4WD-RPB

RECEIVED
SEP 24 2004
MDEQ

Mr. Michael W. Bollinger
Beazer East, Inc.
One Oxford Centre, Suite 3000
Pittsburgh, PA 15219

SUBJ: Notice of Technical Inadequacy (NOTI)
Complete Phase II RCRA Facility Investigation Report
Response to Comments, dated May 18, 2004
Koppers Industries/Beazer East, Inc.
Tie Plant, Mississippi
EPA I.D. No. MSD 007 027 543

Dear Mr. Bollinger:

The U.S. Environmental Protection Agency (EPA) has reviewed the Response to Comments of the Phase II RCRA Facility Investigation (RFI) Report, dated May 18, 2004 of Koppers/Beazer's, Tie Plant, Mississippi. Enclosed with this letter are comments which discuss the inadequacies identified during the review of the document. A Response to this Notice of Technical Inadequacy (NOTI) which directly addresses each comment must be submitted to EPA within forty-five (45) calendar days after the receipt of this letter.

If you have any question(s) or desire to have a meeting, please contact Mr. Harbhajan Singh of my staff at (404) 562-8473.

Sincerely,

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

CC: Timothy Basilone, Koppers Industries/Pittsburgh
Jennifer Abrahams, HSI GeoTrans/Rancho Cordova
Jerry Cain, MDEQ/Jackson

Notice of Technical Inadequacy (NOTI)
Complete Phase II RCRA Facility Investigation Report
Response to Comments, dated May 18, 2004
Koppers Industries/Beazer East, Inc., Tie Plant, Mississippi
EPA I.D. No. MSD 007 027 543

A. Phase II RFI Activities

1. The facility stated that the metal-based preservatives have not been used at the site and therefore, metals are not an issue. Based on the information submitted by Beazer's, it appears that the metals are not the issue at this time. However, this issue may reoccur based upon the information arisen/collected from other sources in any future.

2. *Figure 2-10* indicates the location of the plant production well H054 at the site. This well is used for fire-suppression and non-potable sanitary services. The sampling results show undetected levels of various PAHs in 2000. The records indicate that this well was only sampled in 2000. How many times was this well sampled? This is a plant production well and located in the highly contaminated area, so EPA recommends to sample this well once in 2 years.

3. During the December 2002 meeting, EPA said that the dioxins and furans in the ground water will be addressed in the Corrective Measures Study, <u>not</u> if necessary.

4. The microbial enumeration is not evaluated adequately for the MNA evaluation. However, EPA concurs that these conditions will be evaluated for potential remedies in the Corrective Measures Study.

B. Comments on the Human Health Risk Assessment

1. A regression equation is used to derive a predicted TCDD-TEQ concentration based on the measured Hepta-CDD concentration. The regression equation shown on *Page 9* differs from that shown on *Table A-1* and the predicted TEQ levels shown on *Table A-3* do not appear to be reproducible using either of these equations.

3. A predicted air concentration is shown for naphthalene based on the surface soil concentration and a derived volatilization factor. The value obtained by dividing the stated soil concentration by the volatilization factor [441 ÷ 3.44E4 = 0.0128} does not agree with the value of shown on *Page 12* (0.0128 mg/m^3).

9. The reviewer reiterates the original comment recommending the use of absorption factors for PCP and PAHs as recommended in EPA RAGS Part E (Dermal) (EPA, 2001). These values are EPA recommendations for human exposure to contaminants in soil so no adjustments are needed here.

References

EPA 1989. *Risk Assessment Guidance for Superfund, Volume I, Human Health Evaluation Manual, Part A.* Interim Final, EPA OERR, December 1989.

EPA 2000. Supplemental Guidance to RAGS: Region 4 Bulletins, Human Health Risk Assessment Bulletins. EPA Region 4, Website version updated 2000. [http://www.epa.gov/region4/waste/oftecser/healthbul.htm]

EPA 2001. *Risk Assessment Guidance for Superfund, Volume I: Human Health Evaluation Manual, Part E, Supplemental Guidance for Dermal Risk Assessment*, Interim OSWER 9285.7-02EP, September 2001. [http://www.epa.gov/superfund/programs/risk/ragse/index.htm]

C. Comments on the Eco-Risk Assessment

1. The facility concluded that the PAH concentrations in one onsite sample collected in 1998 may pose potentially unacceptable risk to benthic macroinvertebrates in the Northern Stream. Additional sampling of this location in 2000 indicated lower concentrations of total PAH. The facility concluded that no potential effects were expected to occur at either the onsite or offsite locations. Interpretation of the data for onsite areas of the Northern Stream indicates that these areas will be a continuing source of contamination for the foreseeable future. The sediment concentrations of PAH found in the onsite areas of the Northern Stream to effects data found in the literature are compared. There is moderate to severe risk to the benthic community onsite and offsite in the Northern Stream. The onsite sediment concentrations are consistent with observed benthic organism mortality in the range of 34 to 97% with a range in the frequency of occurrence of 43 to 100%. The offsite sediment concentrations are consistent with observed benthic organism mortality in the range of 34 to 38% with a range in the frequency of occurrence of 43 to 50% [*Table 1* - based on data from Swartz (1999)]. Since no site-specific toxicity data is available, EPA is forced to rely on the best information available at this time to evaluate risk at this site.

2. The facility may wish to conduct sediment toxicity testing to reduce the uncertainties associated with data derived from the literature. This is an acceptable option to further evaluate this site and can be discussed.

3. The Northern Stream source areas should be evaluated for erosion (sediment transport) that could contribute to the spread of PAH contamination downstream of the facility. Excavation of contaminated sediments may be necessary to control the source(s) of PAH contamination. Areas to be excavated can be based on the erosion potential and the concentrations of PAH at this site.

4. Table *5-22*: This table is inconsistent with *Table 3-18* and *Figure 4-49* regarding the total PAH concentrations in sediments of the Northern Stream. Please address this.

Reference

Swartz, Richard C. 1999. Consensus Sediment Quality Guidelines for Polycyclic Aromatic Hydrocarbon mixtures. Environmental Toxicology and Chemistry **18**:780–787.

Table 1. Eco Risk to benthic community at Northern Stream Koppers, Inc. Grenada, MS

SQGs[a]	T PAH[b] µg/kg	T PAH[b] Foc Norm[c] µg/kg OC	Frequency %	Magnitude %	TOC[d] %
<TEC[1]	<2,900	<290,000	5.6	7.6	1.0
TEC[1]	2,900	290,000	43.0	34.1	1.0
MEC[2]	18,000	1,800,000	50.0	38.3	1.0
EEC[3]	100,000	10,000,000			1.0

Sample ID	Year	Location	T PAH[b] µg/kg	T PAH[b] Foc Norm[c] µg/kg OC	Frequency %	Magnitude %	TOC[d] %
SS01	1998	Upstream	216	34,286	5.6	7.6	0.6
SS02	1998	Upstream edge	5,890	439,552	43	34.1	1.3
SS03	1998	On Site	88,000	8,380,952	50	38.3	1.1
SS03 DUP	1998	On Site	9,000	865,385	43	34.1	1.0
SS04	1998	On Site					1.1
SS05	1998	On Site	11,150	605,978	43	34.1	1.8
SS06	1998	Off Site DS	1,490	827,778	43	34.1	0.2
SS07	1998	Off Site DS	6,500	232,975	5.6	7.6	2.8
SS08	1998	Off Site DS	11,200	1,120,000	43	34.1	1.0
SS09	1998	Off Site DS	5,200	520,000	43	34.1	1.0
SS10 (SS02)	2000	Upstream edge	247	21,667	5.6	7.6	1.1
SS11	2000	On Site	29,574	1,689,943	43	34.1	1.8
SS12 (SS03)	2000	On Site	67,381	3,546,368	50	38.3	1.9
SS13 (SS04)	2000	On Site	40,536	1,921,137	50	38.3	2.1
SS14	2000	On Site	12,848	862,282	43	34.1	1.5
SS15 (SS05)	2000	On Site	21,806	1,159,894	43	34.1	1.9

[a]SQGs – Sediment quality guidelines (Swartz 1999)
[b]T PAH – Total Polycyclic Aromatic Hydrocarbon
[c]Foc Norm – Concentrations normalized based on the fraction of organic carbon (site specific)
[d]TOC – Total Organic Carbon
[1]TEC – Threshold effect concentration
[2]MEC – Median effect concentration
[3]EEC – Extreme effect concentration

M. Lio

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

AUG 0 6 2004

4WD-RPB

Mr. Michael W. Bollinger
Beazer East, Inc.
One Oxford Centre, Suite 3000
Pittsburgh, PA 15219

Koppers Industries
AL # 876
Grenada County
RCRA

SUBJ: Annual Report on DNAPL Recovery and
Inspection of Sediment Cap and Ditch
Dated, April 27, 2004
Koppers Industries/Beazer East, Inc.
Tie Plant, Mississippi
EPA I.D. No. MSD 007 027 543

Dear Mr. Bollinger:

The U.S. Environmental Protection Agency (EPA) has reviewed the annual report on DNAPL recovery and inspection checklist of sediment cap and ditch, dated April 27, 2004 of Koppers/Beazer's, Tie Plant, Mississippi. This report was submitted in accordance with the EPA October 16, 2003 approval letter of the Interim Measures Documentation Report for SWMU 11. EPA noted that approximately 5,200 gallons of DNAPL has been recovered from nine underdrain sumps and five recovery wells since October 1999. The Inspection Checklist shows that the vegetative cover on the cap, stability of the impoundment and central ditch and the stormwater control structures are in good condition. The next annual report is due in April 2005.

If you have any question(s), please contact Mr. Harbhajan Singh of my staff at (404) 562-8473.

Sincerely,

Jon D. Johnston

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

CC: Timothy Basilone, Koppers Industries/Pittsburgh
Jennifer Abrahams, HSI GeoTrans/Rancho Cordova
Jennifer Atkins, RETEC/Concord
Jerry Cain, MDEQ/Jackson

STATE OF MISSISSIPPI
HALEY BARBOUR
GOVERNOR
MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY
CHARLES H. CHISOLM, EXECUTIVE DIRECTOR

July 20, 2004

Mr. Thomas Henderson
Kopper Industries, Inc.
PO Box 160
Tie Plant, Mississippi 38960

FILE COPY

Dear Mr. Henderson:

Re: 1st 2004 Semiannual Groundwater
Monitoring Report Review
Beazer East, Inc., Grenada, MS Facility
Grenada County
Haz. Waste Ref. No. HW8854301

The Mississippi Department of Environmental Quality (Department) has completed a review of the aforementioned document dated June 29, 2004 and received in our office on July 6, 2004. The Department has no further comments with regards to this submittal at this time.

Please do not hesitate to contact me at 601-961-5526 with any concerns or comments with regards to this correspondence.

Sincerely,

Ross D. Williams, RPG
Environmental Permits Division

cc: Mr. Russ McLean, EPA Region IV, RCRA Programs Branch
Mr. Brad Shanks, MDEQ-OPC-EPD

876 PER20000001

STATE OF MISSISSIPPI
HALEY BARBOUR
GOVERNOR
MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY
CHARLES H. CHISOLM, EXECUTIVE DIRECTOR

FILE COPY

June 23, 2004

Mr. Thomas Henderson
Koppers Industries Inc
PO Box 160
Tie Plant, Mississippi 38960

Dear Mr. Henderson:

Re: Hazardous Waste Inspection Report
Koppers Industries Inc
Tie Plant, Grenada County
Hazardous Waste-EPA ID MSD007027543
Hazardous Waste-TSD HW8854301

Enclosed is a copies of the Hazardous Waste O & M and CEI inspection report completed as a result of this office's inspection at Koppers Industries Inc on 4/16/02 8:00:00 AM. The report should be used by you as a guide for complying with requirements and limitations stated in your permit.

As a result of the inspection, it was determined there were no apparent violations.

If you have any questions concerning this matter, please contact me at (601) 961-5308.

Sincerely,

C. Wayne Stover

C. Wayne Stover, Jr.
Environmental Compliance and Enforcement
Division

Agency Interest No. 876
INS20040003

STATE OF MISSISSIPPI
GOVERNOR HALEY BARBOUR
MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY
CHARLES H. CHISOLM, EXECUTIVE DIRECTOR

4/13/2004

Mr. Thomas Henderson
Koppers Industries Inc
PO Box 160
Tie Plant, Mississippi 38960

Dear Mr. Henderson:

Re: Inspection Report
Koppers Industries Inc
Tie Plant, Grenada County

Air-Title V Operating 096000012
GP-Wood Treating MSR220005
Hazardous Waste-TSD HW8854301
Water-Pretreatment MSP090300

Enclosed is a copy of the above inspection reports completed as a result of this office's inspection at Koppers Industries Inc on 4/6/04. The reports should be used by you as a guide for complying with requirements and limitations stated in your permits.

If you have any questions concerning this matter, please contact me at (601) 961-5171.

Sincerely,

Azzam Abu-Mirshid
Energy and Transportation Branch
Environmental Compliance and Enforcement Division

Agency Interest No. 876
INS20040001

Haley P. Biddy
Treating Supervisor
S.H,& E Coordinator

Koppers Inc.
Utility Poles and Piling
P. O. Box 160
Tie Plant, MS 38960
Tel 662 226 4584 ext. 40
Fax 662 226 4588
BiddyHP@koppers.com
www.koppers.com

February 27, 2004

Mr. David Lee
Office of Pollution Control-MSDEQ
P.O. Box 10385
Jackson, MS 39289-0385

CERTIFIED MAIL: 7002 0460 0003 7596 1239

Subject: Used Oil Report 2003

Dear Mr. Lee:

Used oil generated at this location is recycled through a commercial vendor. In accordance with 40 CFR 279.57 (b), we are providing this report.

1.) Plant Information
EPA#MSD007027543
Koppers Inc.
P.O. Box 160
Tie Plant, Mississippi 38960

2.)Calendar Year Covered: 2003

3.)Used Oil Activity

Used oil is generated on-site from equipment and includes primarily used engine and hydraulic oil.
A total of 1255 gallons of used oil were generated between January and December 2003. All used oil generated during this time period was recycled by a commercial vendor.

If you have any questions about this report, please call me at 662-226-4584 extension 40.

Sincerely,

Haley P. Biddy
S,H,&E Supervisor

Cc: Mr. Jeff Pallas USEPA Region IV Atlanta, GA
Tim Basilone – Koppers Inc.-Pittsburgh, PA

STATE OF MISSISSIPPI
GOVERNOR HALEY BARBOUR
MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY
CHARLES H. CHISOLM, EXECUTIVE DIRECTOR

February 3, 2004

Mr. Thomas Henderson
Koppers Industries, Inc.
PO Box 160
Tie Plant, Mississippi 38960

FILE COPY

Dear Mr. Henderson:

Re: 2nd Semiannual Groundwater
Monitoring Report
Beazer East, Inc., Grenada, MS Facility
Grenada County
Haz. Waste Ref. No. HW8854301

The Mississippi Department of Environmental Quality (Department) has received and completed a review of the aforementioned document dated January 14, 2004. The Department has no further comments with regards to this submittal at this time. If you have any comments or concerns, please contact me at 601-961-5526.

Sincerely,

Ross D. Williams, RPG
Environmental Permits Division

cc: Mr. Russ McLean, EPA Region IV, RCRA Program

876 PER20000001

M. Rau

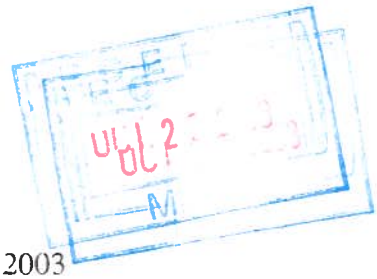
koppers. Haz-waste grenada MR

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

OCT 16 '03

4WD-RPB

Mr. Michael W. Bollinger
Beazer East, Inc.
One Oxford Centre, Suite 3000
Pittsburgh, PA 15219



SUBJ: Response to EPA Comments, dated April 17, 2003
Interim Measures SWMU 11
Documentation Report
Koppers Industries/Beazer East, Inc.
Tie Plant, Mississippi
EPA I.D. No. MSD 007 027 543

Dear Mr. Bollinger:

The U.S. Environmental Protection Agency (EPA) has reviewed the Response to Comments on the Interim Measures Documentation Report for SWMU 11, dated, April 17, 2003 of Koppers/Beazer's, Tie Plant, Mississippi. Based on its review, EPA hereby approves the Interim Measures Documentation Report for SWMU 11. Please submit an annual report on the recovery of DNAPL from the five (5) recovery wells and nine (9) underdrain sumps and inspection checklist for the sediment disposal area cap and Central Ditch for at least five (5) years. The first annual report is due on April 30, 2004.

If you have any question(s), please contact Mr. Harbhajan Singh of my staff at (404) 562-8473.

Sincerely,

N. M. Kumar

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

CC: Timothy Basilone, Koppers Industries/Pittsburgh
Peter Rich, HSI GeoTrans/Sterling
Jennifer Abrahams, HSI GeoTrans/Rancho Cordova
Jerry Cain, MDEQ/Jackson

STATE OF MISSISSIPPI
DAVID RONALD MUSGROVE, GOVERNOR
MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY
CHARLES H. CHISOLM, EXECUTIVE DIRECTOR

July 31, 2003

Mr. Thomas Henderson
Koppers Industries, Inc.
PO Box 160
Tie Plant, Mississippi 38960

FILE COPY

Dear Mr. Henderson:

Re: 1st Semiannual Groundwater
Monitoring Report
Beazer East, Inc., Grenada, MS Facility
Grenada County
Haz. Waste Ref. No. HW8854301

The Mississippi Department of Environmental Quality has received the aforementioned document dated July 1, 2003 and completed a review. It has been noted that approximately 1.5 feet of free phase liquid was detected in monitoring well R-20 which was gauged to provide potentiometric data for the generation of a potentiometric map. The 1st 2002 semiannual groundwater sampling report also indicated that a trace of free phase product was detected in that well at that time. Please provide further information regarding the free phase product that has been detected in this well during these sampling events.

If you have any comments or concerns, please contact me at (601) 961-5171.

Sincerely,

Ross D. Williams, RPG
Environmental Permits Division

cc: Mr. Russ McLean, EPA Region IV, RCRA Program

876

OFFICE OF POLLUTION CONTROL
POST OFFICE BOX 10385 • JACKSON, MISSISSIPPI 39289-0385 • TEL: (601) 961-5171 • FAX: (601) 354-6612 • www.deq.state.ms.us
AN EQUAL OPPORTUNITY EMPLOYER

Grenada Co.
Haz. waste MSD007027
D Lee

KOPPERS INDUSTRIES

Koppers Industries, Inc.
P.O. Box 160
Tie Plant, MS 38960

Telephone: (601) 226-4584
FAX: (601) 226-4588

February 27, 2003

Mr. David Lee
MS Department Of Environmental Quality
Office of Pollution Control
P.O. BOX 10385
Jackson, MS 39289-0385

CERTIFIED MAIL: 7000 0520 0021 7551 9132

Subject: Used Oil Report 2002

Dear Mr. Lee:

In the past used oil generated at this location was blended into wood preservative solutions and used in our manufacturing process. This activity was replaced during 2002 and used oil generated is now recycled through a commercial vendor. In accordance with 40 CFR 279.57 (b), we are providing this report.

1.) Plant Information
EPA#MSD007027543
Koppers Industries, Inc.
P.O. Box 160
Tie Plant, Mississippi 38960

2.)Calendar Year Covered: 2002

3.)Used Oil Activity
Estimated Quantity of Used Oil Generated: 1150 gallons

Used oil is generated on-site from maintenance of equipment and includes mainly used engine and hydraulic oil.
Approximately 750 gallons were generated between January and June of 2002. All used oil generated during this time period was blended and used in the manufacturing process.

From July through December 2002 an additional 500 gallons were recycled.

If you have any questions about this report, please call me at 662-226-4584 extension 11.

Sincerely,

Thomas L. Henderson
Plant Manager

Cc: Mr. Jeff Pallas – US EPA Region 4 (Atlanta, GA.)
Tim Basilone – Koppers Pittsburgh

Compliance

STATE OF MISSISSIPPI
DAVID RONALD MUSGROVE, GOVERNOR
MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY
CHARLES H. CHISOLM, EXECUTIVE DIRECTOR

FILE COPY

February 20, 2003

Mr. Thomas Henderson, Plant Manager
Koppers Industries, Inc.
PO Box 160
Tie Plant, Mississippi 38960

Re: 1st and 2nd Semiannual Groundwater Monitoring Report
Beazer East, Inc., Grenada, MS Facility
Grenada County
MSD 007 027 543

Dear Mr. Henderson:

We have reviewed the following corrective action groundwater monitoring reports:

- 2002 RCRA First Semiannual Groundwater Monitoring Report
- 2002 RCRA Second Semiannual Groundwater Monitoring Report

It was noted that a trace of LNAPL was observed on the water level probe and tape during the gauging of the water level at well R-20 during the 1st 2002 semiannual groundwater sampling event. If you have any comments or concerns regarding this matter, please do not hesitate to contact me at 601-961-5526.

Sincerely,

Ross D. Williams, RPG
Environmental Permits Division

cc: Mr. Russ McLean, EPA Region IV, RCRA Programs Branch

876 PER20000001

HAZARDOUS WASTE DIVISION
RCRIS CM&E EVALUATION

ENTERED BY:_____
DATE:__/__/__

Facility ID: MSD 007 027 543
Date: 02-20-03
Facility Name: Beazer East, Inc.
Evaluation Data: New X Change__ Delete__
Evaluating Agency: State
Evaluating Person: Ross D Willis
Date of Evaluation: 02/15/03 (M/D/Y)

FILE COPY

TYPE OF EVALUATION

___ CEI - Compliance Evaluation Inspection
___ CME - Compliance (Groundwater) Monitoring Evaluation
X FRR - Financial Record Review
___ NRR - Non-financial Record Review
___ OAM - Operation & Maintenance Inspection
___ CSE - Compliance Schedule Evaluation
___ CDI - Case Development Inspection
___ SPL - Sampling Inspection(often in conjunction with CES/CMS)
___ CAO - Corrective Action Activities
___ OTH - Other

1st and 2nd 2002 Semiannual Groundwater Monitoring Reports

ONLY USE IF THERE ARE VIOLATIONS

___ SNY - Significant Non-Complier Yes
___ SNN - Significant Non-Complier No

COVERAGE AREAS: (X) E=Evaluated, BLANK = Not Applicable

TSD FACILITIES

E		E	
___	DCH - Chemical/Physical/Biological	___	DSI - Surface Impoundments
___	DCL - Closure/Post-Closure	___	DTR - Waste Tanks
___	DCP - Contingency Plan	___	DTT - Thermal Treatment
___	DFR - Financial Responsibility	___	DWP - Waste Pile
___	DGS - General Standards	___	CAS - C/A Compliance Schedule
___	DGW - Groundwater Monitoring	___	FEA - Former Enforcement Agreements
___	DIN - Incineration	___	CSS - Compliance Schedule Violation
___	DLF - Landfill	___	BRR - Differ Stds for Regulation of Residu
___	DLB - Land Ban	___	BPS - BIF Permit Standards
___	DLT - Land Treatment	___	BIS - BIF Interim Status Standards
___	DMC - Container Management	___	BCE - BIF Stds to Control Emissions
___	DMR - Manifest	___	BDT - BIF Stds for Direct Transfer
___	DOR - Other Requirements	___	DIA - Incinerator Waste Analysis
___	DOT - Other Requirements (Oversight)	___	DPS - Incinerator Performance Standard
___	DPB - Part B Permit Application	___	DOP - Incinerator Operating Requiremen
___	DPP - Preparedness Prevention	___	DMI - Incinerator Monitoring & Inspectior

GENERATOR FACILITIES

E		E	
___	GER - All Requirements (Oversight)	___	GPT - Pre-Transport
___	GGR - General Requirements	___	GRR - Recordkeeping
___	GMR - Manifest	___	GSC - Special Conditions
___	GLB - Land Ban	___	GSQ - SQG Requirements
___	GOR - Waste Min. Program, Annual/Biennual HW Report)		

TRANSPORTERS

E		E	
___	TGR - General Standards	___	TWD - HW Discharges
___	TMR - Manifest	___	TRR - All Requirements
___	TOR - Other Requirements		

STATE OF MISSISSIPPI
DAVID RONALD MUSGROVE, GOVERNOR
MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY
CHARLES H. CHISOLM, EXECUTIVE DIRECTOR

FILE COPY

August 30, 2001

Mr. Thomas L. Henderson, Plant Manager
Koppers Industries, Inc.
PO Box 160
Tie Plant, MS 38960

Re: 1st & 2nd Semi-Annual Corrective Action Monitoring Report, 2001
Beazer East, Inc.
Grenada, MS Facility
EPA ID# MSD 007 027 543

Dear Mr. Henderson:

The Mississippi Department of Environmental Quality (MDEQ) has completed the review of the aforementioned documents and determined that they are in substantial compliance with the requirements of the groundwater monitoring plan for the facility.

We have no further comments with respect to these reporting periods based on the submittal of this additional data. If I may be of further service on this or any matter please do not hesitate to contact me at (601) 961-5526 or Ross_Williams@deq.state.ms.us.

Sincerely,

Ross D. Williams, RPG
Solid Waste and Mining Branch
Environmental Permits Division

cc: Mr. Russ McLean, EPA Region 4

The RETEC Group, Inc.
300 Baker Avenue, Suite 302
Concord, MA 01742

RETEC

(978) 371-1422 Phone
(978) 371-1448 Fax
www.retec.com

July 15, 2002

Via Certified Mail

Environmental Permits Division, Chief
Mississippi Office of Pollution Control
P.O. Box 10385
Jackson, MS 39289-0385

Kuppers
Grenada Co.
RCRA TSD
Groundwater file
(Blue)

RE: Certification Page for the 2002 RCRA First Semiannual Report
Beazer East, Inc., Grenada, Mississippi Facility
Hazardous Waste Management Permit No. 88-543-01
EPA ID# MSD 007 027 543

Dear Sir:

The RETEC Group, Inc. (RETEC), on behalf of Beazer East, Inc. (Beazer), submitted the *2002 RCRA First Semiannual Groundwater Monitoring Report* under the Re-issuance of Hazardous Waste Management Permit Number 88-543-01 (re-issued on November 10, 1999). This letter-report is due to your office by July 15 of each year. The report was sent via certified mail on July 12, 2002; however, the signed certification page was not available at the time of issuance to include in the report. Rather than delay submittal of the report, RETEC sent it without the certification page and with a note saying the certification would follow.

Therefore, please find enclosed the signed original certification page for the *2002 RCRA First Semiannual Groundwater Monitoring Report* to be filed with that document.

If you have questions or comments, please call Mr. Michael Bollinger of Beazer at (412) 208-8864 or me at (978) 371-1422.

Best Regards,

The RETEC Group, Inc.

Rita Bauer
Groundwater Monitoring Program Manager

RB:th

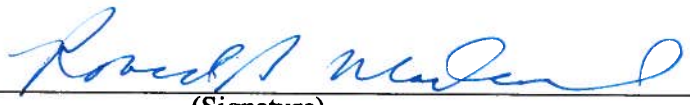
Enclosure

CERTIFICATION

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violation."

Document: 2002 RCRA First Semiannual Groundwater Monitoring Report
Beazer East, Inc., Grenada, Mississippi Facility
Hazardous Waste Management Permit No. 88-543-01
EPA ID# MSD 007 027 543

Robert S. Markwell
(Name)


(Signature)

Director - Environmental
(Title)

Beazer East, Inc
(Company Name)

7/12/02
(Date)

STATE OF MISSISSIPPI
DAVID RONALD MUSGROVE, GOVERNOR
MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY
CHARLES H. CHISOLM, EXECUTIVE DIRECTOR

FILE COPY

August 30, 2001

Mr. Thomas L. Henderson, Plant Manager
Koppers Industries, Inc.
PO Box 160
Tie Plant, MS 38960

Re: 1st & 2nd Semi-Annual Corrective Action Monitoring Report, 2001
Beazer East, Inc.
Grenada, MS Facility
EPA ID# MSD 007 027 543

Dear Mr. Henderson:

The Mississippi Department of Environmental Quality (MDEQ) has completed the review of the aforementioned documents and determined that they are in substantial compliance with the requirements of the groundwater monitoring plan for the facility.

We have no further comments with respect to these reporting periods based on the submittal of this additional data. If I may be of further service on this or any matter please do not hesitate to contact me at (601) 961-5526 or Ross_Williams@deq.state.ms.us.

Sincerely,

Ross D. Williams, RPG
Solid Waste and Mining Branch
Environmental Permits Division

cc: Mr. Russ McLean, EPA Region 4

Ross Williams 06/27/2002 02:02 PM

To: Scott Hodges/Air/OPC/DEQ@DEQ
cc: Maya Rao/Air/OPC/DEQ@DEQ, Billy Warden/GW/OPC/DEQ@DEQ

Subject: Beazer/Koppers industries

Scott,

A review of the 1st and 2nd 2001 Semiannual Groundwater Monitoring Report for:

Beazer East, Inc.
Grenada, Mississippi Facility
Hazardous Waste management Permit NO. 88-543-01
EPA ID #MSD 007 027 543

has been completed.

In summary, for both of these reporting periods, it appears that Koppers/Beazer is in compliance with the permitting requirements. There were no analytical constituents required under the permit that were detected above the laboratory detection limit (MDL) nor the practical quantification limit (PQL) for either groundwater sampling event. All other sampling, monitoring, and reporting requirements of the permit were fulfilled during the reporting periods except for the following:

Monitor well R-7, a downgradient well, was not sampled during the 1st semiannual groundwater sampling event. This was reported and appears to be due to the fact that the well silted up (fines collected within the well annulus) that inhibited the collection of a groundwater sample. This problem was rectified in July 2001 by redeveloping the well which removed the fines. The well was sampled during the 2nd semiannual groundwater sampling event for 2001. This is a common problem with wells located in certain hydrogeologic regimes and is typically handeled through the operation and maintenance program for the groundwater monitoring network.

Another issue mentioned in the 2nd semiannual groundwater sampling event for 2001 was that free phase DNAPL (dense non-aqueous phase liquid) was detected in two monitor wells, R-12C and R-20, at a thickness of 2.06 and 2.10 feet respectively). It is important to mention that these two wells are not part of the groundwater detection network under the permit but are part of the overall groundwater monitoring network for the facility.

Outside of this review and reporting to you of this summary, I am awaiting further guidance regarding any further reporting this information to other parties. Please contact me if further information is required.

Thanks in advance,

Ross

STATE OF MISSISSIPPI
DAVID RONALD MUSGROVE, GOVERNOR
MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY
CHARLES H. CHISOLM, EXECUTIVE DIRECTOR

03/12/2002

Mr. Thomas Henderson
Koppers Industries Inc
PO Box 160
Tie Plant, Mississippi 38960

Dear Mr. Henderson:

Re: Inspection Report
Koppers Industries Inc
Tie Plant, Grenada County

Hazardous Waste-EPA ID MSD007027543
Hazardous Waste-TSD HW8854301
Water-Pretreatment MSP090300

Enclosed is a copy of the RCRA and water inspection report(s) completed as a result of this office's inspection at Koppers Industries Inc on 1/16/02. The report(s) should be used by you as a guide for complying with requirements and limitations stated in your permit(s).

Facility was in compliance with applicable regulations.

If you have any questions concerning this matter, please contact me at (601)961-5171.

Sincerely,

Azzam Abumirshid
Timber and Wood Branch
Environmental Compliance and Enforcement Division

Agency Interest No. 876
INS20020001

Haz. Waste MSD007027543
Grenada Co.

KOPPERS INDUSTRIES

Koppers Industries, Inc.
P.O. Box 160
Tie Plant, MS 38960

Telephone: (601) 226-4584
FAX: (601) 226-4588

February 26, 2002

Mr. David Lee
MS Department of Environmental Quality
Office of Pollution Control
P.O. Box 10385
Jackson, MS 39289-0385

CERTIFIED MAIL: 7000 0520 0021 7551 8470

Subject: Used Oil Report

Dear Ms. Bartlett:

Used oil generated at this plant location is blended into wood preservative solutions at this plant in our manufacturing process. In accordance with 40 CFR 279.57 (b), we are providing this report.

1.) Plant Information
EPA#MSD007027543
Koppers Industries, Inc.
P.O. Box 160
Tie Plant, Mississippi 38960

2.) Calendar Year Covered: 2001
3.) Used Oil Activity
Estimated Quantity of Used Oil Generated: 1500 gallons

Used oil is generated on-site from maintenance of equipment and includes mainly used engine and hydraulic oil. It is then blended into wood preserving solution, which is used at this wood preserving plant.

If you have any questions about this report, please call me at 662-226-4584 extension 11.

Sincerely,

Thomas L. Henderson
Plant Manager

Cc: Elizabeth Bartlett – US EPA Region 4
Tim Basilone – Koppers Pittsburgh

STATE OF MISSISSIPPI
DAVID RONALD MUSGROVE, GOVERNOR
MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY
CHARLES H. CHISOLM, EXECUTIVE DIRECTOR

FILE COPY

February 12, 2002

Ms. Rita Bauer
The RETEC Group, Inc.
300 Baker Avenue, Suite 302
Concord, MA 01742

Re: Koppers Industries, Inc.
Grenada County
Hazardous Waste Management
Permit Number HW-88-543-01

Dear Ms. Bauer,

We are in receipt of your letter dated January 31, 2002, concerning the gauging of ground water at the above referenced facility. As we discussed in our phone conversation on January 29, 2002, we feel that your interpretation that the permit requires gauging of only the eight wells listed in permit condition III.B.1.a and III.B.1.b during each sampling event is correct. However, if the gauging of additional wells is needed to determine the ground water flow rate and direction as described in permit condition III.G.3, then the company should gauge additional wells as needed. If you have any further questions, please call me at (601) 961-5672.

Sincerely,

Scott Hodges

Scott Hodges
Environmental Permits Division

OFFICE OF POLLUTION CONTROL
POST OFFICE BOX 10385 • JACKSON, MISSISSIPPI 39289-0385 • TEL: (601) 961-5171 • FAX: (601) 354-6612 • www.deq.state.ms.us
AN EQUAL OPPORTUNITY EMPLOYER

The RETEC Group, Inc.
300 Baker Avenue, Suite 302
Concord, MA 01742

RETEC

(978) 371-1422 Phone
(978) 371-1448 Fax
www.retec.com

January 31, 2002

Ms. Maya Rao
State of Mississippi Department of Environmental Quality
Hazardous Waste Division
2380 Highway 80 West
Jackson, MS 39204

RE: Clarification of Permit Language
Beazer East, Inc., Grenada, Mississippi Facility
Hazardous Waste Management Permit Number HW-88-543-01
EPA ID# MSD 007 027 543

Dear Ms. Rao:

Per your request, and based on our January 29, 2002 telephone conversation (also attended by Mr. Scott Hodges and Mr. Toby Kirk), this letter will serve to document the Beazer East, Inc. (Beazer) request for clarification of permit language regarding the gauging of ground-water monitoring wells as part of the Ground Water Detection Monitoring Program for the closed surface storage impoundment at the Koppers Industries, Inc. (KII) Tie Plant, Mississippi facility (Hazardous Waste Management Permit No. HW-88-543-01).

Permit Condition III.E.1 states that *The Permittee shall determine the elevation of the ground-water surface at each well each time the ground-water is sampled.* Based on this statement, Beazer has, during each previous sampling event, gauged each well shown on figure E-5 of Permit Attachment E.

However, Permit Condition III.B.1 states that *the Permittee shall maintain ground-water monitoring wells at the locations specified on the map in Permit Attachment E, figure E-5,* ***and*** *in conformance with the following list:*

III.B.1.a *Monitoring well R-1R and R-10 shall be maintained as background monitoring wells.*

III.B.1.b *Monitoring wells R-7, R-8, R-8B, R-9, R-9C, and R-9D shall be maintained as detection-monitoring well for the unit identified in Permit Condition IV.B.*

In our January 29, 2002 telephone conversation, we requested that the MDEQ clarify the permit language regarding ground-water gauging. As stated in our telephone conversation, your interpretation of the permit language was that the permit required Beazer to gauge only the eight wells listed in permit condition III.B.1.a and III.B.1.b., and that the gauging of all wells shown on figure E-5 of Permit Attachment E was beyond the scope of the permit.

Thank you for taking the time to discuss this matter with us and we appreciate your willingness to confirm the MDEQ interpretation of the permit in writing. We look forward to receiving your letter.

If you have any questions or require additional information regarding this request, or the site in general, please do not hesitate to call me at (978) 371-1422 or Michael Bollinger, Beazer Environmental Manager, at (412) 208-8864.

Sincerely,

The RETEC Group, Inc.

Rita M. Bauer
Groundwater Monitoring Program Manager

RMB:cg

cc: T. Basilone, KII
W. Stover, MDEQ
M. Helbling, Beazer
J. Atkins, RETEC
L. McLay, RETEC-Atlanta
B. Simpson, KII Plant Manager
J. Abrahams, Geotrans

H22a.

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

RECEIVED
FEB 15 2002
Miss. Dept. of Environmental Quality
Office of Pollution Control

4WD-RCRA

FEB 11 2002

Mr. Don Watts, Chief
Mississippi Department of Environmental Quality
Environmental Compliance & Enforcement Division
Office of Pollution Control
P. O. Box 10385
Jackson, Mississippi 39289

SUBJ: RCRA Compliance Evaluation Inspection
Koppers/Beazer
EPA ID Number: MSD007027543

Grenada Co.

Dear Mr. Watts:

On January 16, 2002, a Compliance Evaluation Inspection (CEI) was conducted by the United States Environmental Protection Agency (EPA) and Mississippi Department of Environmental Quality (MDEQ) at Koppers/Beazer facility in Tie Plant, MS, to determine the facility's compliance status with RCRA.

Enclosed is the EPA RCRA Site Inspection Report which indicates that no violations of RCRA were discovered.

If you have any questions, please contact Randy Jackson of my staff, at (404) 562-8464.

Sincerely yours,

Jeffrey T. Pallas, Chief
South Enforcement and Compliance Section
RCRA Enforcement and Compliance Branch

Enclosure

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

4WD-RCRA

FEB 11 2002

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Thomas L. Henderson
Koppers/Beazer
P.O. Box 160
Grenada, MS 38960

SUBJ: RCRA Compliance Evaluation Inspection
Koppers/Beazer
EPA ID # MSD007027543

Dear Mr. Henderson:

On January 16, 2002, the United States Environmental Protection Agency (EPA) and the Mississippi Department of Environmental Quality (MSDEQ) conducted a RCRA compliance evaluation inspection at the Koppers/Beazer facility located on Tie Plant Road in Grenada, Mississippi in order to determine its compliance status with RCRA.

Enclosed is the EPA RCRA Site Inspection Report which indicates that no violations of RCRA were discovered. A copy of this report has also been forwarded to Mississippi Department of Environmental Quality (MDEQ).

If you have any questions, please contact Randy Jackson, of my staff, at (404) 562-8464.

Sincerely yours,

Jeffrey T. Pallas, Chief
South Enforcement and Compliance Section
RCRA Enforcement and Compliance Branch

Enclosure
cc: Don Watts, MDEQ w/encl

Grenada Co WS

ThermoRetec Corporation
300 Baker Avenue, Suite 302
Concord, MA 01742

ThermoRetec
Smart Solutions. Positive Outcomes.

October 10, 2001

Via Certified Mail

Environmental Permits Division, Chief
Mississippi Office of Pollution Control
P.O. Box 10385
Jackson, MS 39289-0385

(978) 371-1422 Phone
(978) 371-1448 Fax
www.retec.com

RE: Abandonment of Monitoring Wells R-12 and R-12B
Beazer East, Inc., Grenada, Mississippi Facility
Hazardous Waste Management Permit Number 88-543-01
EPA ID# MSD 007 027 543

Dear Sir:

On behalf of Beazer East, Inc. (Beazer), The RETEC Group, Inc (RETEC) submits this letter notifying the Mississippi Department of Environmental Quality (MDEQ) of the abandonment of monitoring wells R-12 and R-12B at the Tie Plant, Mississippi Facility (Figure 1). In accordance with Hazardous Waste Management Permit Number 88-543-01 (Permit), re-issued on November 10, 1999 by the MDEQ, these wells are gauged (not sampled) on a semi-annual basis. As part of the routine sampling program, field technicians with RETEC observed that wells R-12 and R-12B were no longer present at their surveyed locations. A Mississippi licensed driller (G&E Services, Inc.) was contracted to locate, evaluate, and (if possible) repair the two wells.

On July 24, 2001, G&E Services, Inc. located the wells and determined that they were too damaged to repair. As required in paragraph III.B.3 of the Permit, the wells were abandoned as follows, in accordance with the Mississippi Office of Land and Water regulations. Each well was cut off below ground surface and the security cover and land surface completion were removed. Each well was then grouted with bentonite from the bottom to the land surface. Completed Water Well Plugging/Decommissioning forms are enclosed.

Beazer plans to replace these wells within the next year. The replacement wells will be included in the semi-annual gauging program, as specified in the Permit.

If you have any questions or require additional information, please call Mike Bollinger of Beazer at (412) 208-8864 or Rita Bauer of RETEC at (978) 371-1422.

Sincerely,

The RETEC Group, Inc.

Rita M. Bauer
Project Manager

REC'D OCT 15 2001

RMB:cg

Enclosure

cc: Office of Land and Water Resources
W. Stover, MDEQ ✓
M. Helbling, Beazer
M. Bollinger, Beazer
T. Henderson, KII Plant Manager
T. Basilone, KII
J. Abrahams, GeoTrans
L. McLay, RETEC

F:\PROJECTS\15568\Corres\2001\MOPC1010.doc

Grenada County m. collier

ThermoRetec Corporation
300 Baker Avenue, Suite 302
Concord, MA 01742

ThermoRetec
Smart Solutions. Positive Outcomes.

October 10, 2001

Via Certified Mail

(978) 371-1422 Phone
(978) 371-1448 Fax
www.retec.com

RECEIVED
OCT 11 2001

Environmental Permits Division, Chief
Mississippi Office of Pollution Control
P.O. Box 10385
Jackson, MS 39289-0385

RE: Abandonment of Monitoring Wells R-12 and R-12B
Beazer East, Inc., Grenada, Mississippi Facility
Hazardous Waste Management Permit Number 88-543-01
EPA ID# MSD 007 027 543

Dear Sir:

On behalf of Beazer East, Inc. (Beazer), The RETEC Group, Inc (RETEC) submits this letter notifying the Mississippi Department of Environmental Quality (MDEQ) of the abandonment of monitoring wells R-12 and R-12B at the Tie Plant, Mississippi Facility (Figure 1). In accordance with Hazardous Waste Management Permit Number 88-543-01 (Permit), re-issued on November 10, 1999 by the MDEQ, these wells are gauged (not sampled) on a semi-annual basis. As part of the routine sampling program, field technicians with RETEC observed that wells R-12 and R-12B were no longer present at their surveyed locations. A Mississippi licensed driller (G&E Services, Inc.) was contracted to locate, evaluate, and (if possible) repair the two wells.

On July 24, 2001, G&E Services, Inc. located the wells and determined that they were too damaged to repair. As required in paragraph III.B.3 of the Permit, the wells were abandoned as follows, in accordance with the Mississippi Office of Land and Water regulations. Each well was cut off below ground surface and the security cover and land surface completion were removed. Each well was then grouted with bentonite from the bottom to the land surface. Completed Water Well Plugging/Decommissioning forms are enclosed.

Beazer plans to replace these wells within the next year. The replacement wells will be included in the semi-annual gauging program, as specified in the Permit.

If you have any questions or require additional information, please call Mike Bollinger of Beazer at (412) 208-8864 or Rita Bauer of RETEC at (978) 371-1422.

Sincerely,

The RETEC Group, Inc.

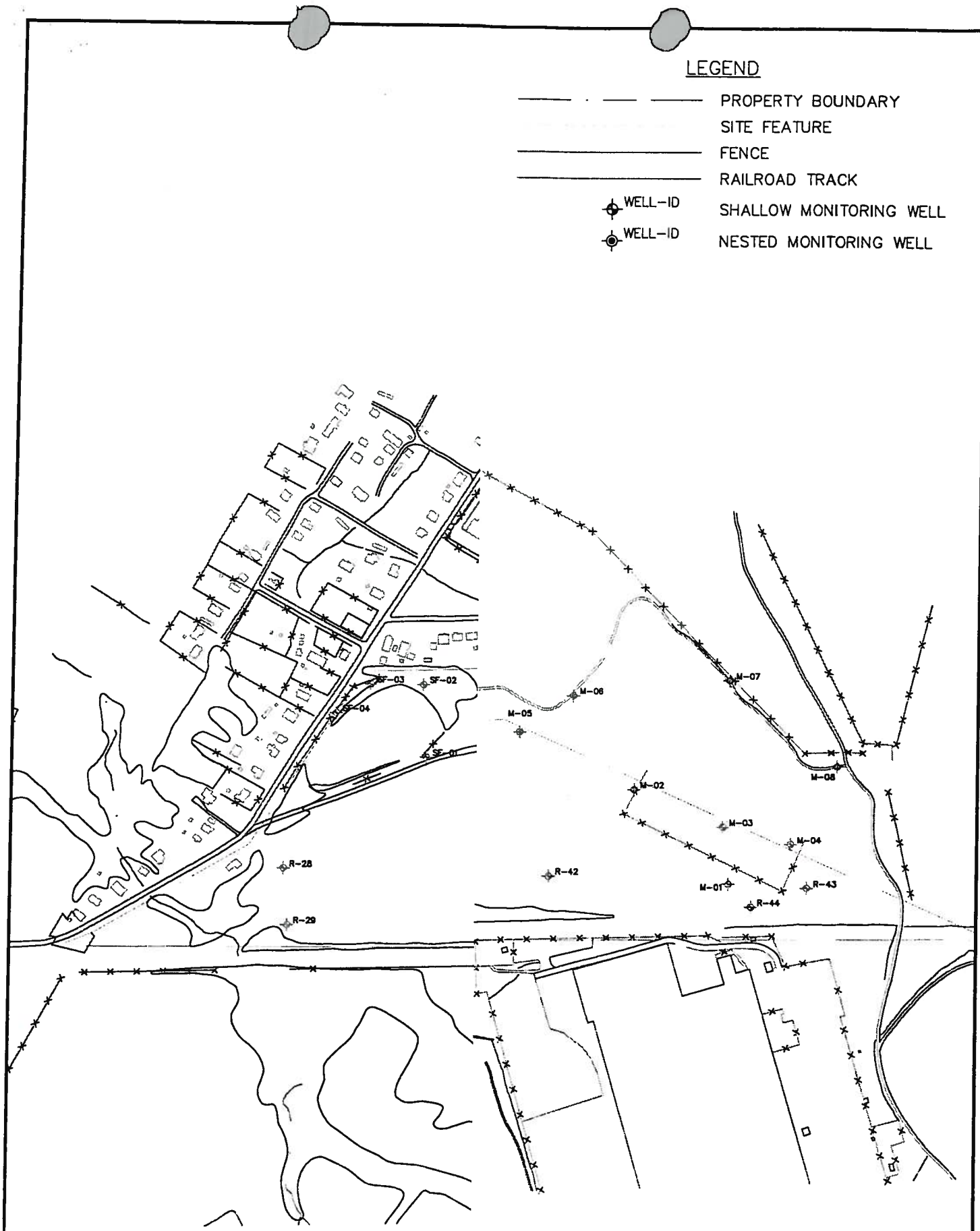
Rita M. Bauer
Project Manager

RMB:cg

Enclosure

cc: Office of Land and Water Resources
W. Stover, MDEQ
M. Helbling, Beazer
M. Bollinger, Beazer
T. Henderson, KII Plant Manager
T. Basilone, KII
J. Abrahams, GeoTrans
L. McLay, RETEC

F:\PROJECTS\15568\Corres\2001\MOPC1010.doc



ThermoRetec

ORING

1GW-01

SITE AND WELL LOCATION MAP

TIE PLANT
GRENADA, MISSISSIPPI

FIGURE 1

MISSISSIPPI DEPARTMENT OF NATURAL RESOURCES
Bureau of Land and Water Resources

P. O. Box 10631
Jackson, Mississippi 39209
WATER WELL PLUGGING
DECOMMISSIONING

COUNTY WELL LOCATED: Grenada	
WELL NUMBER: R-12 B	CODED:
DATE WELL PLUGGED: 7/24/01	
PERMIT NUMBER:	
NAME OF DRILLING FIRM: G & E Services, Inc.	
12751 Smith Young Rd. Mobile, Al.	

NAME & MAILING ADDRESS OF LANDOWNER: Koppers Industries, Inc.	NAME OF WELL CONTRACTOR WHO DRILLED THE WELL: Layne Western Company, Inc.
436 Seventh Ave.	
Pittsburgh, Pa. 15219	NAME OF LANDOWNER WHEN WELL WAS DRILLED: Same
WELL LOCATION: SEC 33 TOWNSHIP T22N RANGE R5E	WELL DATA
DISTANCE: Approximatley 1 Mile DIRECTION: South NEAREST TOWN: Of Grenada Mississippi	Well Depth: 41.0' / Casing Diameter (in.): 2" / Casing Length (Ft.): 31.0'
OTHER LANDMARK: Located In Tie Plant, Mississippi	Type of Casing: PVC / Hole Depth: 20.0' / Depth to Static Water Level: 13.89'
WELL PURPOSE: Home, Irrigation, Municipal, Industrial, Fish Pond, etc.: Monitoring	DATE WELL COMPLETED:

DESCRIBE HOW THE WELL OR HOLE WAS PLUGGED:
(AMOUNT OF CASING AND/OR SCREEN THAT WAS REMOVED, OR LEFT IN HOLE, MATERIAL USED IN PLUGGING, ETC.)

The well was located and grouted from the bottom to the land surface with bentonite grout and the cover and pad was removed.

I CERTIFY THAT THE WELL WAS PLUGGED OR ABANDONED IN ACCORDANCE WITH THE STATE OF MISSISSIPPI REGULATIONS.

SIGNATURE

7/30/2001
DATE

MISSISSIPPI DEPARTMENT OF NATURAL RESOURCES
Bureau of Land and Water Resources

P. O. Box 10631
Jackson, Mississippi 39209
WATER WELL PLUGGING
DECOMMISSIONING

COUNTY WELL LOCATED: Grenada	
WELL NUMBER: R-12	CODED:
DATE WELL PLUGGED: 7/24/01	PERMIT NUMBER:
	NAME OF DRILLING FIRM: G & E Services, Inc.
	12751 Smith Young Rd. Mobile, Al.

NAME & MAILING ADDRESS OF LANDOWNER: Koppers Industries, Inc.	NAME OF WELL CONTRACTOR WHO DRILLED THE WELL: PSI, Inc.
436 Seventh Ave.	
Pittsburgh, Pa. 15219	NAME OF LANDOWNER WHEN WELL WAS DRILLED: Same
WELL LOCATION: SEC 28 TOWNSHIP T22N RANGE R5E	WELL DATA
DISTANCE: Approximatley 1 Mile DIRECTION: South NEAREST TOWN: Of Grenada Mississippi	Well Depth: 20.0' / Casing Diameter (In.): 2" / Casing Length (Ft.): 3.0'
OTHER LANDMARK: Located In Tie Plant, Mississippi	Type of Casing: PVC / Hole Depth: 20.0' / Depth to Static Water Level: 13.47'
WELL PURPOSE: Home, Irrigation, Municipal, Industrial, Fish Pond, etc.: Monitoring	DATE WELL COMPLETED:

DESCRIBE HOW THE WELL OR HOLE WAS PLUGGED:
(AMOUNT OF CASING AND/OR SCREEN THAT WAS REMOVED, OR LEFT IN HOLE, MATERIAL USED IN PLUGGING, ETC.)

The well was located and grouted from the bottom to the land surface with bentonite grout and the cover and pad was removed.

I CERTIFY THAT THE WELL WAS PLUGGED OR ABANDONED IN ACCORDANCE WITH THE STATE OF MISSISSIPPI REGULATIONS.

C. Wyhoff
SIGNATURE

7/30/2001
DATE

Spangler

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

RECEIVED
FEB - 5 2001
Dept. of Environmental Quality
Office of Pollution Control

4WD-RPB

FEB 0 1 2001

Mr. Michael W. Bollinger
Environmental Manager
Beazer East, Inc.
One Oxford Centre, Suite 3000
Pittsburgh, PA 15219

SUBJ: Removal Documentation Report
Dated, February 21, 1997
Koppers Industries/Beazer East, Inc.
Tie Plant, Mississippi
EPA I.D. No. MSD 007 027 543

Dear Mr. Bollinger:

The U.S. Environmental Protection Agency (EPA) has reviewed the February 21, 1997 Removal Documentation Report for the Koppers Industries/Beazer East facility, located in Tie Plant, Mississippi. The report contains a summary of activities associated with the removal of three (3) soil containment structures at the site. These three (3) containment structures were constructed due to upgrading of the drip tracks and tank process areas. The activities include the soil containment structure removal procedures, decontamination, removal verification, site restoration, and certification of removal.

Based on its review, EPA concurs with the completion of activities associated with the removal of the soil containment structures at the site and hereby approves the Removal Documentation Report. Hence, the Permittees have satisfactorily fulfilled the Condition II.F.2.a. of the HSWA permit.

If you have any question(s) regarding this approval, please contact Mr. Harbhajan Singh of my staff at (404) 562-8473.

Sincerely,

for

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

CC: Robert Markwell, Beazer East/Pittsburgh
Timothy Basilone, Koppers Industries/Pittsburgh
T. Henderson, Koppers Industries/Tie Plant
Jerry Cain, MDEQ/Jackson

GeoTrans, Inc.
A TETRA TECH COMPANY
3035 Prospect Park Drive
Suite 40
Rancho Cordova, CA 95670-6070
www.geotransinc.com
916-853-1800 FAX 916-853-1860

December 20, 2000
P:\Projects\Beazer\Grenada\P432\Rolloff_bin_results.wpd

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

Attn: Mr. Narindar M. Kumar, Chief
South Programs Section

Subject: Characterization of Cuttings Generated During Field Work to Complete Phase II RFI
Koppers Industries/Beazer East
Tie Plant, Mississippi
EPA I.D. Mo. MSD 007 027 543

Dear Mr. Kumar:

This letter is submitted on behalf of Beazer East, Inc. to present the characterization of the cuttings generated during the implementation of the August 16, 1999 Work Plan to Complete Phase II RCRA Facility Investigation at the Koppers Industries, Inc. Grenada Facility (Site). The characterization was performed in accordance with the August 10, 2000 Management of Cuttings Generated During Field Work to Complete Phase II RFI, Koppers Industries/Beazer East, Tie Plant, Mississippi, (Management Plan) prepared by HSI GeoTrans and approved by the EPA on December 4, 2000.

Six 20 cubic yard roll-off bins of cuttings were generated while completing the field activities off-site. Figure 1 presents the locations of the off-site borings and the respective roll-off bins. Characterization of the cuttings consisted of collecting five soil samples per bin, compositing the samples, and submitting the composite sample for laboratory analysis of:

- pentachlorophenol and polynuclear aromatic hydrocarbons by EPA method 8270; and
- benzene, toluene, ethylbenzene, and xylenes by EPA method 8021.

The results for these analytes from the six soil samples were below the respective detection limits. Copies of the laboratory reports for the composited samples are included in Attachment 1. In accordance with the Management Plan, the cuttings will be placed on the land surface at each off-site boring location. The cuttings will be

spread with a backhoe to distribute the soil and approximate the original topographic relief.

If you have any questions regarding this characterization of the off-site drill cuttings, please contact Mike Bollinger of Beazer at (412) 208-8864 or Rob Markwell of Beazer at (412) 208-8812.

Sincerely,

HSI GEOTRANS

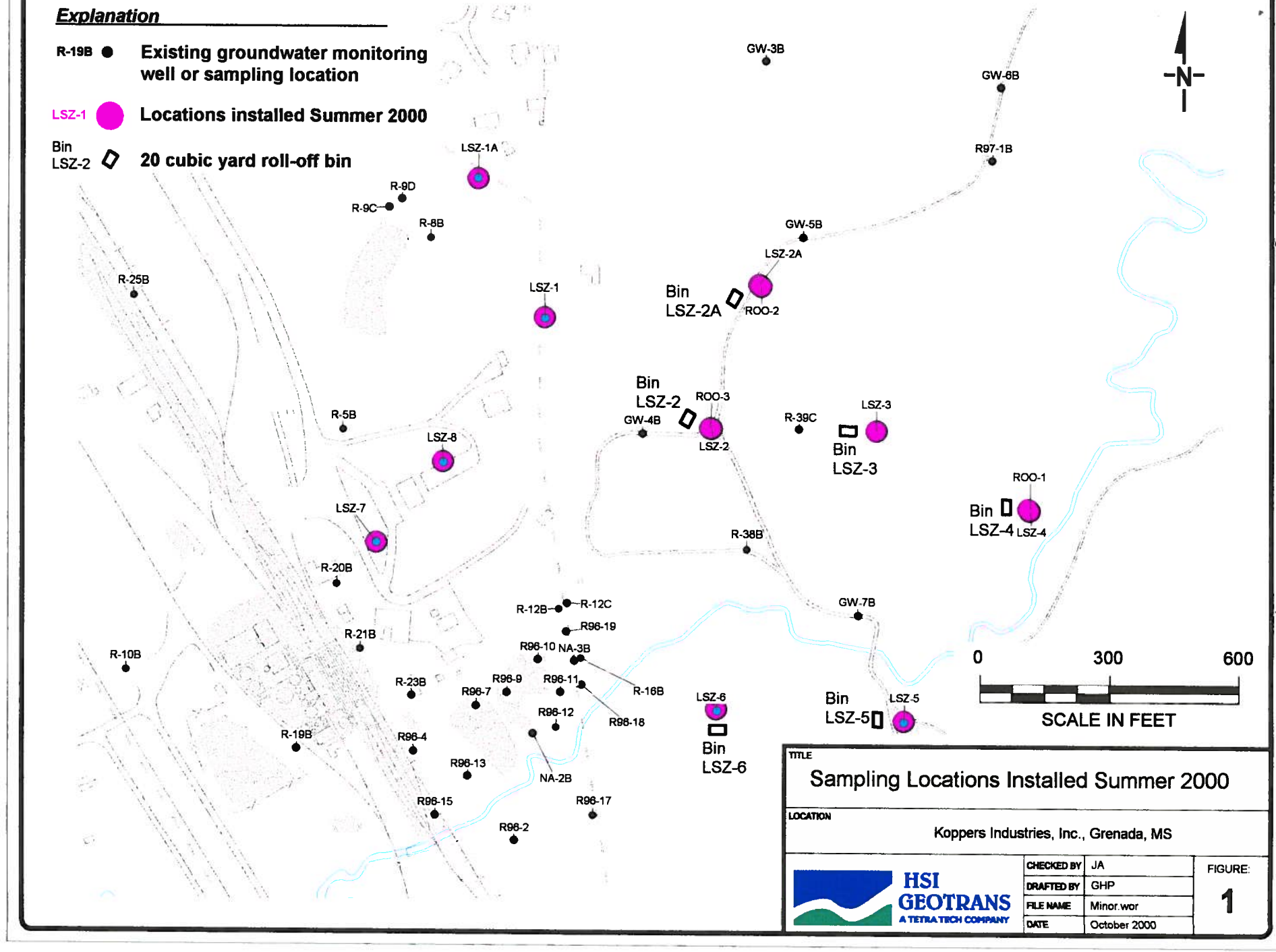
Jennifer A. Abrahams.

Jennifer A. Abrahams, R.G.
Project Manager

Attachment

cc: Harbhajan Singh, EPA
Jerry Cain, MSDEQ
Mike Bollinger, Beazer
Rob Markwell, Beazer
Bob Fisher, Beazer

P:\SITEGIS\GRENADA\GIS\WORK\1999



TITLE

Sampling Locations Installed Summer 2000

LOCATION

Koppers Industries, Inc., Grenada, MS

HSI GEOTRANS
A TETRA TECH COMPANY

CHECKED BY	JA
DRAFTED BY	GHP
FILE NAME	Minor.wor
DATE	October 2000

FIGURE: 1

ATTACHMENT 1

Analytical Results

Client: Beazer East, Inc.
Project: Koppers Tie Plant, Grenada/P-432-102
Sample Matrix: Soil

Service Request: K2006148
Date Collected: 08/11/2000
Date Received: 08/14/2000

BTEX

Sample Name: LSZ-2-SOIL
Lab Code: K2006148-008

Extraction Method: EPA 5035/5030B
Analysis Method: 8021B

Units: mg/Kg
Basis: Dry
Level: Med

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Benzene	ND	U	0.062	1	08/22/00	08/22/00	KWG2003452	
Toluene	ND	U	0.12	1	08/22/00	08/22/00	KWG2003452	
Ethylbenzene	ND	U	0.12	1	08/22/00	08/22/00	KWG2003452	
m,p-Xylenes	ND	U	0.12	1	08/22/00	08/22/00	KWG2003452	
o-Xylene	ND	U	0.12	1	08/22/00	08/22/00	KWG2003452	

Surrogate Name	%Rec	Control Limits	Note
Bromofluorobenzene	97	50-150	Acceptable

00053

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client: Beazer East, Inc.
Project: Koppers Tie Plant, Grenada/P-432-102
Sample Matrix: Soil

Service Request: K2006475
Date Collected: 08/22/2000
Date Received: 08/24/2000

BTEX

Sample Name: LSZ-2A-SOIL
Lab Code: K2006475-008

Extraction Method: EPA 5035/5030B
Analysis Method: 8021B

Units: mg/Kg
Basis: Dry
Level: Med

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Benzene	ND	U	0.064	1	08/31/00	09/01/00	KWG2003734B	
Toluene	ND	U	0.13	1	08/31/00	09/01/00	KWG2003734B	
Ethylbenzene	ND	U	0.13	1	08/31/00	09/01/00	KWG2003734B	
m,p-Xylenes	ND	U	0.13	1	08/31/00	09/01/00	KWG2003734B	
o-Xylene	ND	U	0.13	1	08/31/00	09/01/00	KWG2003734B	

Surrogate Name	%Rec	Control Limits	Note
Bromofluorobenzene	93	50-150	Acceptable

C0036

Analytical Results

Client: Beazer East, Inc.
Project: Koppers Tie Plant, Grenada/P-432-102
Sample Matrix: Soil

Service Request: K2006148
Date Collected: 08/11/2000
Date Received: 08/14/2000

BTEX

Sample Name: LSZ-3-SOIL
Lab Code: K2006148-009

Extraction Method: EPA 5035/5030B
Analysis Method: 8021B

Units: mg/Kg
Basis: Dry

Level: Med

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Benzene	ND	U	0.064	1	08/22/00	08/22/00	KWG2003452	
Toluene	ND	U	0.13	1	08/22/00	08/22/00	KWG2003452	
Ethylbenzene	ND	U	0.13	1	08/22/00	08/22/00	KWG2003452	
m,p-Xylenes	ND	U	0.13	1	08/22/00	08/22/00	KWG2003452	
o-Xylene	ND	U	0.13	1	08/22/00	08/22/00	KWG2003452	

Surrogate Name	%Rec	Control Limits	Note
Bromofluorobenzene	93	50-150	Acceptable

00054

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:	Beazer East, Inc.	**Service Request:**	K2006475
Project:	Koppers Tie Plant, Grenada/P-432-102	**Date Collected:**	08/22/2000
Sample Matrix:	Soil	**Date Received:**	08/24/2000

BTEX

Sample Name:	LSZ-4-SOIL	**Units:**	mg/Kg
Lab Code:	K2006475-007	**Basis:**	Dry
Extraction Method:	EPA 5035/5030B	**Level:**	Med
Analysis Method:	8021B		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Benzene	ND	U	0.062	1	08/31/00	09/01/00	KWG2003734B	
Toluene	ND	U	0.12	1	08/31/00	09/01/00	KWG2003734B	
Ethylbenzene	ND	U	0.12	1	08/31/00	09/01/00	KWG2003734B	
m,p-Xylenes	ND	U	0.12	1	08/31/00	09/01/00	KWG2003734B	
o-Xylene	ND	U	0.12	1	08/31/00	09/01/00	KWG2003734B	

Surrogate Name	%Rec	Control Limits	Note
Bromofluorobenzene	95	50-150	Acceptable

13.1

Analytical Results

Client: Beazer East, Inc.
Project: Koppers Tie Plant, Grenada/P-432-102
Sample Matrix: Soil

Service Request: K2007292
Date Collected: 09/18/2000
Date Received: 09/19/2000

BTEX

Sample Name: LSZ-5-Soil
Lab Code: K2007292-001

Extraction Method: EPA 5035/5030B
Analysis Method: 8021B

Units: mg/Kg
Basis: Dry
Level: Med

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Benzene	ND	U	0.063	1	09/26/00	09/26/00	KWG2004281	
Toluene	ND	U	0.13	1	09/26/00	09/26/00	KWG2004281	
Ethylbenzene	ND	U	0.13	1	09/26/00	09/26/00	KWG2004281	
m,p-Xylenes	ND	U	0.13	1	09/26/00	09/26/00	KWG2004281	
o-Xylene	ND	U	0.13	1	09/26/00	09/26/00	KWG2004281	

Surrogate Name	%Rec	Control Limits	Note
Bromofluorobenzene	86	50-150	Acceptable

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:	Beazer East, Inc.	**Service Request:**	K2007292
Project:	Koppers Tie Plant, Grenada/P-432-102	**Date Collected:**	09/18/2000
Sample Matrix:	Soil	**Date Received:**	09/19/2000

BTEX

Sample Name:	LSZ-6-Soil	**Units:**	mg/Kg
Lab Code:	K2007292-002	**Basis:**	Dry
Extraction Method:	EPA 5035/5030B	**Level:**	Med
Analysis Method:	8021B		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Benzene	ND	U	0.062	1	09/26/00	09/26/00	KWG2004281	
Toluene	ND	U	0.12	1	09/26/00	09/26/00	KWG2004281	
Ethylbenzene	ND	U	0.12	1	09/26/00	09/26/00	KWG2004281	
m,p-Xylenes	ND	U	0.12	1	09/26/00	09/26/00	KWG2004281	
o-Xylene	ND	U	0.12	1	09/26/00	09/26/00	KWG2004281	

Surrogate Name	%Rec	Control Limits	Note
Bromofluorobenzene	85	50-150	Acceptable

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Beazer East, Inc.	**Service Request:**	K2006148
Project:	Koppers Tie Plant, Grenada/P-432-102	**Date Collected:**	8/11/00
Sample Matrix:	Sediment	**Date Received:**	8/14/00

Base Neutral/Acid Semivolatile Organic Compounds

Sample Name:	LSZ-2-SOIL	Units:	ug/Kg (ppb)
Lab Code:	K2006148-008	Basis:	Dry
Test Notes:			

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Naphthalene	EPA 3550B	SIM	10	1	8/23/00	9/10/00	ND	
2-Methylnaphthalene	EPA 3550B	SIM	10	1	8/23/00	9/10/00	ND	
Acenaphthylene	EPA 3550B	SIM	10	1	8/23/00	9/10/00	ND	
Acenaphthene	EPA 3550B	SIM	10	1	8/23/00	9/10/00	ND	
Dibenzofuran	EPA 3550B	SIM	10	1	8/23/00	9/10/00	ND	
Fluorene	EPA 3550B	SIM	10	1	8/23/00	9/10/00	ND	
Pentachlorophenol	EPA 3550B	SIM	40	1	8/23/00	9/10/00	ND	
Phenanthrene	EPA 3550B	SIM	10	1	8/23/00	9/10/00	ND	
Anthracene	EPA 3550B	SIM	10	1	8/23/00	9/10/00	ND	
Fluoranthene	EPA 3550B	SIM	10	1	8/23/00	9/10/00	ND	
Pyrene	EPA 3550B	SIM	10	1	8/23/00	9/10/00	ND	
Benz(a)anthracene	EPA 3550B	SIM	10	1	8/23/00	9/10/00	ND	
Chrysene	EPA 3550B	SIM	10	1	8/23/00	9/10/00	ND	
Benzo(b)fluoranthene	EPA 3550B	SIM	10	1	8/23/00	9/10/00	ND	
Benzo(k)fluoranthene	EPA 3550B	SIM	10	1	8/23/00	9/10/00	ND	
Benzo(a)pyrene	EPA 3550B	SIM	10	1	8/23/00	9/10/00	ND	
Indeno(1,2,3-cd)pyrene	EPA 3550B	SIM	10	1	8/23/00	9/10/00	ND	
Dibenz(a,h)anthracene	EPA 3550B	SIM	10	1	8/23/00	9/10/00	ND	
Benzo(g,h,i)perylene	EPA 3550B	SIM	10	1	8/23/00	9/10/00	ND	

Approved By: Carol C Harris Date: OCT 10 2000

Client: Beazer East, Inc.
Project: Koppers Tie Plant, Grenada/P-432-102
Sample Matrix: Soil

Service Request: K2006475
Date Collected: 08/22/2000
Date Received: 08/24/2000

Semi-Volatile Organic Compounds by GC/MS

Sample Name: LSZ-2A-SOIL
Lab Code: K2006475-008

Extraction Method: EPA 3550B
Analysis Method: 8270C SIM

Units: ug/Kg
Basis: Dry

Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Naphthalene	ND	U	9.8	1	08/29/00	09/28/00	KWG2003589	
2-Methylnaphthalene	ND	U	9.8	1	08/29/00	09/28/00	KWG2003589	
Acenaphthylene	ND	U	9.8	1	08/29/00	09/28/00	KWG2003589	
Acenaphthene	ND	U	9.8	1	08/29/00	09/28/00	KWG2003589	
Dibenzofuran	ND	U	9.8	1	08/29/00	09/28/00	KWG2003589	
Fluorene	ND	U	9.8	1	08/29/00	09/28/00	KWG2003589	
Pentachlorophenol	ND	U	98	1	08/29/00	09/28/00	KWG2003589	
Phenanthrene	ND	U	9.8	1	08/29/00	09/28/00	KWG2003589	
Anthracene	ND	U	9.8	1	08/29/00	09/28/00	KWG2003589	
Fluoranthene	ND	U	9.8	1	08/29/00	09/28/00	KWG2003589	
Pyrene	ND	U	9.8	1	08/29/00	09/28/00	KWG2003589	
Benz(a)anthracene	ND	U	9.8	1	08/29/00	09/28/00	KWG2003589	
Chrysene	ND	U	9.8	1	08/29/00	09/28/00	KWG2003589	
Benzo(b)fluoranthene	ND	U	9.8	1	08/29/00	09/28/00	KWG2003589	
Benzo(k)fluoranthene	ND	U	9.8	1	08/29/00	09/28/00	KWG2003589	
Benzo(a)pyrene	ND	U	9.8	1	08/29/00	09/28/00	KWG2003589	
Indeno(1,2,3-cd)pyrene	ND	U	20	1	08/29/00	09/28/00	KWG2003589	
Dibenz(a,h)anthracene	ND	U	20	1	08/29/00	09/28/00	KWG2003589	
Benzo(g,h,i)perylene	ND	U	20	1	08/29/00	09/28/00	KWG2003589	

Surrogate Name	%Rec	Control Limits	Note
2-Fluorobiphenyl	54	28-107	Acceptable
2,4,6-Tribromophenol	52	1-127	Acceptable
Terphenyl-d14	90	39-150	Acceptable

0005

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Beazer East, Inc.	**Service Request:**	K2006148
Project:	Koppers Tie Plant, Grenada/P-432-102	**Date Collected:**	8/11/00
Sample Matrix:	Sediment	**Date Received:**	8/14/00

Base Neutral/Acid Semivolatile Organic Compounds

Sample Name:	LSZ-3-SOIL	Units:	ug/Kg (ppb)
Lab Code:	K2006148-009	Basis:	Dry
Test Notes:			

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Naphthalene	EPA 3550B	SIM	10	1	8/23/00	9/10/00	ND	
2-Methylnaphthalene	EPA 3550B	SIM	10	1	8/23/00	9/10/00	ND	
Acenaphthylene	EPA 3550B	SIM	10	1	8/23/00	9/10/00	ND	
Acenaphthene	EPA 3550B	SIM	10	1	8/23/00	9/10/00	ND	
Dibenzofuran	EPA 3550B	SIM	10	1	8/23/00	9/10/00	ND	
Fluorene	EPA 3550B	SIM	10	1	8/23/00	9/10/00	ND	
Pentachlorophenol	EPA 3550B	SIM	40	1	8/23/00	9/10/00	ND	
Phenanthrene	EPA 3550B	SIM	10	1	8/23/00	9/10/00	ND	
Anthracene	EPA 3550B	SIM	10	1	8/23/00	9/10/00	ND	
Fluoranthene	EPA 3550B	SIM	10	1	8/23/00	9/10/00	ND	
Pyrene	EPA 3550B	SIM	10	1	8/23/00	9/10/00	ND	
Benz(a)anthracene	EPA 3550B	SIM	10	1	8/23/00	9/10/00	ND	
Chrysene	EPA 3550B	SIM	10	1	8/23/00	9/10/00	ND	
Benzo(b)fluoranthene	EPA 3550B	SIM	10	1	8/23/00	9/10/00	ND	
Benzo(k)fluoranthene	EPA 3550B	SIM	10	1	8/23/00	9/10/00	ND	
Benzo(a)pyrene	EPA 3550B	SIM	10	1	8/23/00	9/10/00	ND	
Indeno(1,2,3-cd)pyrene	EPA 3550B	SIM	10	1	8/23/00	9/10/00	ND	
Dibenz(a,h)anthracene	EPA 3550B	SIM	10	1	8/23/00	9/10/00	ND	
Benzo(g,h,i)perylene	EPA 3550B	SIM	10	1	8/23/00	9/10/00	ND	

Approved By: Carol C. Haines Date: OCT 10 2000

Analytical Results

Client: Beazer East, Inc.
Project: Koppers Tie Plant, Grenada/P-432-102
Sample Matrix: Soil

Service Request: K2006475
Date Collected: 08/22/2000
Date Received: 08/24/2000

Semi-Volatile Organic Compounds by GC/MS

Sample Name: LSZ-4-SOIL
Lab Code: K2006475-007

Extraction Method: EPA 3550B
Analysis Method: 8270C SIM

Units: ug/Kg
Basis: Dry

Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Naphthalene	ND	U	9.5	1	08/29/00	09/27/00	KWG2003589	
2-Methylnaphthalene	ND	U	9.5	1	08/29/00	09/27/00	KWG2003589	
Acenaphthylene	ND	U	9.5	1	08/29/00	09/27/00	KWG2003589	
Acenaphthene	ND	U	9.5	1	08/29/00	09/27/00	KWG2003589	
Dibenzofuran	ND	U	9.5	1	08/29/00	09/27/00	KWG2003589	
Fluorene	ND	U	9.5	1	08/29/00	09/27/00	KWG2003589	
Pentachlorophenol	ND	U	95	1	08/29/00	09/27/00	KWG2003589	
Phenanthrene	ND	U	9.5	1	08/29/00	09/27/00	KWG2003589	
Anthracene	ND	U	9.5	1	08/29/00	09/27/00	KWG2003589	
Fluoranthene	ND	U	9.5	1	08/29/00	09/27/00	KWG2003589	
Pyrene	ND	U	9.5	1	08/29/00	09/27/00	KWG2003589	
Benz(a)anthracene	ND	U	9.5	1	08/29/00	09/27/00	KWG2003589	
Chrysene	ND	U	9.5	1	08/29/00	09/27/00	KWG2003589	
Benzo(b)fluoranthene	ND	U	9.5	1	08/29/00	09/27/00	KWG2003589	
Benzo(k)fluoranthene	ND	U	9.5	1	08/29/00	09/27/00	KWG2003589	
Benzo(a)pyrene	ND	U	9.5	1	08/29/00	09/27/00	KWG2003589	
Indeno(1,2,3-cd)pyrene	ND	U	19	1	08/29/00	09/27/00	KWG2003589	
Dibenz(a,h)anthracene	ND	U	19	1	08/29/00	09/27/00	KWG2003589	
Benzo(g,h,i)perylene	ND	U	19	1	08/29/00	09/27/00	KWG2003589	

Surrogate Name	%Rec	Control Limits	Note
2-Fluorobiphenyl	89	28-107	Acceptable
2,4,6-Tribromophenol	69	1-127	Acceptable
Terphenyl-d14	106	39-150	Acceptable

C0004

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: Beazer East, Inc.
Project: Koppers Tie Plant, Grenada/P-432-102
Sample Matrix: Soil

Service Request: K2007292
Date Collected: 9/18/00
Date Received: 9/19/00

Base Neutral/Acid Semivolatile Organic Compounds

Sample Name: LSZ-5-Soil
Lab Code: K2007292-001
Test Notes:

Units: ug/Kg (ppb)
Basis: Dry

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Naphthalene	EPA 3541	SIM	10	1	9/23/00	10/27/00	ND	
2-Methylnaphthalene	EPA 3541	SIM	10	1	9/23/00	10/27/00	ND	
Acenaphthylene	EPA 3541	SIM	10	1	9/23/00	10/27/00	ND	
Acenaphthene	EPA 3541	SIM	10	1	9/23/00	10/27/00	ND	
Dibenzofuran	EPA 3541	SIM	10	1	9/23/00	10/27/00	ND	
Fluorene	EPA 3541	SIM	10	1	9/23/00	10/27/00	ND	
Phenanthrene	EPA 3541	SIM	10	1	9/23/00	10/27/00	ND	
Anthracene	EPA 3541	SIM	10	1	9/23/00	10/27/00	ND	
Fluoranthene	EPA 3541	SIM	10	1	9/23/00	10/27/00	ND	
Pyrene	EPA 3541	SIM	10	1	9/23/00	10/27/00	ND	
Benz(a)anthracene	EPA 3541	SIM	10	1	9/23/00	10/27/00	ND	
Chrysene	EPA 3541	SIM	10	1	9/23/00	10/27/00	ND	
Benzo(b)fluoranthene	EPA 3541	SIM	10	1	9/23/00	10/27/00	ND	
Benzo(k)fluoranthene	EPA 3541	SIM	10	1	9/23/00	10/27/00	ND	
Benzo(a)pyrene	EPA 3541	SIM	10	1	9/23/00	10/27/00	ND	
Indeno(1,2,3-cd)pyrene	EPA 3541	SIM	10	1	9/23/00	10/27/00	ND	
Dibenz(a,h)anthracene	EPA 3541	SIM	10	1	9/23/00	10/27/00	ND	
Benzo(g,h,i)perylene	EPA 3541	SIM	10	1	9/23/00	10/27/00	ND	
Pentachlorophenol	EPA 3541	SIM	100	1	9/23/00	10/27/00	ND	

Approved By: Carol C. Haines Date: NOV 07 2000

Analytical Report

Client:	Beazer East, Inc.	**Service Request:**	K2007292
Project:	Koppers Tie Plant, Grenada/P-432-102	**Date Collected:**	9/18/00
Sample Matrix:	Soil	**Date Received:**	9/19/00

Base Neutral/Acid Semivolatile Organic Compounds

Sample Name:	LSZ-6-Soil	Units:	ug/Kg (ppb)
Lab Code:	K2007292-002	Basis:	Dry
Test Notes:			

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Naphthalene	EPA 3541	SIM	10	1	9/23/00	10/27/00	ND	
2-Methylnaphthalene	EPA 3541	SIM	10	1	9/23/00	10/27/00	ND	
Acenaphthylene	EPA 3541	SIM	10	1	9/23/00	10/27/00	ND	
Acenaphthene	EPA 3541	SIM	10	1	9/23/00	10/27/00	ND	
Dibenzofuran	EPA 3541	SIM	10	1	9/23/00	10/27/00	ND	
Fluorene	EPA 3541	SIM	10	1	9/23/00	10/27/00	ND	
Phenanthrene	EPA 3541	SIM	10	1	9/23/00	10/27/00	ND	
Anthracene	EPA 3541	SIM	10	1	9/23/00	10/27/00	ND	
Fluoranthene	EPA 3541	SIM	10	1	9/23/00	10/27/00	ND	
Pyrene	EPA 3541	SIM	10	1	9/23/00	10/27/00	ND	
Benz(a)anthracene	EPA 3541	SIM	10	1	9/23/00	10/27/00	ND	
Chrysene	EPA 3541	SIM	10	1	9/23/00	10/27/00	ND	
Benzo(b)fluoranthene	EPA 3541	SIM	10	1	9/23/00	10/27/00	ND	
Benzo(k)fluoranthene	EPA 3541	SIM	10	1	9/23/00	10/27/00	ND	
Benzo(a)pyrene	EPA 3541	SIM	10	1	9/23/00	10/27/00	ND	
Indeno(1,2,3-cd)pyrene	EPA 3541	SIM	10	1	9/23/00	10/27/00	ND	
Dibenz(a,h)anthracene	EPA 3541	SIM	10	1	9/23/00	10/27/00	ND	
Benzo(g,h,i)perylene	EPA 3541	SIM	10	1	9/23/00	10/27/00	ND	
Pentachlorophenol	EPA 3541	SIM	100	1	9/23/00	10/27/00	ND	

Approved By: Carol C. Hennes Date: NOV 07 2000

Grenada

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

MAR 0 9 2000

MAR 2000
Received
OPC

4WD-RPB

Certified Mail
Return Receipt Requested

Mr. Michael W. Bollinger
Environmental Manager
Beazer East, Inc.
One Oxford Centre, Suite 3000
Pittsburgh, PA 15219

Subject: Environmental Indicators
Koppers Industries/Beazer East
EPA I.D. No. MSD 007 027 543

Dear Mr. Bollinger:

As we informed you by letter on or about June 9, 1999, your facility is one of the approximately 1,700 facilities in the nation which constitute EPA's Corrective Action Baseline. EPA has committed to the completion of site stabilization at most of these facilities by the year 2005. For purposes of this commitment, site stabilization is measured by two (2) Environmental Indicators:

1) the control of current human exposures to harmful releases of contamination from the facility, and
2) the control of the migration of contaminated groundwater.

Since our records indicate that your facility is not meeting one or both of the above Environmental Indicators, we are asking that you carefully review the Environmental Indicator Evaluation Memorandum (EI Memo) that we have already sent to you. If you have data that indicates that our EI Memo is wrong or out-of-date, please submit the data to your EPA Project Manager. We will review the data and change the EI Memo as appropriate.

We have recently developed EI Project Schedules for all EPA- lead, Corrective Action Baseline facilities, including your facility. The EI Project Schedule attempts to identify the specific factors which stand in the way of a "YES" determination for one or both Environmental Indicators, the steps which would need to be taken to address the identified factors, the dates for completion of these steps, culminating in a "YES" determination by a projected date. This EI Project Schedule has been developed by EPA, using our best judgment and knowledge of the conditions at your facility. Enclosed is the draft EI Project Schedule for your facility and a blank copy of the model EI Project Schedule.

We hope that you will take this opportunity to open a more focused dialogue with your EPA Project Manager if one does not already exist. We believe that the Agency's response to Government Performance and Results Act (GPRA) provides us with an opportunity to focus on specific goals which are attainable if we work closely with RCRA facilities. Please contact Mr. Harbhajan Singh at (404) 562-8473 with your input/suggestions for the EI Project Schedule.

Please note that you are under no obligation to work with us to develop a final EI Project Schedule. However, we think that your voluntary cooperation will result in a more accurate schedule. The development of accurate schedules will help EPA to determine when we will meet the EI goals we developed under GPRA. We must provide an annual report to Congress on our progress in meeting the GPRA goals.

The EI Project Schedule is a planning tool - not an enforcement document. As a planning tool, the schedule will allow EPA and the facility to focus our efforts to those items at the facility which need the most immediate attention (e.g., controlling current human exposures and migration of contaminated groundwater).

We wish to emphasize that the activities and schedules in your corrective action permit and/or Order remain enforceable. If your review of the EI Project Schedule reveals a problem or a potential problem with meeting schedules in your permit/Order, please call your Agency project manager immediately in order to correct the problem. The EI Project Schedule does not provide a "shield" from enforcement if you violate any term or condition of your permit/Order.

If you have any questions about this letter, please contact Mr. Harbhajan Singh of my staff at (404) 562-8473.

Sincerely,

N. M. Kumar

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

Enclosures: 1. EI Project Schedule
2. EI Project Schedule Model

cc: Jerry Cain, MDEQ/Jackson

Project Schedule for Meeting Environmental Indicators

I. Basic Information

Name and I.D. No.	Location (City or Town)	Date of Latest EI Memo	CA 725	CA 750
Koppers Industries/Beazer East MSD 007 027 543	Tie Plant, Mississippi	March 28, 1996	No	No

II. Brief Facility Background

The Koppers Industries/Beazer East site consists of 171 acres located one mile south of Grenada, Mississippi. The Site is approximately 1.2 miles long and 0.3 mile wide. Two surface water bodies, referred to as the Northern Stream and Central Ditch, flow northeast across the Site towards the Batupan Bogue.

The facility manufactures treated wood products such as railroad ties, poles, and lumber using various conditioning and treating processes. The wood treatment operations involving creosote and pentachlorophenol (PCP) based preservatives, have been conducted at the Site since 1904. The main Constituents-of-Concern (COCs) at the Site are pentachlorophenol, benzene, and polynucleated aromatic hydrocarbons (PAHs).

The RFA identified thirteen (13) SWMUs in 1987. The Site is ranked as a high priorty facility under the NCAPS in 1992. The HSWA Permit was reissued in September 1998, which identified a total of seventeen (17) SWMUs at the facility. At present, fourteen (14) SWMUs are subject to the RFI and the RFI activities are in progress. The Former Wastewater Treatment System (SWMU 11) is undergoing Interim Measures (IM).

III. Brief Outline of Issues Leading to an EI of NO or IN

A. CA 725

Soils at the facility are contaminated at concentrations above relevant action levels. Soils are contaminated over most of the Central Process Area, Drip Track Area, and Former Wastewater Treatment System. The soil contamination was also detected at the Old South Drip Pad/Truck Area. Plausible human exposures to this contamination include on-site workers and off-site downwind residences by air.

Releases from SWMUs have also contributed contamination to the surface water and sediments in three areas. This includes: the Central Ditch, Northern Stream, and Process Cooling Reservoir. Trespassers are the potential human receptors due to off-site sediment contamination in the Central Ditch.

B. CA 750

Releases from the SWMUs have contaminated groundwater at the facility above relevant action levels. According to the 1996 EI, groundwater is uncontrolled because on-site contamination is seeping into the Central Ditch which leads off-site.

IV. Discussion of What is Needed to Get to Yes, with Schedule (a.k.a EI Interim Milestone)

A. CA725

An Interim Measures Work Plan for the Central Ditch and Former Wastewater Treatment System was approved in 1998 and 1999, respectively. The Work Plans included an excavation of sediments and installation of a geocomposite clay liner on the Former Wastewater Treatment System and Central Ditch. This will eliminate worker exposure to the contaminated soils in these areas and eventually exposure to the off-site downwind residences to air. This will also prevent contaminated groundwater from seeping into the off-site area of the Central Ditch. From the property line to Transect 22 Sampling of the off-site Central Ditch, sediments will be excavated and the areas excavated will be backfilled. From Transect 22 to the Batupan Bogue all visually impacted material will be removed. This will eliminate trespasser exposure to the off-site sediment contamination in the Central Ditch. The stabilization construction for the Former Wastewater Treatment System and Central Ditch and submittal of the Interim Measures (IM) Report are scheduled in 2000.

Based on the above discussion, it is projected that CA725 will reach YE for Koppers in Fiscal Year 2001. However, a re-evaluation for EIs by using the recent (2/5/99) HQs Guidance is planned in the 4th quarter of Fiscal Year 2000.

B. CA 750

Interim Measures Work Plan for the Central Ditch was approved in 1998, which included excavating sediment, installing a sheet pile along the north side of the Ditch, installing grade control structure, etc. The stabilization construction for the Central Ditch and submittal of the Interim Measures (IM) Report are scheduled in 2000. This will mitigate migration of COCs in groundwater from on-site source areas to downgradient off-site areas. In addition, there is a possibility that the groundwater plume will tend to stabilize.

Based on the above discussion, it is projected that CA750 will reach YE for Koppers in Fiscal Year 2001. However, a re-evaluation for EIs by using the recent (2/5/99) HQs Guidance is planned in the 4th quarter of Fiscal Year 2000.

Koppers Industries/Beazer East MSD 007 027 543				
Activity(ies)	**Activity CA RCRIS Event Code**	**Scheduled Date** (QTR & FY)	**EI Code** (725/750)	**Remarks** (Include unit and description of actions)
Stabilization Construction Complete	CA650	3/30/00	725 and 750	Excavation of sediments and installation of a geocomposite clay liner on the Former Wastewater Treatment System and Central Ditch
Interim Measures Report Received	CA640	9/30/00	725 and 750	Report on completion of sediments excavation and installation of a geocomposite clay liner
Interim Measures Report Approved	CA646	9/30/01	725 and 750	Report on completion of sediments excavation and installation of a geocomposite clay liner
Current Human Exposures Under Control Determination	CA725	9/30/01	725	Revised EI Memo High Confidence
Migration of Contaminated Groundwater Under Control	CA750	9/30/01	750	Revised EI Memo High Confidence
A re-evaluation for EIs by using the recent (2/5/99) EPA HQs Guidance is planned in the 4th quarter of Fiscal Year 2000 and the schedule will be modified according to the findings of this re-evaluation.				

V. Level of Confidence in Meeting EIs, and Major Issues

The meeting of EIs depends primarily on the approval of the interim measures of the Wastewater Treatment Plant (SWMU 11) and Central Ditch. At present, the facility is actively involved in the implementation of these measures and it is highly predicted that it can meet EIs in Fiscal year 2001.

Project Schedule for Meeting Environmental Indicators

I. Basic Information

Name and I.D. No.	Location (City or Town)	Date of Latest EI Memo	CA 725 Decision	CA 750 Decision

II. Brief Facility Background

III. Brief Outline of Issues Leading to an EI of NO or IN

A. CA 725

B. CA 750

IV. Discussion of What is Needed to Get to Yes, with Schedule (a.k.a EI Interim Milestone)

A. CA725

B. CA 750

EI Interim Milestone Schedule Format and Example

(FACILITY NAME)[1]				
Activity(ies) (events as defined in RCRIS)[2] and 3	**Activity CA RCRIS Event Code**	**Scheduled Date**[4] (QTR & FY)	**EI Code**[5] (725/750)	**Remarks**[6] (Include unit and description of actions)
ex: Stabilization Measures Implemented	CA600	3/31/00	725	Site 17 – imposition of excavation and treatment of PCB contaminated soils above industrial RBC's Site 10 - imposition of institutional controls.
ex: Stabilization Measures Implemented	CA600	9/30/00	750	Site 1: imposition of SVE/AS system for VOC soil hot spot and GW plume

ex: Interim Measures Report Received	CA640	6/30/01	750	Site 1: GW effectiveness and monitoring report for VOC plume.
ex: Stabilization Construction Complete	CA650	9/30/01	750	Site 1: Review of GW effectiveness monitoring report shows stabilization objectives to have been met.
ex: Migration of Contaminated Groundwater Under Control	CA750	9/30/01	750	Revised EI Memo
ex: Int. Measures Progress Report Received	CA643	6/31/00	725	Site 10: Report on Institutional Controls Received
ex: Interim Measures Report Received	CA640	9/31/00	725	Site 17: Report on completion of soil excavation
ex: Stabilization Construction Complete	CA650	3/31/02	725	Interim Measures undertaken have been completed at Sites 17 and 10.
ex: Current Human Exposures Under Control Determination	CA725	3/31/02	725	Revised EI Memo

Note –

1) A table should be completed for each RCRA GPRA CA facility. The schedule should align with attainment of a positive EI determination date outlined within this memo and BYP projections.

2) For activities, use attached list of RCRIS CA Event Codes as a reference. Given site specific nature and differences, each Project Officer or RPM should use professional judgement in determining which RCRIS Events Codes would apply based on approach being used. Remarks should be provided that outline what specific actions and milestones are occurring to support attainment of a positive EI determination.

3) If **none** of the **existing CA Event Codes** fit the actions at your facility, a catch-all regional event and event code will be available for use. The actual CA Event Code will be provided at a later date. This catch-all CA Event Code will be called "Tech Memo/Report in Support of EI Determination."

4) Use last day of a fiscal Qtr for date – 12/31/XX, 3/31/XX, 6/30/XX, and 9/30/XX

5) For EI code column – only 725 or 750 or a combination (725/750) can be entered.
6) Include a brief summary of the **Remarks** in the corresponding RCRIS CA Event Code's Comment Field.

V. Level of Confidence in Meeting EI's, and Major Issues

In addition to the narrative discussion to be provided here in the EI Project Schedule, please include a relative ranking of confidence in the RCRIS Comment Field for the scheduled date when CA725 and CA750 will be reached (i.e., High, Medium, Low). For example,

		Schedule	Actual
CA725 YE	Current Human Exposures Under Controlled Comment: High Confidence	3/31/02	- - -

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February 28, 2000

Mr. Wayne Stover
State of Mississippi
Department of Environmental Quality
Hazardous Waste Division
2380 Highway 80 West
Jackson, MS 39204

RE: **1999 RCRA Annual Groundwater Monitoring Report**
Koppers Industries, Inc.
Grenada, Mississippi Facility
EPA I.D. # MSD 007 027 543

Dear Mr. Stover:

On behalf of Beazer East, Inc. (Beazer), enclosed is the 1999 Annual RCRA Groundwater Monitoring Report for the above-referenced facility. If you have any questions, please call Mr. Robert Markwell of Beazer at (412) 208-8812 or me at (978) 371-1422.

Best regards,

ThermoRetec Consulting Corporation

Laura A. Kelmar, P.E.
Groundwater Monitoring Program Manager

LK:jrc

Enclosure

cc: R. Markwell - Beazer (2 copies)
T. Basilone - KII
T. Henderson - KII Plant Manager
Director - EPA, Region IV

KOPPERS INDUSTRIES

Koppers Industries, Inc.
P.O. Box 160
Tie Plant, MS 38960

Telephone: (601) 226-4584
FAX: (601) 226-4588

February 5, 2000

Russ Twitty
MS Dept. of Environmental Quality
P. O. Box 10385
Jackson, MS 39289-0385

Dear Mr. Twitty,

On 2/4/2000 at 6:20 p.m., Koppers Industries, Inc. had a small oil spill. Approximately 2 – 3 gallons of creosote came in contact with the soil. The spill was from overspray on a creosote work tank. An investigation is being conducted to determine if mechanical failure or human error contributed to the incident. All contaminated soil was removed and drummed for proper disposal. I left you a voice mail around 7:55 p.m. to notify to MSDEQ about the spill.

National Response was notified about 7:52 p.m. **# 518819**

Sincerely,

Anthony A. Mayhan

Anthony A. Mayhan
Koppers Industries, Inc.

Cc: Tim Basilone, Clark Mitchell
George Frazier – Grenada Co. Civil Defense