Koppers Inc

General Information

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

Address

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

Telecommunications

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

Alternate / Historic AI Identifiers

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

Regulatory Programs

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

Water	Processing (Subpart 429)	11/14/1995	
Water	PT SIU	11/14/1995	

Locational Data

Latitude	Longitude	Metadata	S / T / R	Map Links
33 ° 44 ' 3 .00 (033.734167)	89 ° 47 ' 8 .06 (089.785572)	**Point Desc:** PG- Plant Entrance (General). Data collected by Mike Hardy on 11/8/2005. Elevation 223 feet. Just inside entrance gate. **Method:** GPS Code (Psuedo Range) Standard Position (SA Off) **Datum:** NAD83 **Type:** MDEQ	Section: Township: Range:	SWIMS TerraServer Map It

12/20/2006 12:16:40 PM

APPLICATION FOR
SYNTHETIC MINOR
OPERATING PERMIT

KOPPERS INDUSTRIES, INC.
TIE PLANT, MS

KOPPERS INDUSTRIES

Koppers Industries, Inc.
436 Seventh Avenue
Pittsburgh, PA 15219-1800

Telephone (412) 227-2001
Fax (412) 227-2423

via Express Mail

March 31, 1995

Air Permitting Branch
Office of Pollution Control
Mississippi Dept. of Environmental Quality
P.O. Box 10385
Jackson, MS 39289-0385

RE: **APPLICATION FOR SYNTHETIC MINOR OPERATING PERMIT FOR KOPPERS INDUSTRIES, INC. , TIE PLANT, MS FACILITY NO. 0960-00012**

Dear Sir or Madam:

Enclosed is an Application for a Synthetic Minor Operating Permit for the Koppers Industries, Inc. (Koppers) wood preserving plant located in Tie Plant, MS. There are many identifiable point and fugitive sources at the plant, many of which have been combined for reporting purposes. I would like to explain some parts of this application package.

For clarity in reviewing this application, I first call your attention to the Flow Diagram and to the table following this letter titled Summary of Emission Points. The Source No. for each source on the table corresponds to the source numbers (circled) on the Diagram. The right column of the table indicates where emissions for sources for which emissions are combined and reported with another source are reported.

Next, note pages beginning at the tab for Emission Calculation Tables. The first table is titled Emission Inventory Calculation. Following this table are a series of Emission Inventory Calculation tables. For each scenario, there are three pages of the calculation sheets which calculate and summarize plant wide estimated emissions for the conditions assumed under each scenario. The Estimated Actual Emissions scenario best represents current operating conditions. The Maximum Potential Emissions scenario represents the "potential to emit" level of operations assuming all equipment operates at full power 365 days per year without consideration of other practical considerations. Three scenarios are included presenting maximum operating conditions which maintain the plant within non-major emission levels. The Synthetic Maximum (Mixed) scenario assumes roughly the same business mix as currently exists, but increased to reasonably achievable levels of business. The other two are based on potential changed in business mix. The Synthetic Maximum (High Creo) scenario assumes no pentachlorophenol treatment and that all production is shifted to creosote treatment. The Synthetic Maximum (High Penta) scenario assumes very high demand for pentachlorophenol treated poles causing one of the three creosote treating cylinders to be converted to pentachlorophenol treatment with reasonably high creosote treatment volumes continuing in the remaining two cylinders. Koppers is seeking a permit which allows operations under either of these "Synthetic Maximum" scenarios to maintain the most possible operational flexibility.

Also note that this plant recently received a new state operating permit. The unit specific Proposed Allowable Emissions stated in Section D are the same as in the existing permit.

I have tried to make this application clear and complete, but expect questions will arise. Koppers will welcome the opportunity to meet with your staff as the permit is being drafted. Please call me at (412)227-2677 if you have questions.

Sincerely,

Stephen T. Smith

Stephen T. Smith
Environmental Program Manager

cc: Ron Murphey, Grenada Plant, Tie Plant, MS (UPS Next Day)

cc w/o attachment:
W. R. Donley, K-2050
R. D. Collins, K-1701

KOPPERS INDUSTRIES INC.
GRENADA, MS
SUMMARY OF EMISSION POINTS

Source No.	Source Name	Reported in Section	Control	Emis Included With No.
01	Wood Fired Boiler	D	Multiclone	
02	Creosote Tank Car Unloading	E		05
03	Creosote Storage Tank	H		05
04	Creosote Work Tanks (4)	H		05
05	Creosote Treating Cylinders (3)	E		
06	Creosote Blowdown Tank	H		05
07	Creosote Vacuum Pumps	E		05
08	Creosote Treated Wood Storage	E		
09	Creosote Fugitives from pumps, valves, flanges, and sumps	E		05
10	PCP Truck Unloading	Negligible		
11	PCP Concentrate Storage	H		05
12	PCP Mix Tank	Not Used		
13	PCP Work Tanks (2)	H		05
14	PCP Treating Cylinders (2)	E		05
15	PCP Blowdown Tanks (2)	E		05
16	PCP Vacuum Pump	E		05
17	PCP Treated Wood Storage	E		
18	PCP Process Fugitives from pumps, valves, flanges, sumps	E		05
19	Storm Water Tank	H		05
20	Waste Water Surge Tank	H		05

KOPPERS INDUSTRIES INC.
GRENADA, MS
SUMMARY OF EMISSION POINTS

Source No.	Source Name	Reported in Section	Control	Emis. Included With No.
21	API Separator	E		05
22	Primary PCP Oil/Water Separator	E		05
23	Second PCP Oil/Water Separator	E		05
24	Reclaim Oil Dehydrators (2)	H		05
25	Waste Water Biologial Trmt.	Negligible		
26	Oil Fired Boiler (Backup)	D		
27	Tie Mill	E	Cyclone	
28	Fugitive Road Dust	E		
29	#2 Oil Storage Tank	H		05
30	Oil Storage Tank	H		05
31	Decant Tanks	H		05
32	Pole Kiln	E		

STATE OF MISSISSIPPI
DEPT. OF ENVIRONMENTAL QUALITY
OFFICE OF POLLUTION CONTROL
P.O. BOX 10385
JACKSON, MS 39289-0385
(601) 961-5171

APR 1995
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APPLICATION ADDENDUM
FOR A
SYNTHETIC MINOR OPERATING PERMIT

NOTE: This addendum should be affixed to the front of either the Application for Title V Air Pollution Control Permit to Operate Air Emissions Equipment or the Application for Air Pollution Control Permit to Construct and/or Operate Air Emissions Equipment. If the Application for Title V Air Pollution Control Permit to Operate Air Emissions Equipment is used, then Sections M, N, and O of that application do not have to be completed.

DATA CODED

A Synthetic Minor Source is defined in Regulation APC-S-2 as: Any facility which would otherwise constitute a major source under Commission Regulation APC-S-6, "Air Emissions Operating Permit Regulations for the Purposes of Title V of the Federal Clean Air Act", except that the owner or operator of the facility elects for federally enforceable emissions limitations which may include permit conditions restricting hours of operation, or type or amount of material stored, combusted or processed, or establishing more stringent air pollution control efficiency requirements to lower allowable emissions for air pollutants in the State Permit to Operate below applicability thresholds for a Title V major source.

Facility Name Koppers Industries Inc.
Facility Number (If Known) 0960-00012
City Tie Plant County Grenada

List the limitations/restrictions you are proposing to make your facility a synthetic minor source and the proposed methods of demonstrating compliance with those limitations/restrictions. If necessary, use a separate page for each Emission Point.

Source 26 - Oil Fired Boiler

Oil Fired Boiler will not be operated at the same time as Source 01, Wood Fired Boiler, but will only operate to provide process steam when the other boiler is shut down for maintenance, repair, or modifications. This will limit sulfur dioxide emissions to less than major threshold.

Source 31 - Pole Kiln

Pole Kiln will only be used to dry up to 1,250,000 cubic feet of wood in any year to limit VOC emissions from this source to no more than 50 tons. Plant operating records will be maintained to show the cumulative amount of wood dried each calendar year.

Sources 05 and 08 - Wood Preserving Processes and Preservative Treated Wood Storage Fugitives (Includes multiple individual sources as indicated on Summary of Emission Points table.

The treating volumes indicated on the attached table Emissions Inventory Scenarios on lines 7, 8, and 9 will not exceed any of the "Synthetic Maximum" scenarios listed. The "Synthetic Maximum Mixed" scenario represents highest allowed volumes under current market conditions. The "High Creo" represents conditions if all production was shifted to creosote treatment and no pentachlorophenol treatment continued. The "High Penta" scenario represents conditions if the market demand for pentachlorophenol products was very high with most treating capacity being shifted to those products. Each calendar year, Koppers will commit to one scenario and cumulative records of treatment volume will be maintained to demonstrate compliance. The "Mixed" scenario will be default if no other one is declared. These limitations will assure that naphthalene emissions will not exceed 10 tons, that total hazardous air pollutants will not exceed 25 tons, and that total VOC emissions will not exceed 100 tons.

Randall D. Collins [signature] Date: March 31, 1995

FOR OFFICIAL USE ONLY

APPLICATION RECEIPT DATE: ____________

APPLICATION NO.: ____________

FOR MODIFICATION
MINOR ____________
SIGNIFICANT ____________

STATE OF MISSISSIPPI
DEPARTMENT OF ENVIRONMENTAL QUALITY
OFFICE OF POLLUTION CONTROL
AIR DIVISION

P.O. BOX 10385
JACKSON, MS. 39289-0385
PHONE NO.: (601) 961 - 5171

APR 1995
RECEIVED

APPLICATION FOR TITLE V AIR POLLUTION CONTROL PERMIT TO OPERATE AIR EMISSIONS EQUIPMENT

DATA CODED

PERMITTING ACTIVITY:

X INITIAL APPLICATION
____ MODIFICATION
____ RENEWAL OF OPERATING PERMIT

NAME: Koppers Industries Inc

CITY: Tie Plant

COUNTY: Grenada

FACILITY No. (if known): 0960-00012

APPLICATION FOR TITLE V PERMIT TO OPERATE AIR EMISSIONS EQUIPMENT

CONTENTS

Owners Information — Section B

1. Name, Address & Contact for the Owner/Applicant

   A. Company Name: Koppers Industries Inc

   B. Mailing Address:

      1. Street Address or P.O. Box: 436 Seventh Ave
      2. City: Pittsburgh 3. State: PA
      4. Zip Code: 15219
      5. Telephone No.: (412) 227-2677

   C. Contact:

      1. Name: Stephen Smith
      2. Title: Environmental Mgr.

2. Name, Address, Location and Contact for the Facility:

   A. Name: Koppers Industries Inc.

   B. Mailing Address:
      1. Street Address or P.O. Box: PO Box 160
      2. City: Tie Plant 3. State: MS
      4. Zip Code: 38960
      5. Telephone No.: (601) 226-4584

   C. Site Location:
      1. Street: Tie Plant Road
      2. City: Tie Plant 3. State: MS
      4. County: Grenada 5. Zip Code: 38960
      6. Telephone No.: ( ) Same

   Note: If the facility is located outside of the City limits, please attach a sketch or description to this application showing the approximate location of the site.

   D. Contact:

      1. Name: Ron Murphey
      2. Title: Plant Mgr.

3. SIC Code(s)(including any associated with alternate operating scenarios): 2491

4. Number of Employees: ____________

5. Principal Product(s): Utility Poles & Rail Road Ties

6 Principal Raw Materials: Wood Poles, Lumber, Creosote, Pentachlorophenol & Oil

7 Principal Process(es): Wood Preserving

8. Maximum amount of principal product produced or raw material consumed per day: 16,000 CF.

9. Facility Operating Schedule:

   A. Specify maximum hours per day the operation will occur: 24

   B. Specify maximum days per week the operation will occur: 7

   C. Specify maximum weeks per year the operation will occur: 52

   D. Specify the months the operation will occur: All

10. Is this facility a small business as defined by the Small Business Act? No

11. **EACH APPLICATION MUST BE SIGNED BY THE APPLICANT.**

The application must be signed by a responsible official as defined in Regulation APC-S-6, Section I.A.26.

I certify that to the best of my knowledge and belief formed after reasonable inquiry, the statements and information in this application are true, complete, and accurate, and that, as a responsible official, my signature shall constitute an agreement that the applicant assumes the responsibility for any alteration, additions, or changes in operation that may be necessary to achieve and maintain compliance with all applicable Rules and Regulations.

Randall D. Collins
Printed Name of Responsible Official

V. P. & Secretary
Title

3/31/95
Date Application Signed

Signature of Applicants Responsible Official

EMISSIONS SUMMARY for the ENTIRE FACILITY

List below the total emissions for each pollutant from the entire facility. For stack emissions, use the maximum annual allowable (potential) emissions. For fugitive emissions, use the annual emissions calculated using the maximum operating conditions.

POLLUTANT Footnote 1	ANNUAL EMISSION RATE	
	lb/hr	tons/yr
See attached "Emission		
Inventory Calculation for		
Synthetic Minor Emission		
(High Creo Volume)"		

1. All regulated air pollutants,including hazardous air pollutants emitted from the entire facility should be listed. A list of regulated air pollutants has been provided in Section A.

With the exception of the emissions resulting from insignificant activities and emissions as defined in Regulation APC-S-6, Section VII, the pollutants listed above are all regulated air pollutants reasonably expected to be emitted from the facility.

SIGNATURE (must match signature on page 17)

SECTION C

For the sections listed below indicate the number that have been completed for each section as part of this application.

Section B 1	Section L1 ____	Section M1 ____
Section C 1	Section L2 2	Section M2 ____
Section D 2	Section L3 ____	Section M3 ____
Section E ?	Section L4 ____	Section M4 ____
Section F ____	Section L5 ____	Section M5 ____
Section G ____	Section L6 ____	Section M6 ____
Section H 1	Section L7 ____	Section M7 ____
Section I ____		Section M8 ____
Section J ____		Section N ____
Section K ____		Section O ____

As a minimum, sections B, C, M, N and O must be completed for the application to be considered complete.

Please list below all insignificant activities required by APC-S-6, Section VII.B that apply to your facility.

- Natural gas fired space heaters used for offices and shop.
- Gasoline & diesel fuel tanks used to store fuel for yard equipment. Constructed approx. 1980.

Tank 25 Diesel #2 - 20,000 gal

Tank 26 Gasoline - 1,000 gal.

RISK MANAGEMENT PLANS

If the source is required to develop and register a risk management plan pursuant to Section 112(r) of the Title III of the Clean Air Act, the permittee need only specify that it will comply with the requirement to register such a plan. The content of the risk management plan need not itself be incorporated as a permit term.

Please answer the following questions:

I. Are you required to develop and register a risk management plan pursuant to Section 112(r)?

____ Yes   X No

Only if "yes", answer questions II., III., and/or IV.

II. Have you submitted the risk management plan to the appropriate agency (i.e. Mississippi Emergency Management Agency (MEMA), Federal Emergency Management Agency (FEMA), etc.)?

____ Yes   ____ No

III. If yes, give agency name and date submitted. ____________________

IV. If no, provide a schedule for developing and submitting the risk management plan to the appropriate agency and providing our agency with certification that this submittal was made.

FUEL BURNING EQUIPMENT (page 1 of 2) SECTION D

1. Emission Point No. / Name: 01-Wood Fired Boiler

2. Equipment Description: Wellons 2 Cell Combustion System, Boiler, and Cogeneration Power Unit.

3. Was this unit constructed or modified after August 7, 1977? ____ Yes X No
If yes please give date and explain. ____

4. Rated Capacity: 37.5 MMBTU/hr 5. Type of burner: Fuel Cell

6. Usage Type (i.e. Space Heat, Process, etc.) : Process

7. Complete the following table, identifying each type of fuel and the amount used. Specify the units for heat content, hourly usage, and yearly usage.

FUEL TYPE	HEAT CONTENT	% SULFUR	% ASH	MAXIMUM HOURLY USAGE	ACTUAL YEARLY USAGE
Wood Waste	4,000 - 6,000 BTU/lb	0.11	5.0	8760 hr/yr	8424 Approx.

8. Please list any fuel components that are hazardous air pollutants and the percentage in the fuel.
Pentachlorophenol - ~1%, Creosote ~15% Naphthalene ~2%

9. Operating Schedule: 24 hours/day 7 days/week 52 weeks/year

10. Stack Data:
A. Height: 80 FT
B. Inside diameter: 3 FT
C. Exit gas velocity: 55 F/s
D. Exit gas temperature: 350 °F

11. UTM Coordinates:
A. Zone ____ B. North ____ C. East ____

FUEL BURNING EQUIPMENT (page 2 of 2) SECTION D

12. POLLUTANT EMISSIONS:

Emission rate calculations, monitoring data, or stack test data must be attached!

EMISSION POINT NO.	POLLUTANT (note 1)	CONTROL EQUIPMENT		ACTUAL EMISSION RATE			PROPOSED ALLOWABLE EMISSION RATE		
		yes/no *	effic.	note 2	lb/hr	tn/yr	note 2	lb/hr	tn/yr
01	Particulate	Y					0.3 gr/dscf	6.75	29.57
	PM 10						0.3 gr/dscf	6.75	29.57
	SO2							20.63	90.36
	NOx							6.57	28.73
	CO							5.63	24.64
	VOC							4.27	18.70

1. All regulated air pollutants including hazardous air pollutants emitted from this source should be listed. A list of regulated air pollutants has been provided in Section A.

2. Provide emission rate in units of applicable emission standard, e.g. lb/MMbtu, gr/dscf, etc. This may not apply to every emission point or every pollutant from an emission point.

* If yes, attach appropriate Air Pollution Control Data Sheet from Section I. or manufacturers specifications if other

FUEL BURNING EQUIPMENT (page 1 of 2) SECTION D

1. Emission Point No. / Name: 26- Oil Fired Boiler

2. Equipment Description: Backup service boiler.

3. Was this unit constructed or modified after August 7, 1977? ____ Yes X No
   If yes please give date and explain.

4. Rated Capacity: 28.5 MMBTU/hr 5. Type of burner: Atomizing Oil

6. Usage Type (i.e. Space Heat, Process, etc.) : Process

7. Complete the following table, identifying each type of fuel and the amount used. Specify the units for heat content, hourly usage, and yearly usage.

FUEL TYPE	HEAT CONTENT	% SULFUR	% ASH	MAXIMUM HOURLY USAGE	ACTUAL YEARLY USAGE
#2 oil	18,000 BTU/lb	0.30	0	2000	336

8. Please list any fuel components that are hazardous air pollutants and the percentage in the fuel.
   None

9. Operating Schedule: 24 hours/day 7 days/week 2 weeks/year

10. Stack Data:
    A. Height: 36 Ft
    B. Inside diameter: 2.5 Ft
    C. Exit gas velocity: 32 Ft/sec
    D. Exit gas temperature: 570 °F

11. UTM Coordinates:
    A. Zone ____ B. North ____ C. East ____

FUEL BURNING EQUIPMENT (page 2 of 2) SECTION D

12. POLLUTANT EMISSIONS:

Emission rate calculations, monitoring data, or stack test data must be attached!

EMISSION POINT NO.	POLLUTANT (note 1)	CONTROL EQUIPMENT		ACTUAL EMISSION RATE			PROPOSED ALLOWABLE EMISSION RATE		
		yes/no*	effic.	note 2	lb/hr	tn/yr	note 2	lb/hr	tn/yr
26	Particulate Matter							.43	1.88
	PM 10							.43	1.88
	SO2							15.40	67.45
	NOX							4.34	19.01
	CO							1.08	4.73
	VOC							0.04	0.18
Note - This boiler will not operate at same time as source 01. This is for backup service only.									

1. All regulated air pollutants including hazardous air pollutants emitted from this source should be listed. A list of regulated air pollutants has been provided in Section A.

2. Provide emission rate in units of applicable emission standard, e.g. lb/MMbtu, gr/dscf, etc. This may not apply to every emission point or every pollutant from an emission point.

* If yes, attach appropriate Air Pollution Control Data Sheet from Section I. or manufacturers specifications if other

MANUFACTURING PROCESSES (page 1 of 2) SECTION E

1. Emission Point No / Name: 05-Wood Preserving Process

2. Process Description: Presure treatment of utility poles with pentachlorophenol or creosote and rail road ties with creosote.

3. Was this unit constructed or modified after August 7, 1977? ______ yes __X__ no
If yes please give date and explain. ______

4. Rated Capacity (tons/hr): NA

5. Raw Material Input:

MATERIAL	QUANTITY/HR AVERAGE	QUANTITY/HR MAXIMUM	QUANTITY/YEAR
Wood	342 CF	570	Upto 5,000,000 CF

6. Product Output:

PRODUCT or BY-PRODUCT	QUANTITY/HR AVERAGE	QUANTITY/HR MAXIMUM	QUANTITY/YEAR
Treated Wood	342 CF	570 CF	Upto 5,000,000 CF

7. Stack Data: NA
A. Height: ______ C. Exit gas velocity: ______
B. Inside diameter: ______ D. Exit gas temperature: ______

8. UTM Coordinates:
A. Zone ______ B. North ______ C. East ______

MANUFACTURING PROCESSES (page 2 of 2) — SECTION E

13. POLLUTANT EMISSIONS:

Emission rate calculations, monitoring data, or stack test data must be attached!

EMISSION POINT NO.	POLLUTANT (note 1)	CONTROL EQUIPMENT		ACTUAL EMISSION RATE			PROPOSED ALLOWABLE EMISSION RATE		
		yes/no *	effic.	note 2	lb/hr	tn/yr	note 2	lb/hr	tn/yr
05	See Emission	Inventory		Calculation		Tables.			
	VOC	N						6.0	26.25
	Naphthalene	N						1.0	4.5

1. All regulated air pollutants including hazardous air pollutants emitted from this source should be listed. A list of regulated air pollutants has been provided in Section A.

2. Provide emission rate in units of applicable emission standard, e.g. lb/MMbtu, gr/dscf, etc. This may not apply to every emission point or every pollutant from an emission point.

* If yes, attach appropriate Air Pollution Control Data Sheet from Section L or manufacturers specifications if other.

MANUFACTURING PROCESSES (page 1 of 2) SECTION E

1. Emission Point No./ Name: 08 Treated Wood Storage

2. Process Description: Storage and handling of treated wood product following treatment and prior to shipment.

3. Was this unit constructed or modified after August 7, 1977? ____ yes X no
If yes please give date and explain. ____

4. Rated Capacity (tons/hr): NA

5. Raw Material Input:

MATERIAL	QUANTITY/HR AVERAGE	QUANTITY/HR MAXIMUM	QUANTITY/YEAR

6. Product Output:

PRODUCT or BY-PRODUCT	QUANTITY/HR AVERAGE	QUANTITY/HR MAXIMUM	QUANTITY/YEAR
Treated Poles			up to 3,500,000 CF *
Treated Ties			2,000,000 CF *
* Total Wood			less than 5,000,000

7. Stack Data: NA
A. Height: ____
B. Inside diameter: ____
C. Exit gas velocity: ____
D. Exit gas temperature: ____

8. UTM Coordinates:
A. Zone ____ B. North ____ C. East ____

MANUFACTURING PROCESSES (page 2 of 2) — SECTION E

13. POLLUTANT EMISSIONS:

Emission rate calculations, monitoring data, or stack test data must be attached!

EMISSION POINT NO.	POLLUTANT (note 1)	CONTROL EQUIPMENT		ACTUAL EMISSION RATE			PROPOSED ALLOWABLE EMISSION RATE		
		yes/no *	effic.	note 2	lb/hr	tn/yr	note 2	lb/hr	tn/yr
08	See Emission Inventory Calculation tables.								
	VOC (fugitive)*								
	Naphthalene							0.88	3.88

*VOC not applicable to major category when a fugitive.

1. All regulated air pollutants including hazardous air pollutants emitted from this source should be listed. A list of regulated air pollutants has been provided in Section A.

2. Provide emission rate in units of applicable emission standard, e.g. lb/MMbtu, gr/dscf, etc. This may not apply to every emission point or every pollutant from an emission point.

* If yes, attach appropriate Air Pollution Control Data Sheet from Section L or manufacturers specifications if other

MANUFACTURING PROCESSES (page 1 of 2) SECTION E

1. Emission Point No / Name: 27 - Tie Mill Cyclone

2. Process Description: Dust collection from trim saws at tie mill. Mill processes untreated ties prior to treatment.

3. Was this unit constructed or modified after August 7, 1977? ________ yes X no
If yes please give date and explain. ________

4. Rated Capacity (tons/hr): ________

5. Raw Material Input:

MATERIAL	QUANTITY/HR AVERAGE	QUANTITY/HR MAXIMUM	QUANTITY/YEAR
Rough cut			
wood ties			2,000,000 CF

6. Product Output:

PRODUCT or BY-PRODUCT	QUANTITY/HR AVERAGE	QUANTITY/HR MAXIMUM	QUANTITY/YEAR
Trimmed wood			
ties			2,000,000

7. Stack Data:
   A. Height: ________
   B. Inside diameter: ________
   C. Exit gas velocity: ________
   D. Exit gas temperature: Amb.

8. UTM Coordinates:
   A. Zone ________
   B. North ________
   C. East ________

MANUFACTURING PROCESSES (page 2 of 2) — SECTION E

13. POLLUTANT EMISSIONS:

Emission rate calculations, monitoring data, or stack test data must be attached!

EMISSION POINT NO.	POLLUTANT (note 1)	CONTROL EQUIPMENT		ACTUAL EMISSION RATE			PROPOSED ALLOWABLE EMISSION RATE		
		yes/no *	effic.	note 2	lb/hr	tn/yr	note 2	lb/hr	tn/yr
27	Particulate	Y						2.0	8.76
	PM 10	Y						2.0	8.76

1. All regulated air pollutants including hazardous air pollutants emitted from this source should be listed. A list of regulated air pollutants has been provided in Section A.

2. Provide emission rate in units of applicable emission standard, e.g. lb/MMbtu, gr/dscf, etc. This may not apply to every emission point or every pollutant from an emission point.

* If yes, attach appropriate Air Pollution Control Data Sheet from Section L or manufacturers specifications if other.

1. Emission Point No./ Name: 31 Pole Kiln

2. Process Description: Dry wood poles prior to preservative treatment.

3. Was this unit constructed or modified after August 7, 1977? ____ yes X no
If yes please give date and explain. ____

4. Rated Capacity (~~tons/hr~~): ~ 13,000 CF / Charge

5. Raw Material Input:

MATERIAL	QUANTITY/HR AVERAGE	QUANTITY/HR MAXIMUM	QUANTITY/YEAR
Green wood poles			1,250,000 CF

6. Product Output:

PRODUCT or BY-PRODUCT	QUANTITY/HR AVERAGE	QUANTITY/HR MAXIMUM	QUANTITY/YEAR
Dry wood poles			1,250,000 CF

7. Stack Data: NA
A. Height: ____
B. Inside diameter: ____
C. Exit gas velocity: ____
D. Exit gas temperature: ____

8. UTM Coordinates:
A. Zone ____
B. North ____
C. East ____

13. POLLUTANT EMISSIONS:

Emission rate calculations, monitoring data, or stack test data must be attached!

EMISSION POINT NO.	POLLUTANT (note 1)	CONTROL EQUIPMENT		ACTUAL EMISSION RATE			PROPOSED ALLOWABLE EMISSION RATE		
		yes/no *	effic.	note 2	lb/hr	tn/yr	note 2	lb/hr	tn/yr
31	VOC	N							50.

1. All regulated air pollutants including hazardous air pollutants emitted from this source should be listed. A list of regulated air pollutants has been provided in Section A.

2. Provide emission rate in units of applicable emission standard, e.g. lb/MMbtu, gr/dscf, etc. This may not apply to every emission point or every pollutant from an emission point.

* If yes, attach appropriate Air Pollution Control Data Sheet from Section L or manufacturers specifications if other.

TANK SUMMARY (page 1 of 2) SECTION H

1. Emission Point No./Name: All tank data included on "Tank Summary Table (Section H)"

2. Was this tank constructed or modified after August 7, 1977? ________ yes ________ no
If yes please give date and explain ________________

3. Product Stored: ________________
If more than one product is stored, provide the information in 4.A-E for each product.

4. Tank Data:

A. True Vapor Pressure at storage temperature: ______ psia/°F
B. Reid Vapor Pressure at storage temperature: ______ psia/°F
C. Density of product at storage temperature: ______ lb/gal
D. Molecular Weight of product vapor at storage temperature: ______ lb/lbmol
E. Throughput for most recent calendar year: ______ gal/yr
F. Tank Capacity: ______ gal
G. Tank Diameter: ______ feet
H. Tank Height / Length: ______ feet
I. Average Vapor Space Height: ______ feet
J. Tank Orientation: ______ Vertical or Horizontal
K. Type of Roof: ______ Dome or Cone
L. Is the Tank Equipped with a Vapor Recovery System? ______ Yes ______ No
If Yes, describe on separate sheet of paper and attach. Indicate efficiency.
M. Check the Type of Tank:
______ Fixed Roof ______ External Floating Roof
______ Pressure ______ Internal Floating Roof
______ Variable Vapor Space
______ Other, describe: ________________
N. Check the Closest City:
______ Jackson, MS ______ Birmingham, AL
______ Memphis, TN ______ Montgomery, AL
______ New Orleans, LA ______ Baton Rouge, LA
O. Check the Tank Paint Color:
______ Aluminum Specular ______ Gray Light
______ Aluminum Diffuse ______ Gray Medium
______ Red ______ White
______ Other, describe: ________________
P. Tank Paint Condition: ______ Good or Poor
Q. Check Type of Tank Loading
1. Trucks and Rail Cars
______ Submerged Loading of clean cargo tank
______ Submerged Loading : Dedicated Normal Service
______ Submerged Loading : Dedicated Vapor Balance Service
______ Splash Loading of clean cargo tank
SpD Splash Loading : Dedicated Normal Service
SpVB Splash Loading : Dedicated Vapor Balance Service
2. Marine Vessels
______ Submerged Loading: Ships
______ Submerged Loading: Barges

R. For External Floating Roof Tanks

1. Check the Type of Tank Seal:

Mechanical Shoe
- ______ Primary Seal Only
- ______ With Shoe-Mounted Secondary Seal
- ______ With Rim-Mounted Secondary Seal

Liquid Mounted Resilient Seal
- ______ Primary Seal Only
- ______ With Shoe-Mounted Secondary Seal
- ______ With Rim-Mounted Secondary Seal

Vapor Mounted Resilient Seal
- ______ Primary Seal Only
- ______ With Shoe-Mounted Secondary Seal
- ______ With Rim-Mounted Secondary Seal

2. Type of External Floating Roof: ______ Pontoon
______ Double-Deck

S. For Internal Floating Roof Tanks

1. Check the Type of Tank Seal:

Liquid Mounted Resilient Seal
- ______ Primary Seal Only
- ______ With Rim-Mounted Secondary Seal

Vapor Mounted Resilient Seal
- ______ Primary Seal Only
- ______ With Rim-Mounted Secondary Seal

2. Number of Roof Columns: ______
3. Length of Deck Seam ______ feet:
4. Area of Deck: ______ $feet^2$
5. Effective Column Diameter: ______ feet
6. Check the Type of Tank:
- ______ Bolted with Column Supported Roof
- ______ Welded with Column Supported Roof
- ______ Bolted with Self-Supported Roof
- ______ Welded with Self-Supported Roof

5. Emissions Summary
   1. Breathing Loss: ______ lb/hr ______ TPY
   2. Working Loss: ______ lb/hr ______ TPY
   3. Total Emissions: ______ lb/hr ______ TPY

6. UTM Coordinates:
A. Zone ______ B. North ______ C. East ______

CYCLONES SECTION L2

1. Emission Point No. / Name: 01 Multiclone

2. Manufacturers Name and Model No.: Wellons Multiclone Collector

3. Date of construction for existing sources or date of anticipated start-up for new sources: 1972

4. Cyclone Data:

   a) Cyclone type (if more than 1, put total number):

   ____ Simple ____ Potbellied
   ____ High Efficiency X Multiclone

   b) Efficiency: 90 %

   c) Pollutant viscosity: ____ poise

   d) Flow Rate: ____ acfm

   e) Pollutant size entering cyclone: ____ microns

   f) Pressure drop: ____ inches H_2O

   g) Baffles or Louvers (specify): ____

   h) Cyclone dimensions:
      Inlet: ____ ft
      Outlet: ____ ft
      Body diameter: ____ ft
      Body height: ____ ft
      Cone height: ____ ft

   i) Wet spray: ____ Yes X No
      1. No. of Nozzles: ____
      2. Type of liquid used: ____
      3. Flow rate: ____ gpm
      4. Make-up rate: ____ gpm
      5. % recycled: ____ %

   j) Fan location:
      1. Downstream: ____ Direct emission
         ____ Auxiliary Stack
      2. Upstream: X No cap (vertical emissions)
         ____ Fixed cap (diffuse emissions)
         ____ Wind respondent cap (horizontal emissions)

5. Which process(es) does the cyclone(s) control emissions from? Wood Fired Boiler Source 01.

6. Attach a diagram of the cyclone(s) used.

CYCLONES SECTION L2

1. Emission Point No. / Name: 27 - Tie Mill Cyclone

2. Manufacturers Name and Model No.: Unk.

3. Date of construction for existing sources or date of anticipated start-up for new sources: Unk.

4. Cyclone Data:
   a) Cyclone type (if more than 1, put total number):
      X Simple ____ Potbellied
      ____ High Efficiency ____ Multiclone

   b) Efficiency: ____ %

   c) Pollutant viscosity: ____ poise

   d) Flow Rate: ____ acfm

   e) Pollutant size entering cyclone: ____ microns

   f) Pressure drop: ____ inches H_2O

   g) Baffles or Louvers (specify): ____

   h) Cyclone dimensions:
      Inlet: 0.83 ft
      Outlet: 0.83 ft
      Body diameter: 4.0 ft
      Body height: 3.0 ft
      Cone height: 4.5 ft

   i) Wet spray: ____ Yes X No
      1. No. of Nozzles: ____
      2. Type of liquid used: ____
      3. Flow rate: ____ gpm
      4. Make-up rate: ____ gpm
      5. % recycled: ____ %

   j) Fan location:
      1. Downstream: ____ Direct emission
         ____ Auxiliary Stack
      2. Upstream: ____ No cap (vertical emissions)
         ____ Fixed cap (diffuse emissions)
         ____ Wind respondent cap (horizontal emissions)

5. Which process(es) does the cyclone(s) control emissions from? Sawdust and cuttings from adzing and boring of cross ties.

6. Attach a diagram of the cyclone(s) used.

EMISSIONS INVENTORY SCENARIOS
KOPPERS INDUSTRIES, INC. - GRENADA, MS

	VARIABLE	SCENARIOS EST. ACTUAL	MAXIMUM POTENTIAL	SYNTHETIC MAXIMUM (HIGH CREO)	SYNTHETIC MAXIMUM (HIGH PENTA)	SYNTHETIC MAXIMUM (MIXED)
1	Wood Burned (tn/yr)	37580	37580	37580	37580	37580
2	Wood Fuel Sulfur (%)	0.11	0.11	0.11	0.11	0.11
3						
4	Fuel Oil Burned (MGal/yr)	104.8	2190	500	500	500
5	Fuel Oil Sulfur (%)	0.5	0.5	0.5	0.5	0.5
6						
7	Creo Treated Ties (cf)	700000	2000000	2000000	1500000	1800000
8	Creo Treated Poles (cf)	500000	1500000	1500000	500000	1000000
9	Penta Treated Wood (cf)	1500000	2000000	0	3000000	2000000
10	Kiln Dried Poles(cf)	1000000	1600000	1250000	1250000	1250000
11	Cyclone Days/Yr	160	300	300	200	200
12	Treating Volume Factor	1	1.5	1.5	1.5	1.5

EMISSION INVENTORY CALCULATION
KOPPERS INDUSTRIES, INC. - GRENADA
ESTIMATED ACTUAL EMISSIONS

01-BOILER, WOOD FIRED Sulfur in wood fuel= 0.11 %

Wood Burned (tn/yr): 37580 (lb/hr): 8000

Pollutant	Emission Factor	Units	Basis	Estimated (tn/yr)	Emissions (lb/hr)
Particulate	1.44	lb/tn	5/88 Test	27.06	5.76
SO2	4.29	lb/tn	AP-42&Cal.	80.61	17.16
NOX	1.4	lb/tn	FR Test	26.31	5.60
CO	1.2	lb/tn	FR Testx2	22.55	4.80
VOC	0.91	lb/tn	FR Test	17.10	3.64
Arsenic	8.8E-05	lb/tn	AP-42	0.0017	0.000
Cadmium	1.7E-05	lb/tn	AP-42	0.0003	0.000
Chromium	1.3E-04	lb/tn	AP-42	0.0024	0.001
Lead	3.1E-04	lb/tn	AP-42	0.0058	0.001
Manganese	8.9E-03	lb/tn	AP-42	0.1672	0.036
Nickel	5.6E-04	lb/tn	AP-42	0.0105	0.002
Selenium	1.8E-05	lb/tn	AP-42	0.0003	0.000
Mercury	6.5E-06	lb/tn	AP-42	0.0001	0.000
Total HAP Metals				0.19	0.040

26-BOILER, FUEL OIL Fuel Use Rate(MGal/hr) 0.25

Oil Burned(MGal/yr): 104.8 Sulfur Content: 0.500 %

Pollutant	Emission Factor	Units	Basis	Estimated (tn/yr)	Emissions (lb/hr)
Particulate	2	lb/MGal	AP-42	0.10	0.50
SO2	71	lb/MGal	AP-42	3.72	17.75
NOX	20	lb/MGal	AP-42	1.05	5.00
CO	5	lb/MGal	AP-42	0.26	1.25
VOC	0.2	lb/MGal	AP-42	0.01	0.05

Number of days boiler assumed to operate is 17

ESTIMATED ACTUAL EMISSIONS

05-WOOD PRESERVING PROCESSES

Creosote Ties	700000	C. F.
Creosote Poles	500000	C. F.
Total Creosote Wood	1200000	C. F.
Oil/Penta Poles	1500000	C. F.

Pollutant	Emission Factor	Units	Basis	Estimated (tn/yr)	Emissions (lb/hr/ave)
Creosote (VOC)	0.015	lb/cf	Form R	9.00	2.05
HAPs contained in creosote:					
Benzene	22	% in vapor	Calculation	1.98	0.45
Biphenol	0.16	% in vapor	Calculation	0.01	0.00
Cresols	0.46	% in vapor	Calculation	0.04	0.01
Dibenzofurans	0.61	% in vapor	Calculation	0.05	0.01
Naphthalene	17	% in vapor	Calculation	1.53	0.35
P-Xylenes	4.5	% in vapor	Calculation	0.41	0.09
Phenol	1.4	% in vapor	Calculation	0.13	0.03
Quinoline	1.5	% in vapor	Calculation	0.14	0.03
Toluene	26	% in vapor	Calculation	2.34	0.53
TOTAL CREO. HAP	73.63	% in vapor		6.63	1.51
Pentachlorophenol (VOC)	2.54E-05	lb/cf	Form R	0.02	0.00
#6 Oil (VOC)	1.0E-02	lb/cf	Engr. Est.	7.50	1.71
TOTAL VOC				16.52	3.77

08-PRESERVATIVE TREATED WOOD STORAGE FUGITIVES

Pollutant	Emission Factor	Units	Basis	Estimated (tn/yr)	Emissions (lb/hr/ave)
Creosote Ties					
Creosote (VOC)	4.25E-03	lb/cf	FR Test	1.49	0.34
Naphthalene	1.37E-03	lb/cf	FR Test	0.48	0.11
Benzene	1.74E-06	lb/cf	FR Test	0.00	0.00
Toluene	3.54E-05	lb/cf	FR Test	0.01	0.00
Creosote Poles					
Creosote (VOC)	1.15E-02	lb/cf	FR Test	2.88	0.66
Naphthalene	3.34E-03	lb/cf	FR Test	0.84	0.19
Benzene	4.23E-06	lb/cf	FR Test	0.00	0.00
Toluene	1.52E-04	lb/cf	FR Test	0.04	0.01
Penta Poles					
Oil (VOC, est. as creo)	1.15E-02	lb/cf	FR Test	8.63	1.97
Pentachlorophenol	unk.	lb/cf	FR Test	0.00	0.00
Totals					
VOC				12.99	2.96
Naphthalene				1.31	0.30
Benzene				0.00	0.00
Toluene				0.05	0.01
Pentachlorophenol				0.00	0.00
HAP Organics (Total)				1.37	0.31

ESTIMATED ACTUAL EMISSIONS

31-DRY KILNS

Poles Dried 1000000 C. F.

Pollutant	Emission Factor	Units	Basis	Estimated (tn/yr)	Emissions (lb/hr)
VOC	0.08	lb/cf	Alabama	40.00	unk.

27-CYCLONES FOR WOOD MILLING

Number of Cyclones:	1
Ave. Hours/Day:	8
Ave Days/Yr Each:	160
Total Hours:	1280

Pollutant	Emission Factor	Units	Basis	Estimated (tn/yr)	Emissions (lb/hr)
Particulate	2	lb/hr	AP-42	1.28	2

28-YARD ROADS FUGITIVE PARTICULATES

E=k(5.9)(s/12)(S/30)(W/3)^0.7(w/4)^0.5(365-p)/365 lb/VMT

k=particle size factor=	1.00		6	=No. vehicles driving
s=silt content (%) of road=	10	%	15	=Typ. miles/hr driving
S=mean vehicle speed=	15	mph	2.5	=Typ. hrs driving/day
W=mean vehicle weight=	15	tons	6	=Typ. d/wk driving
w=mean no. of wheels=	4	wheels	1	=Trtng volume factor
p=no. wet days/year=	110	days	70200	=Ann veh mi. traveled
VMT=Veh. Mi. Traveled=	70200	VMT		

Pollutant	Emission Factor	Units	Basis	Estimated (tn/yr)	Emissions (lb/hr)(1)
Particulate	5.30	lb/VMT	AP-42	186.00	127

(1) Hourly based on 365 days, 8 hours per day

TOTAL PLANT EMISSIONS

Pollutant		Estimated (tn/yr)	Emissions (lb/hr)
Particulate (less fugitive)	....	28.44	8.26
SO2 (2)	....	84.33	34.91
NOX	....	27.35	10.60
CO	....	22.81	6.05
VOC(less fugitive)	....	73.63	7.46
HAPs(Organics/VOC)	....	8.01	1.83
Naphthalene	....	2.84	0.65
HAP Metals	....	0.19	0.04

(2) Assumes backup boiler operating at same time as primary for number of days shown.

EMISSION INVENTORY CALCULATION
KOPPERS INDUSTRIES, INC. - GRENADA
MAXIMUM POTENTIAL EMISSIONS

01-BOILER, WOOD FIRED Sulfur in wood fuel= 0.11 %

Wood Burned (tn/yr): 37580 (lb/hr): 8000

Pollutant	Emission Factor	Units	Basis	Estimated (tn/yr)	Emissions (lb/hr)
Particulate	1.44	lb/tn	5/88 Test	27.06	5.76
SO2	4.29	lb/tn	AP-42&Cal.	80.61	17.16
NOX	1.4	lb/tn	FR Test	26.31	5.60
CO	1.2	lb/tn	FR Testx2	22.55	4.80
VOC	0.91	lb/tn	FR Test	17.10	3.64
Arsenic	8.8E-05	lb/tn	AP-42	0.0017	0.000
Cadmium	1.7E-05	lb/tn	AP-42	0.0003	0.000
Chromium	1.3E-04	lb/tn	AP-42	0.0024	0.001
Lead	3.1E-04	lb/tn	AP-42	0.0058	0.001
Manganese	8.9E-03	lb/tn	AP-42	0.1672	0.036
Nickel	5.6E-04	lb/tn	AP-42	0.0105	0.002
Selenium	1.8E-05	lb/tn	AP-42	0.0003	0.000
Mercury	6.5E-06	lb/tn	AP-42	0.0001	0.000
Total HAP Metals				0.19	0.040

26-BOILER, FUEL OIL Fuel Use Rate(MGal/hr) 0.25

Oil Burned(MGal/yr): 2190 Sulfur Content: 0.500 %

Pollutant	Emission Factor	Units	Basis	Estimated (tn/yr)	Emissions (lb/hr)
Particulate	2	lb/MGal	AP-42	2.19	0.50
SO2	71	lb/MGal	AP-42	77.75	17.75
NOX	20	lb/MGal	AP-42	21.90	5.00
CO	5	lb/MGal	AP-42	5.48	1.25
VOC	0.2	lb/MGal	AP-42	0.22	0.05

Number of days boiler assumed to operate is 365

EMISSION INVENTORY CALCULATION
KOPPERS INDUSTRIES, INC. - GRENADA
MAXIMUM POTENTIAL EMISSIONS

05-WOOD PRESERVING PROCESSES

Creosote Ties	2000000	C. F.
Creosote Poles	1500000	C. F.
Total Creosote Wood	3500000	C. F.
Oil/Penta Poles	2000000	C. F.

Pollutant	Emission Factor	Units	Basis	Estimated (tn/yr)	Emissions (lb/hr|ave)
Creosote (VOC)	0.015	lb/cf	Form R	26.25	5.99
HAPs contained in creosote:					
Benzene	22	% in vapor	Calculation	5.78	1.32
Biphenol	0.16	% in vapor	Calculation	0.04	0.01
Cresols	0.46	% in vapor	Calculation	0.12	0.03
Dibenzofurans	0.61	% in vapor	Calculation	0.16	0.04
Naphthalene	17	% in vapor	Calculation	4.46	1.02
P-Xylenes	4.5	% in vapor	Calculation	1.18	0.27
Phenol	1.4	% in vapor	Calculation	0.37	0.08
Quinoline	1.5	% in vapor	Calculation	0.39	0.09
Toluene	26	% in vapor	Calculation	6.83	1.56
TOTAL CREO. HAP	73.63	% in vapor		19.33	4.41
Pentachlorophenol (VOC)	2.54E-05	lb/cf	Form R	0.03	0.01
#6 Oil (VOC)	1.0E-02	lb/cf	Engr. Est.	10.00	2.28
TOTAL VOC				36.28	8.27

08-PRESERVATIVE TREATED WOOD STORAGE FUGITIVES

Pollutant	Emission Factor	Units	Basis	Estimated (tn/yr)	Emissions (lb/hr|ave)
Creosote Ties					
Creosote (VOC)	4.25E-03	lb/cf	FR Test	4.25	0.97
Naphthalene	1.37E-03	lb/cf	FR Test	1.37	0.31
Benzene	1.74E-06	lb/cf	FR Test	0.00	0.00
Toluene	3.54E-05	lb/cf	FR Test	0.04	0.01
Creosote Poles					
Creosote (VOC)	1.15E-02	lb/cf	FR Test	8.63	1.97
Naphthalene	3.34E-03	lb/cf	FR Test	2.51	0.57
Benzene	4.23E-06	lb/cf	FR Test	0.00	0.00
Toluene	1.52E-04	lb/cf	FR Test	0.11	0.03
Penta Poles					
Oil (VOC, est. as creo)	1.15E-02	lb/cf	FR Test	11.50	2.62
Pentachlorophenol	unk.	lb/cf	FR Test	0.00	0.00
Totals					
VOC				24.38	5.56
Naphthalene				3.88	0.88
Benzene				0.00	0.00
Toluene				0.15	0.03
Pentachlorophenol				0.00	0.00
HAP Organics (Total)				4.03	0.92

EMISSION INVENTORY CALCULATION
KOPPERS INDUSTRIES, INC. - GRENADA
MAXIMUM POTENTIAL EMISSIONS

31-DRY KILNS

Poles Dried 1600000 C. F.

Pollutant	Emission Factor	Units	Basis	Estimated (tn/yr)	Emissions (lb/hr)
VOC	0.08	lb/cf	Alabama	64.00	unk.

27-CYCLONES FOR WOOD MILLING

Number of Cyclones:	1
Ave. Hours/Day:	8
Ave Days/Yr Each:	300
Total Hours:	2400

Pollutant	Emission Factor	Units	Basis	Estimated (tn/yr)	Emissions (lb/hr)
Particulate	2	lb/hr	AP-42	2.40	2

28-YARD ROADS FUGITIVE PARTICULATES

E=k(5.9)(s/12)(S/30)(W/3)^0.7(w/4)^0.5(365-p)/365 lb/VMT

k=particle size factor=	1.00		6	=No. vehicles driving
s=silt content (%) of road=	10	%	15	=Typ. miles/hr driving
S=mean vehicle speed=	15	mph	2.5	=Typ. hrs driving/day
W=mean vehicle weight=	15	tons	6	=Typ. d/wk driving
w=mean no. of wheels=	4	wheels	1.5	=Trtng volume factor
p=no. wet days/year=	110	days	105300	=Ann veh mi. traveled
VMT=Veh. Mi. Traveled=	105300	VMT		

Pollutant	Emission Factor	Units	Basis	Estimated (tn/yr)	Emissions (lb/hr)(1)
Particulate	5.30	lb/VMT	AP-42	278.99	191

(1) Hourly based on 365 days, 8 hours per day

TOTAL PLANT EMISSIONS

Pollutant		Estimated (tn/yr)	Emissions (lb/hr)
Particulate (less fugitive)	....	31.65	8.26
SO2 (2)	....	158.35	34.91
NOX	....	48.21	10.60
CO	....	28.02	6.05
VOC(less fugitive)	....	117.59	11.96
HAPs(Organics/VOC)	....	23.38	5.33
Naphthalene	....	8.34	1.90
HAP Metals	....	0.19	0.04

(2) Assumes backup boiler operating at same time as primary for number of days shown.

EMISSION INVENTORY CALCULATION
KOPPERS INDUSTRIES, INC. - GRENADA
SYNTHETIC MINOR EMISSION (HIGH CREO VOL.)

01-BOILER, WOOD FIRED Sulfur in wood fuel= 0.11 %
Wood Burned (tn/yr): 37580 (lb/hr): 8000

Pollutant	Emission Factor	Units	Basis	Estimated (tn/yr)	Emissions (lb/hr)
Particulate	1.44	lb/tn	5/88 Test	27.06	5.76
SO2	4.29	lb/tn	AP-42&Cal.	80.61	17.16
NOX	1.4	lb/tn	FR Test	26.31	5.60
CO	1.2	lb/tn	FR Testx2	22.55	4.80
VOC	0.91	lb/tn	FR Test	17.10	3.64
Arsenic	8.8E-05	lb/tn	AP-42	0.0017	0.000
Cadmium	1.7E-05	lb/tn	AP-42	0.0003	0.000
Chromium	1.3E-04	lb/tn	AP-42	0.0024	0.001
Lead	3.1E-04	lb/tn	AP-42	0.0058	0.001
Manganese	8.9E-03	lb/tn	AP-42	0.1672	0.036
Nickel	5.6E-04	lb/tn	AP-42	0.0105	0.002
Selenium	1.8E-05	lb/tn	AP-42	0.0003	0.000
Mercury	6.5E-06	lb/tn	AP-42	0.0001	0.000
Total HAP Metals				0.19	0.040

26-BOILER, FUEL OIL Fuel Use Rate(MGal/hr) 0.25
Oil Burned(MGal/yr): 500 Sulfur Content: 0.500 %

Pollutant	Emission Factor	Units	Basis	Estimated (tn/yr)	Emissions (lb/hr)
Particulate	2	lb/MGal	AP-42	0.50	0.50
SO2	71	lb/MGal	AP-42	17.75	17.75
NOX	20	lb/MGal	AP-42	5.00	5.00
CO	5	lb/MGal	AP-42	1.25	1.25
VOC	0.2	lb/MGal	AP-42	0.05	0.05

Number of days boiler assumed to operate is 83

EMISSION INVENTORY CALCULATION
KOPPERS INDUSTRIES, INC. - GRENADA
SYNTHETIC MINOR EMISSION (HIGH CREO VOL.)

05-WOOD PRESERVING PROCESSES

Creosote Ties	2000000	C. F.
Creosote Poles	1500000	C. F.
Total Creosote Wood	3500000	C. F.
Oil/Penta Poles	0	C. F.

Pollutant	Emission Factor	Units	Basis	Estimated (tn/yr)	Emissions (lb/hr|ave)
Creosote (VOC)	0.015	lb/cf	Form R	26.25	5.99
HAPs contained in creosote:					
Benzene	22	% in vapor	Calculation	5.78	1.32
Biphenol	0.16	% in vapor	Calculation	0.04	0.01
Cresols	0.46	% in vapor	Calculation	0.12	0.03
Dibenzofurans	0.61	% in vapor	Calculation	0.16	0.04
Naphthalene	17	% in vapor	Calculation	4.46	1.02
P-Xylenes	4.5	% in vapor	Calculation	1.18	0.27
Phenol	1.4	% in vapor	Calculation	0.37	0.08
Quinoline	1.5	% in vapor	Calculation	0.39	0.09
Toluene	26	% in vapor	Calculation	6.83	1.56
TOTAL CREO. HAP	73.63	% in vapor		19.33	4.41
Pentachlorophenol (VOC)	2.54E-05	lb/cf	Form R	0.00	0.00
#6 Oil (VOC)	1.0E-02	lb/cf	Engr. Est.	0.00	0.00
TOTAL VOC				26.25	5.99

08-PRESERVATIVE TREATED WOOD STORAGE FUGITIVES

Pollutant	Emission Factor	Units	Basis	Estimated (tn/yr)	Emissions (lb/hr|ave)
Creosote Ties					
Creosote (VOC)	4.25E-03	lb/cf	FR Test	4.25	0.97
Naphthalene	1.37E-03	lb/cf	FR Test	1.37	0.31
Benzene	1.74E-06	lb/cf	FR Test	0.00	0.00
Toluene	3.54E-05	lb/cf	FR Test	0.04	0.01
Creosote Poles					
Creosote (VOC)	1.15E-02	lb/cf	FR Test	8.63	1.97
Naphthalene	3.34E-03	lb/cf	FR Test	2.51	0.57
Benzene	4.23E-06	lb/cf	FR Test	0.00	0.00
Toluene	1.52E-04	lb/cf	FR Test	0.11	0.03
Penta Poles					
Oil (VOC, est. as creo)	1.15E-02	lb/cf	FR Test	0.00	0.00
Pentachlorophenol	unk.	lb/cf	FR Test	0.00	0.00
Totals					
VOC				12.88	2.94
Naphthalene				3.88	0.88
Benzene				0.00	0.00
Toluene				0.15	0.03
Pentachlorophenol				0.00	0.00
HAP Organics (Total)				4.03	0.92

31-DRY KILNS

Poles Dried 1250000 C. F.

Pollutant	Emission Factor	Units	Basis	Estimated (tn/yr)	Emissions (lb/hr)
VOC	0.08	lb/cf	Alabama	50.00	unk.

27-CYCLONES FOR WOOD MILLING

Number of Cyclones:	1
Ave. Hours/Day:	8
Ave Days/Yr Each:	300
Total Hours:	2400

Pollutant	Emission Factor	Units	Basis	Estimated (tn/yr)	Emissions (lb/hr)
Particulate	2	lb/hr	AP-42	2.40	2

28-YARD ROADS FUGITIVE PARTICULATES

E=k(5.9)(s/12)(S/30)(W/3)^0.7(w/4)^0.5(365-p)/365 lb/VMT

k=particle size factor=	1.00		6	=No. vehicles driving
s=silt content (%) of road=	10	%	15	=Typ. miles/hr driving
S=mean vehicle speed=	15	mph	2.5	=Typ. hrs driving/day
W=mean vehicle weight=	15	tons	6	=Typ. d/wk driving
w=mean no. of wheels=	4	wheels	1.5	=Trtng volume factor
p=no. wet days/year=	110	days	105300	=Ann veh mi. traveled
VMT=Veh. Mi. Traveled=	105300	VMT		

Pollutant	Emission Factor	Units	Basis	Estimated (tn/yr)	Emissions (lb/hr)(1)
Particulate	5.30	lb/VMT	AP-42	278.99	191

(1) Hourly based on 365 days, 8 hours per day

TOTAL PLANT EMISSIONS

Pollutant		Estimated (tn/yr)	Emissions (lb/hr)
Particulate (less fugitive)	....	29.96	8.26
SO2 (2)	....	98.36	34.91
NOX	....	31.31	10.60
CO	....	23.80	6.05
VOC(less fugitive)	....	93.40	9.68
HAPs(Organics/VOC)	....	23.36	5.33
Naphthalene	....	8.34	1.90
HAP Metals	....	0.19	0.04

(2) Assumes backup boiler operating at same time as primary for number of days shown.

EMISSION INVENTORY CALCULATION
KOPPERS INDUSTRIES, INC. - GRENADA
SYNTHETIC MINOR EMISSION (HIGH PENTA VOL.)

01-BOILER, WOOD FIRED Sulfur in wood fuel= 0.11 %
Wood Burned (tn/yr): 37580 (lb/hr): 8000

Pollutant	Emission Factor	Units	Basis	Estimated (tn/yr)	Emissions (lb/hr)
Particulate	1.44	lb/tn	5/88 Test	27.06	5.76
SO2	4.29	lb/tn	AP-42&Cal.	80.61	17.16
NOX	1.4	lb/tn	FR Test	26.31	5.60
CO	1.2	lb/tn	FR Testx2	22.55	4.80
VOC	0.91	lb/tn	FR Test	17.10	3.64
Arsenic	8.8E-05	lb/tn	AP-42	0.0017	0.000
Cadmium	1.7E-05	lb/tn	AP-42	0.0003	0.000
Chromium	1.3E-04	lb/tn	AP-42	0.0024	0.001
Lead	3.1E-04	lb/tn	AP-42	0.0058	0.001
Manganese	8.9E-03	lb/tn	AP-42	0.1672	0.036
Nickel	5.6E-04	lb/tn	AP-42	0.0105	0.002
Selenium	1.8E-05	lb/tn	AP-42	0.0003	0.000
Mercury	6.5E-06	lb/tn	AP-42	0.0001	0.000
Total HAP Metals				0.19	0.040

26-BOILER, FUEL OIL Fuel Use Rate(MGal/hr) 0.25
Oil Burned(MGal/yr): 500 Sulfur Content: 0.500 %

Pollutant	Emission Factor	Units	Basis	Estimated (tn/yr)	Emissions (lb/hr)
Particulate	2	lb/MGal	AP-42	0.50	0.50
SO2	71	lb/MGal	AP-42	17.75	17.75
NOX	20	lb/MGal	AP-42	5.00	5.00
CO	5	lb/MGal	AP-42	1.25	1.25
VOC	0.2	lb/MGal	AP-42	0.05	0.05

Number of days boiler assumed to operate is 83

EMISSION INVENTORY CALCULATION
KOPPERS INDUSTRIES, INC. - GRENADA
SYNTHETIC MINOR EMISSION (HIGH PENTA VOL.)

05-WOOD PRESERVING PROCESSES

Creosote Ties	1500000	C. F.
Creosote Poles	500000	C. F.
Total Creosote Wood	2000000	C. F.
Oil/Penta Poles	3000000	C. F.

Pollutant	Emission Factor	Units	Basis	Estimated (tn/yr)	Emissions (lb/hr ave)
Creosote (VOC)	0.015	lb/cf	Form R	15.00	3.42
HAPs contained in creosote:					
Benzene	22	% in vapor	Calculation	3.30	0.75
Biphenol	0.16	% in vapor	Calculation	0.02	0.01
Cresols	0.46	% in vapor	Calculation	0.07	0.02
Dibenzofurans	0.61	% in vapor	Calculation	0.09	0.02
Naphthalene	17	% in vapor	Calculation	2.55	0.58
P-Xylenes	4.5	% in vapor	Calculation	0.68	0.15
Phenol	1.4	% in vapor	Calculation	0.21	0.05
Quinoline	1.5	% in vapor	Calculation	0.23	0.05
Toluene	26	% in vapor	Calculation	3.90	0.89
TOTAL CREO. HAP	73.63	% in vapor		11.04	2.52
Pentachlorophenol (VOC)	2.54E-05	lb/cf	Form R	0.04	0.01
#6 Oil (VOC)	1.0E-02	lb/cf	Engr. Est.	15.00	3.42
TOTAL VOC				30.04	6.85

08-PRESERVATIVE TREATED WOOD STORAGE FUGITIVES

Pollutant	Emission Factor	Units	Basis	Estimated (tn/yr)	Emissions (lb/hr ave)
Creosote Ties					
Creosote (VOC)	4.25E-03	lb/cf	FR Test	3.19	0.73
Naphthalene	1.37E-03	lb/cf	FR Test	1.03	0.23
Benzene	1.74E-06	lb/cf	FR Test	0.00	0.00
Toluene	3.54E-05	lb/cf	FR Test	0.03	0.01
Creosote Poles					
Creosote (VOC)	1.15E-02	lb/cf	FR Test	2.88	0.66
Naphthalene	3.34E-03	lb/cf	FR Test	0.84	0.19
Benzene	4.23E-06	lb/cf	FR Test	0.00	0.00
Toluene	1.52E-04	lb/cf	FR Test	0.04	0.01
Penta Poles					
Oil (VOC, est. as creo)	1.15E-02	lb/cf	FR Test	17.25	3.93
Pentachlorophenol	unk.	lb/cf	FR Test	0.00	0.00
Totals					
VOC				23.31	5.32
Naphthalene				1.86	0.42
Benzene				0.00	0.00
Toluene				0.06	0.01
Pentachlorophenol				0.00	0.00
HAP Organics (Total)				1.93	0.44

EMISSION INVENTORY CALCULATION
KOPPERS INDUSTRIES, INC. - GRENADA
SYNTHETIC MINOR EMISSION (HIGH PENTA VOL.)

31-DRY KILNS

Poles Dried 1250000 C. F.

Pollutant	Emission Factor	Units	Basis	Estimated (tn/yr)	Emissions (lb/hr)
VOC	0.08	lb/cf	Alabama	50.00	unk.

27-CYCLONES FOR WOOD MILLING

Number of Cyclones:	1
Ave. Hours/Day:	8
Ave Days/Yr Each:	200
Total Hours:	1600

Pollutant	Emission Factor	Units	Basis	Estimated (tn/yr)	Emissions (lb/hr)
Particulate	2	lb/hr	AP-42	1.60	2

28-YARD ROADS FUGITIVE PARTICULATES

E=k(5.9)(s/12)(S/30)(W/3)^0.7(w/4)^0.5(365-p)/365 lb/VMT

k=particle size factor=	1.00		6	=No. vehicles driving
s=silt content (%) of road=	10	%	15	=Typ. miles/hr driving
S=mean vehicle speed=	15	mph	2.5	=Typ. hrs driving/day
W=mean vehicle weight=	15	tons	6	=Typ. d/wk driving
w=mean no. of wheels=	4	wheels	1.5	=Trtng volume factor
p=no. wet days/year=	110	days	105300	=Ann veh mi. traveled
VMT=Veh. Mi. Traveled=	105300	VMT		

Pollutant	Emission Factor	Units	Basis	Estimated (tn/yr)	Emissions (lb/hr)(1)
Particulate	5.30	lb/VMT	AP-42	278.99	191

(1) Hourly based on 365 days, 8 hours per day

TOTAL PLANT EMISSIONS

Pollutant		Estimated (tn/yr)	Emissions (lb/hr)
Particulate (less fugitive)	....	29.16	8.26
SO2 (2)	....	98.36	34.91
NOX	....	31.31	10.60
CO	....	23.80	6.05
VOC(less fugitive)	....	97.19	10.54
HAPs(Organics/VOC)	....	13.01	2.97
Naphthalene	....	4.41	1.01
HAP Metals	....	0.19	0.04

(2) Assumes backup boiler operating at same time as primary for number of days shown.

EMISSION INVENTORY CALCULATION
KOPPERS INDUSTRIES, INC. - GRENADA
SYNTHETIC MINOR EMISSIONS (MIXED)

01-BOILER, WOOD FIRED Sulfur in wood fuel= 0.11 %

Wood Burned (tn/yr): 37580 (lb/hr): 8000

Pollutant	Emission Factor	Units	Basis	Estimated (tn/yr)	Emissions (lb/hr)
Particulate	1.44	lb/tn	5/88 Test	27.06	5.76
SO2	4.29	lb/tn	AP-42&Cal.	80.61	17.16
NOX	1.4	lb/tn	FR Test	26.31	5.60
CO	1.2	lb/tn	FR Testx2	22.55	4.80
VOC	0.91	lb/tn	FR Test	17.10	3.64
Arsenic	8.8E-05	lb/tn	AP-42	0.0017	0.000
Cadmium	1.7E-05	lb/tn	AP-42	0.0003	0.000
Chromium	1.3E-04	lb/tn	AP-42	0.0024	0.001
Lead	3.1E-04	lb/tn	AP-42	0.0058	0.001
Manganese	8.9E-03	lb/tn	AP-42	0.1672	0.036
Nickel	5.6E-04	lb/tn	AP-42	0.0105	0.002
Selenium	1.8E-05	lb/tn	AP-42	0.0003	0.000
Mercury	6.5E-06	lb/tn	AP-42	0.0001	0.000
Total HAP Metals				0.19	0.040

26-BOILER, FUEL OIL Fuel Use Rate(MGal/hr) 0.25

Oil Burned(MGal/yr): 500 Sulfur Content: 0.500 %

Pollutant	Emission Factor	Units	Basis	Estimated (tn/yr)	Emissions (lb/hr)
Particulate	2	lb/MGal	AP-42	0.50	0.50
SO2	71	lb/MGal	AP-42	17.75	17.75
NOX	20	lb/MGal	AP-42	5.00	5.00
CO	5	lb/MGal	AP-42	1.25	1.25
VOC	0.2	lb/MGal	AP-42	0.05	0.05

Number of days boiler assumed to operate is 83

EMISSION INVENTORY CALCULATION
KOPPERS INDUSTRIES, INC. - GRENADA
SYNTHETIC MINOR EMISSIONS (MIXED)

05-WOOD PRESERVING PROCESSES

Creosote Ties	1800000	C. F.
Creosote Poles	1000000	C. F.
Total Creosote Wood	2800000	C. F.
Oil/Penta Poles	2000000	C. F.

Pollutant	Emission Factor	Units	Basis	Estimated (tn/yr)	Emissions (lb/hr|ave)
Creosote (VOC)	0.015	lb/cf	Form R	21.00	4.79
HAPs contained in creosote:					
Benzene	22	% in vapor	Calculation	4.62	1.05
Biphenol	0.16	% in vapor	Calculation	0.03	0.01
Cresols	0.46	% in vapor	Calculation	0.10	0.02
Dibenzofurans	0.61	% in vapor	Calculation	0.13	0.03
Naphthalene	17	% in vapor	Calculation	3.57	0.81
P-Xylenes	4.5	% in vapor	Calculation	0.95	0.22
Phenol	1.4	% in vapor	Calculation	0.29	0.07
Quinoline	1.5	% in vapor	Calculation	0.32	0.07
Toluene	26	% in vapor	Calculation	5.46	1.24
TOTAL CREO. HAP	73.63	% in vapor		15.46	3.53
Pentachlorophenol (VOC)	2.54E-05	lb/cf	Form R	0.03	0.01
#6 Oil (VOC)	1.0E-02	lb/cf	Engr. Est.	10.00	2.28
TOTAL VOC				31.03	7.07

08-PRESERVATIVE TREATED WOOD STORAGE FUGITIVES

Pollutant	Emission Factor	Units	Basis	Estimated (tn/yr)	Emissions (lb/hr|ave)
Creosote Ties					
Creosote (VOC)	4.25E-03	lb/cf	FR Test	3.83	0.87
Naphthalene	1.37E-03	lb/cf	FR Test	1.23	0.28
Benzene	1.74E-06	lb/cf	FR Test	0.00	0.00
Toluene	3.54E-05	lb/cf	FR Test	0.03	0.01
Creosote Poles					
Creosote (VOC)	1.15E-02	lb/cf	FR Test	5.75	1.31
Naphthalene	3.34E-03	lb/cf	FR Test	1.67	0.38
Benzene	4.23E-06	lb/cf	FR Test	0.00	0.00
Toluene	1.52E-04	lb/cf	FR Test	0.08	0.02
Penta Poles					
Oil (VOC, est. as creo)	1.15E-02	lb/cf	FR Test	11.50	2.62
Pentachlorophenol	unk.	lb/cf	FR Test	0.00	0.00
Totals					
VOC				21.08	4.81
Naphthalene				2.90	0.66
Benzene				0.00	0.00
Toluene				0.11	0.02
Pentachlorophenol				0.00	0.00
HAP Organics (Total)				3.01	0.69

EMISSION INVENTORY CALCULATION
KOPPERS INDUSTRIES, INC. - GRENADA
SYNTHETIC MINOR EMISSIONS (MIXED)

31-DRY KILNS

Poles Dried: 1250000 C. F.

Pollutant	Emission Factor	Units	Basis	Estimated (tn/yr)	Emissions (lb/hr)
VOC	0.08	lb/cf	Alabama	50.00	unk.

27-CYCLONES FOR WOOD MILLING

Number of Cyclones:	1
Ave. Hours/Day:	8
Ave Days/Yr Each:	200
Total Hours:	1600

Pollutant	Emission Factor	Units	Basis	Estimated (tn/yr)	Emissions (lb/hr)
Particulate	2	lb/hr	AP-42	1.60	2

28-YARD ROADS FUGITIVE PARTICULATES

E=k(5.9)(s/12)(S/30)(W/3)^0.7(w/4)^0.5(365-p)/365 lb/VMT

k=particle size factor=	1.00		6	=No. vehicles driving
s=silt content (%) of road=	10	%	15	=Typ. miles/hr driving
S=mean vehicle speed=	15	mph	2.5	=Typ. hrs driving/day
W=mean vehicle weight=	15	tons	6	=Typ. d/wk driving
w=mean no. of wheels=	4	wheels	1.5	=Trtng volume factor
p=no. wet days/year=	110	days	105300	=Ann veh mi. traveled
VMT=Veh. Mi. Traveled=	105300	VMT		

Pollutant	Emission Factor	Units	Basis	Estimated (tn/yr)	Emissions (lb/hr)(1)
Particulate	5.30	lb/VMT	AP-42	278.99	191

(1) Hourly based on 365 days, 8 hours per day

TOTAL PLANT EMISSIONS

Pollutant		Estimated (tn/yr)	Emissions (lb/hr)
Particulate (less fugitive)	....	29.16	8.26
SO2 (2)	....	98.36	34.91
NOX	....	31.31	10.60
CO	....	23.80	6.05
VOC(less fugitive)	....	98.17	10.76
HAPs(Organics/VOC)	....	18.50	4.22
Naphthalene	....	6.47	1.48
HAP Metals	....	0.19	0.04

(2) Assumes backup boiler operating at same time as primary for number of days shown.

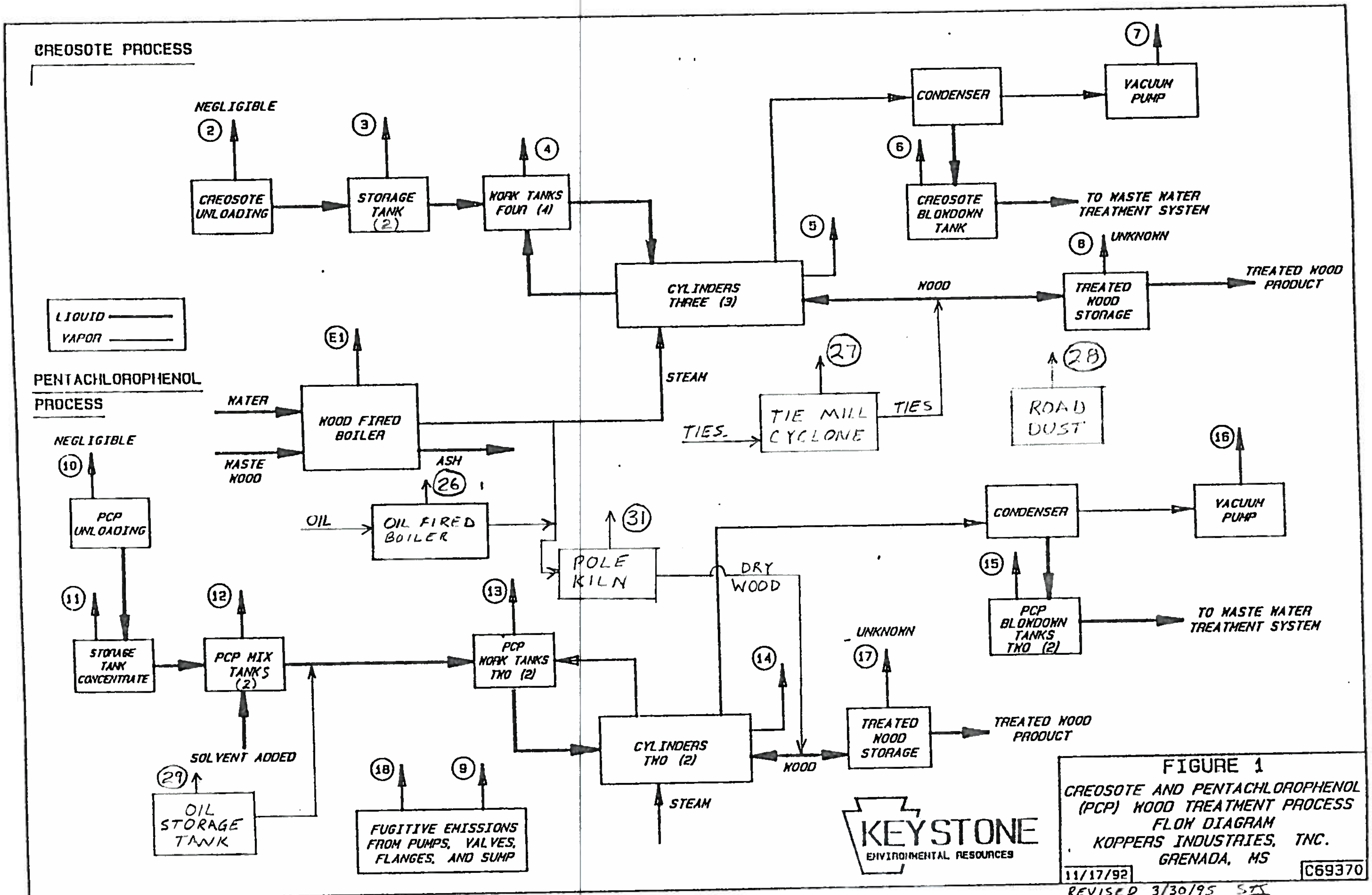


FIGURE 1

CREOSOTE AND PENTACHLOROPHENOL (PCP) WOOD TREATMENT PROCESS FLOW DIAGRAM

KOPPERS INDUSTRIES, INC.

GRENADA, MS

11/17/92 C69370

REVISED 3/30/95 SJ

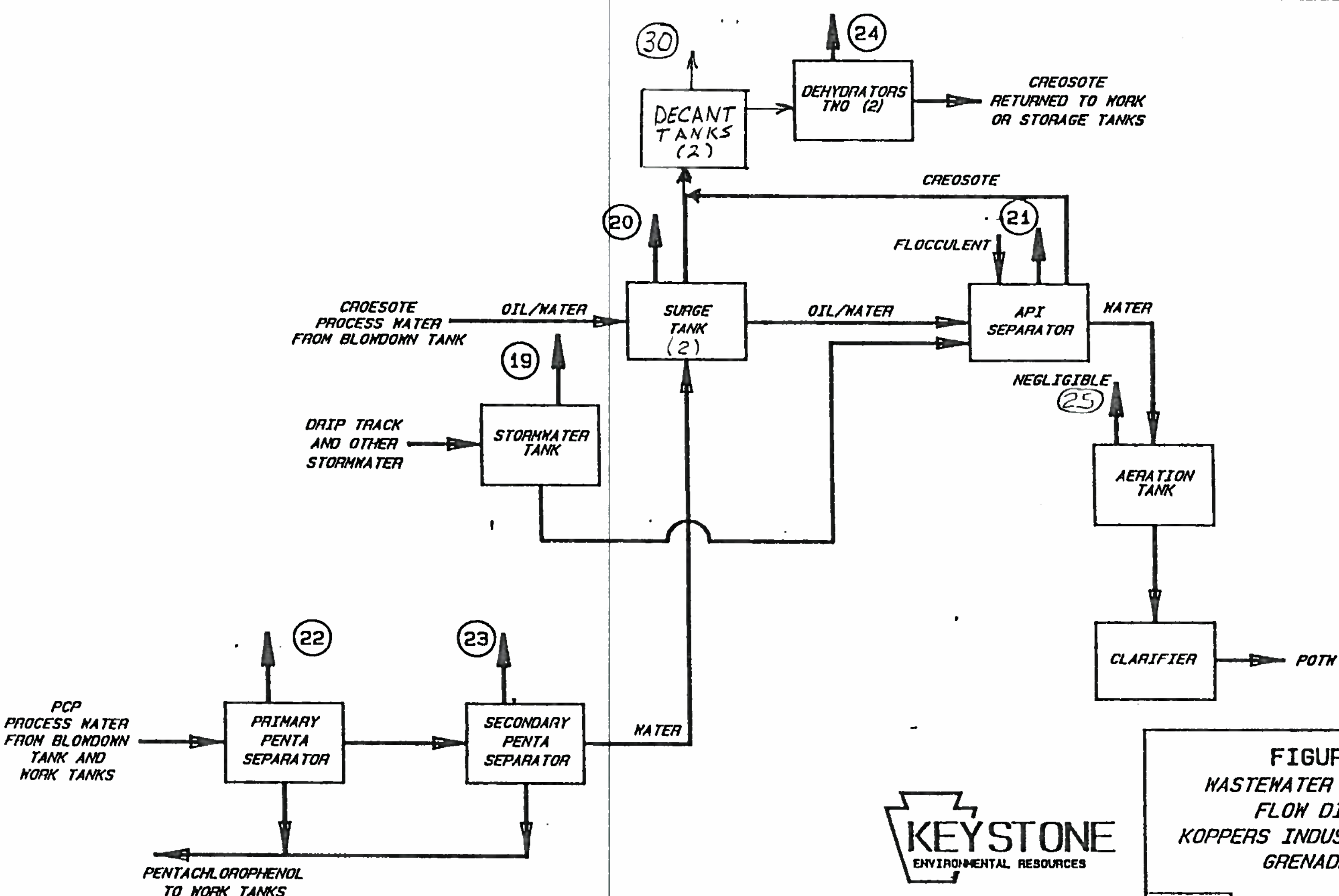
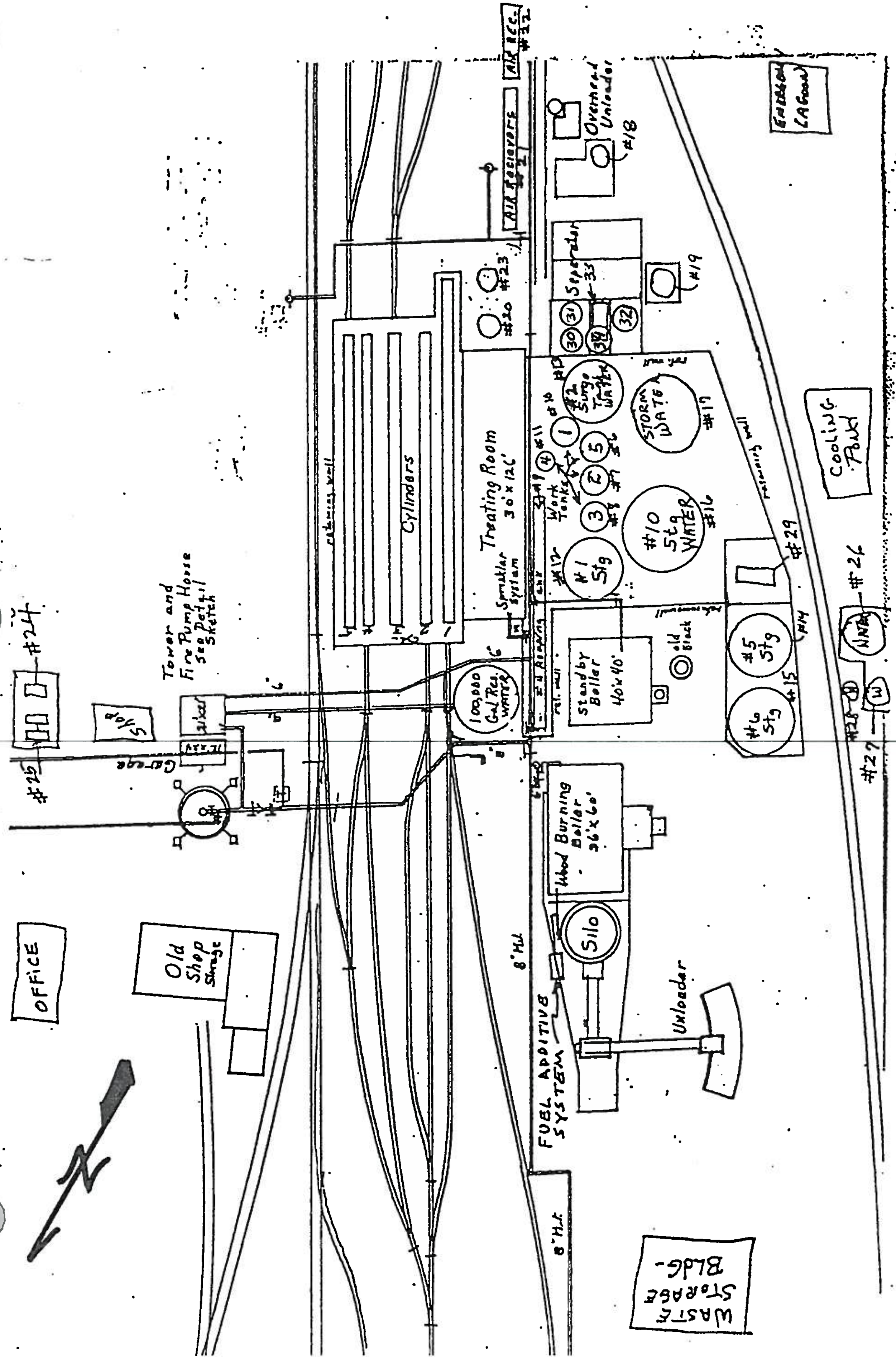


FIGURE 2
WASTEWATER TREATMENT
FLOW DIAGRAM
KOPPERS INDUSTRIES, INC.
GRENADA, MS

11/17/92 C69371

REVISED 3/30/95 STS



SITE PLAN

FIGURE 1

TABLE 3.1 - TANK LISTINGS
Koppers Industries, Grenada Plant

Reference No.	Name	Contents	Capacity
1.	#1 Cylinder	Creosote	34,000
2.	#2 Cylinder	Creosote 60/40	27,000
3.	#3 Cylinder	Steam Conditioning	27,000
4.	#4 Cylinder	Creosote #1	27,000
5.	#5 Cylinder	Oil Borne Treatment	27,000
6.	#1 Work Tank	Penta in Oil	30,000
7.	#2 Work Tank	Creosote 60/40	30,000
8.	#3 Work Tank	Creosote	30,000
9.	#4 Work Tank	Creosote #1	22,420
10.	#1 2nd Decant Tank	Creosote/Water	30,000
11.	Measuring Tank	Creosote #1	4,200
12.	#1 Storage Tank	Creosote #1	100,000
13.	#2 Surge Tank	Process Water	100,000
14.	#5 Storage Tank	Fuel Oil	100,000
15.	#6 Storage Tank	Creosote 60/40	105,000
16.	#10 Surge Tank	Process Water	300,000
17.	Storm Water Surge	Storm Water	250,000
18.	Coagulant	Dearfloc 4301	2,500
19.	Dehydrator	Creo/Oil/Water	50,000
20.	Creo Blowdown Tank	Water/Creosote	10,000
21.	Air Receivers	Compressed Air	
22.	Air Receivers	Compressed Air	
23.	Penta Blowdown Tank	Water/Penta/Oil	10,000
24.	Gas Tank	Gasoline	1,000
25.	Fuel Oil #2	Fuel Oil	20,000
26.	Water Treatment Tank	Water	150,000
27.	Water Treatment Tank	Water	25,000
28.	Water Treatment Tank	Water	10,000
29.	Creosote Dehydrator	Not in Use	4,000
30.	N. Penta Equilization	Water/Oil/Penta	14,000
31.	S. Penta Equilization	Water/Oil/Penta	14,000
32.	Penta Mix Tank	Oil/Penta	9,400
33.	Penta Mix Tank	Oil/Penta	6,600
34.	Penta Concentrate St.	Penta Concentrate	8,800

TANK SUMMARY TABLE (Section H)

1. Emission Point Number		13	4	4	4	30	4	3
Reference No.(Table 3.1)		Tank 6	Tank 7	Tank 8	Tank 9	Tank 10	Tank 11	Tank 12
Name		Wk Tk 5	Wk Tk 2	Wk Tk 3	WT 4 H	WT 1	WT 4 V	Storage
2. Construction Date								
3. Material Stored		Oil/Penta	P2Creosote	P2Creosote	P1Creosote	Water/Creo	P1Creosote	P1Creosote
4A.True Vapor Pressure a T.	psia							
4B. Reid Vapor Pres. at T.	psia							
Storage Temperature T	Deg. F	200	200	200	200	150	200	200
4C. Density at T	lb/gal	9.25	9.25	9.25	8.95	7.51	8.95	8.95
4D. Mol. Wt. at T	lb/lbmole							
4E. Throughput	Gal/yr	10000000	8200000	8200000	6500000	11445000	740000	740000
4F. Tank Capacity	Gal.	29786	29786	29786	27622	29786	5212	119717
4G. Tank Diameter	Feet	13	13	13	6.66	13	6.66	29
4H. Tank Height/Length	Feet	30	30	30	106	30	20	24.23
4I.Ave. Vapor Space Height	Feet	1	1	1		1	1	10
4J. Tank Orientation (H or V)		V	v	v	h	v	v	v
4K. Type of Roof (D or C)		d	d	d		d	d	c
4L.Vapor Recovery Sys.?	Y or N	N	n	n	n	n	n	n
4M. Type of Tank? Fixed=F		F	f	f	f	f	f	f
4N. Closest City ?	Memphis							
4O. Tank Paint Color?		Black	black	black	Alum	Black	Black	Black
4P. Paint Condition (G or P)		P	p	p	p	p	p	p
4Q. Type Tank Loading (SpD or	SpVB)	Bot.	Bot.	Bot.	Bot.	Bot.	Bot.	Bot.
4R. Not Applicable to any tanks								
4S. Not Applicable to any tanks								
5.1. Breathing Loss	lb/hr							
	TPY							
5.2. Working Loss	lb/hr							
	TPY							
5.3. Total Emissions	lb/hr							
	TPY							

TANK SUMMARY TABLE (Section H)

1. Emission Point Number		20	29	3	20	19	24	6
Reference No.(Table 3.1)		Tank 13	Tank 14	Tank 15	Tank 16	Tank 17	Tank 19	Tank 20
Name		WW Stor.	Storage 5	Storage 6	Storage 10	Storm Wat	Decant	Creo BD
2. Construction Date							1988	
3. Material Stored		W Water	#2Diesel	P2Creosote	Proc.Water	StormWat.	Water/Creo	Water/Creo
4A. True Vapor Pressure a T.	psia							
4B. Reid Vapor Pres. at T.	psia							
Storage Temperature T	Deg. F	Amb.	60	120	60	60	150	150
4C. Density at T	lb/gal	8.34	7.1	9.25	9.25	8.34	8.34	8.34
4D. Mol. Wt. at T	lb/lbmole							
4E. Throughput	Gal/yr	1600000	127500	660000	1400000	2272000	230000	532000
4F. Tank Capacity	Gal.	95316	102789	105750	300518	274104	4512	8557
4G. Tank Diameter	Feet	26	27	30	40.17	36	8	10.2
4H. Tank Height/Length	Feet	24	24	20	31.7	36	12	14
4I. Ave. Vapor Space Height	Feet	1	10	12	15	10	2	12
4J. Tank Orientation (H or V)		v	v	v	v	v	v	v
4K. Type of Roof (D or C)		c	c	c	c	none	d	d
4L. Vapor Recovery Sys.?	Y or N	n	n	n	n		n	n
4M. Type of Tank? Fixed=F		f	f	f	f	open	f	f
4N. Closest City ?	Memphis							
4O. Tank Paint Color?		Black	Black	Black	Black	Blue	Black	Black
4P. Paint Condition (G or P)		p	p	p	p	g	p	p
4Q. Type Tank Loading (SpD or SpVB)		Bot.	Bot.	Bot.	Bot.	SpD	SpD	SpD
4R. Not Applicable to any tanks								
4S. Not Applicable to any tanks								
5.1. Breathing Loss	lb/hr							
	TPY							
5.2. Working Loss	lb/hr							
	TPY							
5.3. Total Emissions	lb/hr							
	TPY							

TANK SUMMARY TABLE (Section H)

1. Emission Point Number		15	22	23	12	12	11
Reference No.(Table 3.1)		Tank 23	Tank 30	Tank 31	Tank 32	Tank 33	Tank 34
Name		Penta BD	N.Pen.Eq.	S.Pen.Eq.	Penta Mix	Penta Mix	Penta Conc
2. Construction Date							
3. Material Stored		Water/Oil	Oil/Water	Oil/Water	Oil/Penta	Oil/Penta	PentaConc.
4A.True Vapor Pressure a T.	psia						
4B. Reid Vapor Pres. at T.	psia						
Storage Temperature T	Deg. F	100	100	100	160	160	60
4C. Density at T	lb/gal	8.34	9	9	7.5	7.5	9.55
4D. Mol. Wt. at T	lb/lbmole						
4E. Throughput	Gal/yr	493000			850000	850000	120000
4F. Tank Capacity	Gal.	8641	14100	14100	9400	6662	8813
4G. Tank Diameter	Feet	10.25	10	10	10	9	10
4H. Tank Height/Length	Feet	14	24	24	16	14	15
4I.Ave. Vapor Space Height	Feet	12	5	5	1	1	5
4J. Tank Orientation (H or V)		v	v	v	v	h	v
4K. Type of Roof (D or C)		d	c	c		c	Flat
4L.Vapor Recovery Sys.?	Y or N	n	n	n	n	n	n
4M. Type of Tank? Fixed=F		f	f	f	f	f	f
4N. Closest City ?	Memphis						
4O. Tank Paint Color?		Black	Black	Black	Black	Black	Aluminum
4P. Paint Condition (G or P)		p	p	p	p	p	g
4Q. Type Tank Loading (SpD or	SpVB)	SpD	SpD	SpD	Bot.	SpD	Bot.
4R. Not Applicable to any tanks							
4S. Not Applicable to any tanks							
5.1. Breathing Loss	lb/hr						
	TPY						
5.2. Working Loss	lb/hr						
	TPY						
5.3. Total Emissions	lb/hr						
	TPY						

APPLICATION FOR MODIFICATON AND RENEWAL OF AIR POLLUTION CONTROL OPERATING PERMIT TIE PLANT, MISSISSIPPI

APPLICATION FOR MODIFICATION AND RENEWAL
OF AIR POLLUTION CONTROL OPERATING PERMIT
NO. 0960-00012

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JB

STATE OF MISSISSIPPI
DEPT. OF ENVIRONMENTAL QUALITY
OFFICE OF POLLUTION CONTROL
P.O. BOX 10385
JACKSON, MS 39289-0385
(601) 961-5171

RECEIVED
OCT 21 1993
KOPPERS INDUSTRIES
GRENADA, MS

APPLICATION FOR AIR POLLUTION CONTROL PERMIT TO CONSTRUCT AND/OR OPERATE AIR EMISSIONS EQUIPMENT

DATA CODED

TYPE OF PERMIT

____ New Source
_X_ Modification
_X_ Renewal of Operating Permit
____ Existing Source Operating Permit

RECEIVED
MAR 11 1994
DEQ-OPC

Name Koppers Industries, Inc.
Location: City Tie Plant County Grenada
Facility No. (if known) 0960-00012

APP-HP.1

APPLICATION FOR PERMIT TO CONSTRUCT
AND/OR OPERATE AIR EMISSIONS EQUIPMENT
GENERAL FORM

1. **Name, Address & Contact for the Owner/Applicant**

   A. **Name** Koppers Industries Inc

   B. **Mailing Address**

   1. **Street Address or P.O. Box** 436 Seventh Ave
   2. **City** Pittsburgh 3. **State** PA
   4. **Zip Code** 15219 5. **Telephone No.** (412) 227-2677

   C. **Contact**

   1. **Name** Stephen Smith 2. **Title** Environmental Mgr.

2. **Name, Address, Location and contact for the Facility**

   A. **Name** Koppers Industries Inc

   B. **Mailing Address**

   1. **Street Address or P.O. Box** PO Box 160
   2. **City** Tie Plant 3. **State** MS
   4. **Zip Code** 38960 5. **Telephone No.** (601) 226-4584

   C. **Site Location**

   1. **Street** Tie Plant Road
   2. **City** Tie Plant 3. **County** Grenada
   4. **State** MS 5. **Zip Code** 38960
   6. **Telephone No.** (601) 226-4584

   Note: If the facility is located outside the City limits, please attach a sketch or description showing the approximate location to this application.

   D. **Contact**

   1. **Name** Ron Murphey 2. **Title** Plant Mgr.

3. **SIC Code** 2491

4. **Number of Employees** 70

5. **Principal Product(s)** Pressure Treated Wood - Poles & RR ties

6. **Principal Raw Materials** Wood, Creosote, Pentachlorophenol

7. **Principal Process(es)** Wood preserving, pole peeler, boiler

8. **Maximum amount of principal product produced or raw material consumed per day**
   CF/day

9. Operating Schedule

A. Specify maximum hours per day the operation will occur: 24

B. Specify maximum days per week the operation will occur: 7

C. Specify maximum weeks per year the operation will occur: 52

C. Specify the months the operation will occur: 12

10. Only if this application is for Operating Permit renewal, has the facility been modified in any way (including production rate, fuel, and/or raw material changes) during period covered by the Operating Permit? ____Yes X No If yes, give year(s) in which modification(s) occurred and explain. ______

11. If after August 7, 1977, provide the date construction commenced. ______

12. If after August 7, 1977, provide the date operation began. ______

13. Please list the dates of any modifications or emissions increases since August 7, 1977. ______

14. EACH APPLICATION MUST BE SIGNED BY THE APPLICANT.

If the applicant is a corporation, it must be signed by a corporate officer as defined in Regulation APC-S-2. If the applicant is a partnership, it must be signed by a partner with authority to bind the partnership. In the case of a governmental agency, the application must be signed by the facility manager or senior staff officer responsible for the installation's or facility's environmental compliance.

I certify that I am familiar with the information contained in the application and that to the best of my knowledge and belief such information is true, complete, and accurate, and that, as an appropriate representative of the applicant, my signature shall constitute an agreement that the applicant assumes the responsibility for any alterations, additions or changes in operation that may be necessary to achieve and maintain compliance with all applicable Rules and Regulations.

J. R. Batchelder	Vice President, Env. & Technical
Printed Name of Person Signing	Title
3/8/94	JR Batchelder
Date Application Signed	Signature of Applicant

PLEASE COMPLETE THE FOLLOWING PAGES WHERE APPLICABLE

FUEL BURN[illegible]G EQUIPMENT .1

1. FACILITY NAME	ADDRESS		For Agency Use Only
Koppers Industries Inc	Tie Plant Rd, Tie Plant, MS		
FACILITY NUMBER	Information for Calendar Year	DATE	
0960-00012	1992	2/23/94	

2	3	4	5	6	7	
Reference Number	Manufacturer & Model Number	Rated Capacity 10^6 BTU/hr	Type of Burner Unit (Use Code 1*)	Usage (Use Code 2*)	Most Usage % Process	% Space Heat
01	Wellons/Nebraska	37.5	1	1	100	0
	WTS-2-45-SH					
02	Murray Boiler, M64C,	28.5	8	1	100	0
	Size 135					

1* BURNER CODES
1. Cyclone Furnace
2. Pulverized Coal
3. Spreader Stoker
4. Hand Fired
5. Other Stoker (Specify)
6. Multiple Port Gas
7. Forced Draft Gas
8. Atomizing Oil (Stove of Air)
9. Atomizing Oil (Mechanical)
10. Rotary Cup Oil
11. Others (Specify)

2* USAGE CODES
1. Boiler, Steam
2. Boiler, Other (Specify)
3. Air Heating for Space Heating
4. Air Heating for Process Usage
5. Others (Specify)

FUEL BURNING EQUIPMENT

Reference Number	Stack Parameters: Stack Height Feet	Inside Exit Diameter Feet	Exit Gas Velocity Feet/Sec.	Exit Gas Temperature Degree F.	Fuel Data: Fuel Type	Maximum Amount Per Hour (Specify Units)	Amount Per Year (Specify Units)	Heat Content BTU/Gal, etc. (Specify Units)	Percent Sulfur	Percent Ash
01	80	3.0	55	350	Wood-Unt.	8,580 lb/hr	37,580 TN/YR	4,000 BTU/lb	0	4.0
					Waste Creosote & Pentachlorophenol					
					Treated Wood	7,150 lb/hr	31,320 TN	6,000 BTU/lb	0.12	5.0
02	36	2.5	32	570	#2 Oil	3.4 gpm	52,900 gal	18,000 BTU/lb	0.30	0

FUEL SUPPLIERS:

Fuel Type	Supplier
#2 Oil	Grifts Oil, Grenada

FUEL BURNING E[illegible]MENT

11 Reference Number	12 Air Pollution Control Equipment				13 Emissions (Tons/Year)			Basis of Estimates
	Manufacturer & Model Number	Type* (Use Table 1)	Efficiency Design	Efficiency Actual	Particulate	SO_2	Other (Specify)	
01	Wellons Multiclone	31,32	90%	90%	27		*	5-88 Test
	Collector				36.8			7-84 Test
02	None				0.05	1.13	*	AP-42

* See Emissions Inventory at Tab 2

*For Wet Scrubber give Gallons per minute Water Flow and Water Pressure if known.

CONTROL EQUIPMENT COVERED UNDER THIS APPLICATION - PLEASE CHECK ALL APPLICABLE AND INDICATE NUMBER OF UNITS

PARTICULATE EMISSIONS CONTROL EQUIPMENT

1. Cyclone(s) 2
2. Water Scrubber ______
3. Baghouse ______
4. Electrostatic Precipitator ______
5. Venturi Scrubber ______
6. Cyclonic Baghouse ______
7. Cyclonic Scrubber ______
8. Other ______

GASEOUS EMISSIONS CONTROL EQUIPMENT

1. Water Scrubber ______
2. Activated Carbon Bed ______
3. Other ______

WASTE DISPOSAL SYSTEMS

1. Solid Waste Incinerator ______
2. Liquid Waste Incinerator ______
3. Wood or Other Waste Fuel Recovery Boiler 1
4. Gaseous Waste Flare ______
5. Liquid Waste Flare ______
6. Other ______

Pneumatic Conveying System ______

Other (please describe)

MANUFACTURING PROCESS OPERATIONS

COMPANY NAME	ADDRESS	For Agency Use Only
Koppers Industries Inc	Tie Plant Road Tie Plant, MS	

FACILITY NUMBER	Information for Calendar Year	DATE
0960-00012	1992	11/ /93

Reference Number	Process or Unit Operation Name	Rated Process Capacity Tons/Hour	Feed Input Quantity Per Hour	Feed Input Quantity Per Year	Number of Emission Points to Air	Product Output* Quantity Per Hour	Product Output* Quantity Per Year
03	Wood Preserving			2,332,000 Cubic Feet	23 *		2,332,000 Cubic feet
	* Number of emission points is per flow diagram and						
	includes fugitive emissions.						
04	Tie Mill			415 C.F.	1		415 C.F.

* Specify Units of Measure Used

MANUFACTURING PROCESS OPERATIONS

Reference Number	Stack Data				Air Pollution Control Equipment			
	Height Feet	Inside Unit Dia. Feet	Exit Gas Velocity Feet/Sec.	Exit Gas Temperature °F	Manufacturer and Model Number	Type* (Use Table 1)	Collection Efficiency Design	Actual
03	—	NA	—	—	None			
04					Cyclone	30		

*For Wet Scrubbers Give Gallons Per Minute Water Flow and Water Pressure if Known.

MANUFACTURING PROCESS OPERATIONS

11 Reference Number	12 Process Emissions* Particulate	Sulfur Oxides	Others (Specify by chemical composition)	Basis for Estimation	(Agency Comments Only)
03	0	0			
		Pentachlorophenol	38 lb/YR	Emis. Factors, AP-42	
		Creosote*	6.8 Tons/YR	Emis. Factors, Tests, + AP-42	
	*Emissions are volatile constituents of creosote and are considered to be VOC's.				
04	1.28 Ton/YR			Emission Factors	
	2 lb/hr			" "	

*Please Express Emissions as Tons per Year and Pounds per Hour and Identify Units Being Used

REFUSE DISPOSAL AND INCINERATION

A Company Name	Information for Year	(Agency Use Only)
Koppers Industries Inc	1993	
Address	**Date**	
Tie Plant Road Tie Plant, MS	11/ /93	

B	C	D	E
Description of Waste Materials Type (Describe)	Maximum Amount Per day (Pounds)	Amount Per Year (Tons)	Method of Disposal 1*
Wood Waste - Untreated	205,920 (1)	37,580	5
Used treated wood containing creosote and/or pentachlorophenol	171,600 (2)	31,317	5

If Waste Disposal is by Incineration, Specify the Following:

1. Type of Incinerator: Single Chamber ☐ Multiple Chamber ☐ Modified (describe) ☐ Other (Describe) ☐ Rotary ☐ Flue Fed ☐

See "Fuel Burning Equipment" forms.

2. Manufacturer's Name ______ Model Number ______
   Rated Capacity ______ Pounds/Hour
3. Quantity Burned: ______ Pounds/Day
   ______ Tons/year
4. Operating Schedule: ______ Hours/Day ______ Days/Year

(1) This is maximum under existing permit.

(2) By this application, Koppers seeks to use used treated wood containing creosote and/or pentachlorophenol as an alternate primary boiler fuel. Total amount will not exceed amount shown at (1).

***1 Disposal Method Codes**

1. Open Burning
2. Landfill (No Burning)
3. Incinerator (Complete Rest of Form)
4. Conical Burner (TeePee)
5. Burned in Boiler or Furnace
6. Other (Specify)

APP-HP.20

REFUSE DISPOSAL AND INCINERATION
Page 2

5. Auxiliary Fuel:
   - Type ______________________
   - Amount/Year (Specify Unit) ______________________
   - Heat Content ______________________
   - Percent Sulfur ______________________
   - Percent Ash ______________________
   - Supplier's Name ______________________

6. Pollution Control Equipment:
   - Manufacturer ______________________
   - Model Number ______________________
   - % Efficiency ______________________
   - Type ______________________
   - GPM Water Flow (If Wet Scrubber) ______________________

7. Stack Data:
   - Height ____________ Feet
   - Inside Exit Diameter ____________ Feet
   - Exit Gas Velocity ____________ Feet/Sec
   - Exit Gas Volume ____________ SCFM
   - Exit Gas Temperature ____________ °F

8. Estimated Emissions from Refuse Incineration:

Name:	Basis of Estimates:
Particulates ____________ Tons/Year	______________
Sulfur Oxides ____________ Tons/Year	______________

See "fuel burning equipment" forms.

09-Mar-94 emis-inv

EMISSION INVENTORY CALCULATION
KOPPERS INDUSTRIES, INC. - GRENADA

#01-BOILER, WOOD FIRED
Wood Burned (tn/yr): 37580

Boiler Emissions

Pollutant	Emission Factor	Units	Basis	Estimated Emission	Units
Particulate	1.44	lb/tn	5/88 Test	27.06	tn/yr
SO2	0.015	lb/tn	AP-42	0.28	tn/yr
NOX	0.68	lb/tn	AP-42	12.78	tn/yr
CO	20	lb/tn	AP-42	375.80	tn/yr
VOC	1.4	lb/tn	AP-42	26.31	tn/yr
Arsenic	8.24E-06	lb/tn	CA-ARB	0.0002	tn/yr
Cadmium	4.61E-05	lb/tn	CA-ARB	0.0009	tn/yr
Chromium	5.44E-05	lb/tn	CA-ARB	0.0010	tn/yr
Lead 0.6	3.95E-05	lb/tn	CA-ARB	0.0007	tn/yr
Manganese	1.99E-02	lb/tn	CA-ARB	0.3738	tn/yr
Nickel	1.02E-04	lb/tn	CA-ARB	0.0019	tn/yr
Selenium	0.00E+00	lb/tn	CA-ARB	0.0000	tn/yr
Mercury 0.1	3.43E-06	lb/tn	CA-ARB	0.0001	tn/yr

PSD Increment (TPY)

#02(b)-BOILER, FUEL OIL
Oil Burned(MGal/yr): 52.9 Sulfur Content: 0.300 %

Pollutant	Emission Factor	Units	Basis	Estimated Emission	Units
Particulate	2	lb/MGal	AP-42	0.05	tn/yr
SO2	42.6	lb/MGal	AP-42	1.13	tn/yr
NOX	20	lb/MGal	AP-42	0.53	tn/yr
CO	5	lb/MGal	AP-42	0.13	tn/yr
VOC	0.2	lb/MGal	AP-42	0.01	tn/yr

HAP info is from 1992 Data

#03-WOOD PRESERVING PROCESSES

Pollutant	Emission Factor	Units	Basis	Estimated Emission	Units
HAPs(Creosote/VOC)	N/A		Form R	6.80	tn/yr
Pentachlorophenol	N/A		Form R	0.019	tn/yr

#04-CYCLONES FOR WOOD MILLING

Number of Cyclones:	1
Ave. Hours/Day:	8
Ave Days/Yr Each:	160
Total Hours:	1280

Pollutant	Emission Factor	Units	Basis	Estimated Emission	Units
Particulate	2	lb/hr	AP-42	1.28	tn/yr

TOTAL PLANT EMISSIONS

Particulate	28.39	tn/yr
SO2	1.41	tn/yr
NOX	13.31	tn/yr
CO	375.93	tn/yr
VOC	33.13	tn/yr
HAPs(Organics/VOC)	6.82	tn/yr
HAP Metals	0.38	tn/yr

TAXABLE TOTAL (exc CO,HAP) .... 76.61 tn/yr gm

07-Mar-94

GRENADA BOILER EMISSIONS - ESTIMATE WORKSHEET

	UNITS	<---Grenada-5/88 Stack Test--- Untreated Wood Fuel Background	400 #/hr Creosote Fuel Additive	800 #/hr Creosote Fuel Additive--->	400 #/hr Penta Fuel Additive	<---Other Relevant Test Data--- Montgomery Untreated Wood Fuel 3/88 Test	Montgomery Penta/Oil Treat.Wood 3/88 Test	Montgomery Creo + PCP Treat.Wood 3/88 Test	Montgomery Creosote Treat.Wood 3/88 Test	Monlgomery Averages 3/88 Tests--->	CA ARB Pooled Testing Site #2	CA ARB Pooled Testing Site #2
Steam Production	lb/hr	30000	28000	28000	28000	24000	24000	24000	24000	24000		68000
Fuel Heat Value	BTU/lb	5000	5000	5000	5000	5000	6988	8155	8523	7889		5000
Fuel Use Rate	ton/hr	4.29	4.00	4.00	4.00	3.43	2.45	2.10	2.01	2.19		9.71
Particulate Emission	lb/hr	6.16	7.25	11.57	8.50	10.74	8.32	7.50	6.17	7.33		16.00
Particulate Em. Factor	lb/ton	1.44	1.81	2.89	2.13	3.13	3.39	3.57	3.07	3.35		1.65
Gas Flow Rate	dscf/m										Units as	30000
CONSTITUENT											reported	
NON-CARCINOGENIC PAH'S											(ug/dscm)	
Napthalene	lb/hr	5.42E-03	4.24E-03	2.54E-03			1.10E-02	1.78E-02	4.73E-03	1.12E-02	200	2.24E-02
Acenaphthylene	lb/hr	6.83E-04	9.29E-04	3.63E-04			3.27E-04	1.51E-03	6.41E-05	6.34E-04	0.28	3.14E-05
Acenaphthene	lb/hr	2.19E-03	2.34E-03	1.31E-03		NOT	7.63E-04	8.88E-04	4.88E-04	7.13E-04	0.01	1.12E-06
Fluorene	lb/hr	1.91E-03	1.35E-03	7.61E-04			1.15E-04	5.70E-04	1.58E-04	2.81E-04	0.03	3.37E-06
Phenanthrene	lb/hr	4.95E-03	3.25E-03	1.75E-03		TESTED	5.55E-04	7.50E-04	3.68E-04	5.58E-04	0.42	4.71E-05
Anthracene	lb/hr	6.74E-04	3.69E-04	1.85E-04			3.73E-05	5.69E-05	3.30E-05	4.24E-05	0.01	1.12E-06
Fluoranthene	lb/hr	1.04E-03	6.49E-04	2.66E-04			1.64E-04	2.07E-04	8.07E-05	1.51E-04	0.39	4.38E-05
Pyrene	lb/hr	6.34E-04	4.35E-04	1.49E-04			1.26E-04	1.66E-04	7.75E-05	1.23E-04	0.24	2.69E-05
TOTAL	lb/hr	1.75E-02	1.36E-02	7.32E-03	0.00E+00		1.31E-02	2.20E-02	6.00E-03	1.37E-02		2.26E-02
CARCINOGENIC PAH'S												
Benzo(a)anthracene	lb/hr	2.70E-04	1.68E-04	3.78E-05			1.48E-05	1.96E-05	1.10E-05	1.51E-05	0	0.00E+00
Chrysene	lb/hr	2.73E-04	1.52E-04	4.63E-05			3.93E-05	4.78E-05	2.53E-05	3.75E-05	0.05	5.61E-06
Benzo(b)fluoranthene	lb/hr	6.42E-05	2.82E-05	1.02E-05			6.60E-06	6.10E-06	3.60E-06	5.43E-06	0.06	6.73E-06
Benzo(k)fluoranthene	lb/hr	2.42E-05	1.05E-05	4.20E-06			4.70E-06	4.20E-06	2.60E-06	3.83E-06	0.06	6.73E-06
Benzo(a)pyrene	lb/hr	2.84E-05	1.34E-05	9.40E-06			1.30E-06	1.30E-06	1.80E-06	1.47E-06	0.01	1.12E-06
Dibenz(a,h)anthracene	lb/hr	6.79E-05	2.28E-05	1.07E-05			2.00E-06	1.90E-06	1.90E-06	1.93E-06	0	0.00E+00
Benzo(g,h,i)perylene	lb/hr	4.36E-05	1.98E-05	8.10E-06			1.65E-05	2.10E-05	7.40E-06	1.50E-05	0.01	1.12E-06
Indeno(1,2,3-cd)pyrene	lb/hr	3.29E-05	7.30E-06	5.40E-06			8.00E-06	7.70E-06	3.20E-06	6.30E-06	0.01	1.12E-06
TOTAL	lb/hr	8.04E-04	4.22E-04	1.32E-04			9.32E-05	1.10E-04	5.68E-05	8.65E-05		2.24E-05
OTHER CONSTITUENTS												
Carbazole (anthracene)	lb/hr	9.61E-05					6.52E-05	6.30E-05	6.41E-05	6.41E-05		
Pentachlorophenol	lb/hr				1.05E-04		5.34E-04	4.83E-04	3.40E-04	4.52E-04		
FACTORS												
Non-Carcin. PAH Emission	lb/ton	4.08E-03	3.39E-03	1.83E-03			5.34E-03	1.05E-02	2.98E-03	6.26E-03		2.33E-03
Carcin. PAH Emission	lb/ton	1.87E-04	1.05E-04	3.30E-05			3.80E-05	5.21E-05	2.82E-05	3.95E-05		2.31E-06
Pentachlorophenol Emis.	lb/ton				2.62E-05		2.18E-04	2.30E-04	1.69E-04	2.06E-04		
PROJECTED ANNUAL EMISSIONS at 30,000 lb/hr STEAM												
Particulate	ton	27.0	31.8	50.7	37.2		45.5	41.1	33.8	40.1		30.92
Non-Car. PAH	pounds	153.2	118.8	64.1			143.5	240.8	65.7	150.1		87.32
Car. PAH	pounds	7.0	3.7	1.2			1.0	1.2	0.6	0.9		0.09
Pentachlorophenol	pounds				1.0		5.8	5.3	3.7	4.9		

METALS EMISSIONS EVALUATION PER CA-ARB POOLED TEST DATA

	Reported Data	Reported Units	Converted to Lb/Hr	Emis.Fact. (lb/ton)	Projected Ann. Emis. (pounds)
Arsenic	5.00	ug/gram	8.00E-05	8.24E-06	0.31
Cadmium	28.00	ug/gram	4.48E-04	4.61E-05	1.73
Chromium	33.00	ug/gram	5.28E-04	5.44E-05	2.04
Lead	24.00	ug/gram	3.84E-04	3.95E-05	1.48
Manganese	12077.00	ug/gram	1.93E-01	1.99E-02	746.78
Nickel	62.00	ug/gram	9.92E-04	1.02E-04	3.83
Selenium	0.00	ug/gram	0.00E+00	0.00E+00	0.00
Mercury	0.30	ug/dscm	3.33E-05	3.43E-06	0.13

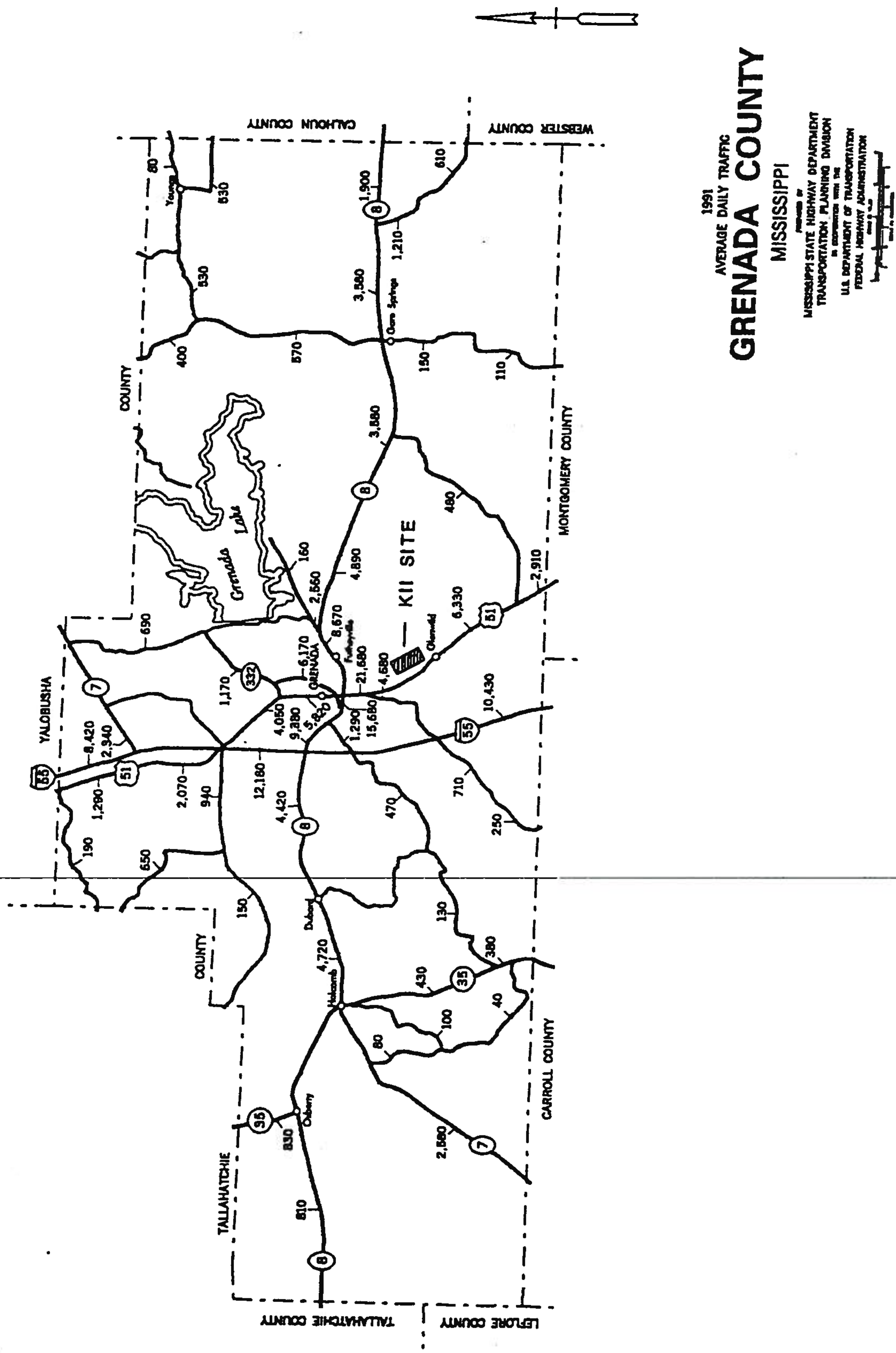
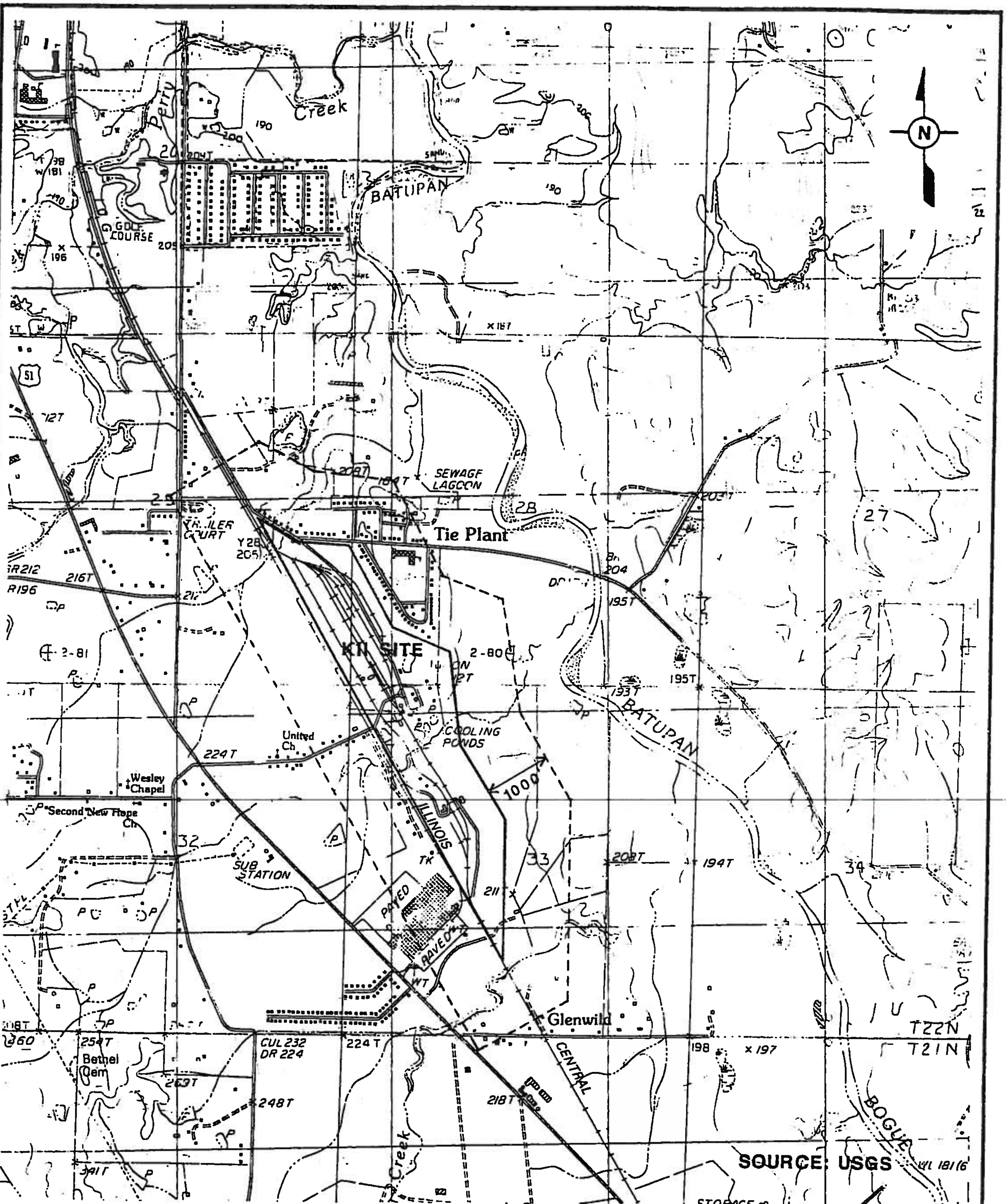


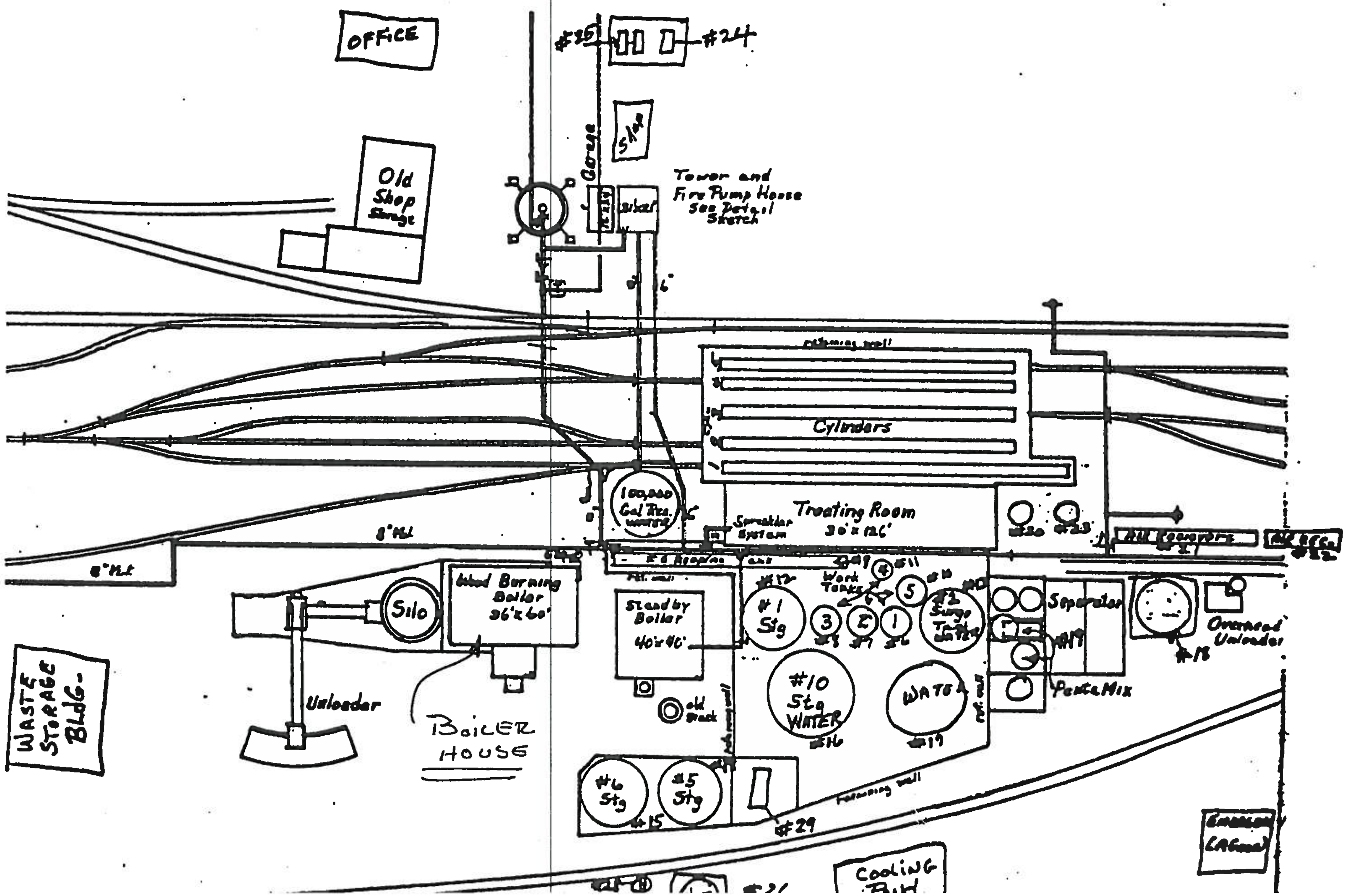
FIGURE 2

GRENADA COUNTY 22



KOPPERS INDUSTRIES, INC. GRENADA, MISSISSIPPI	**Woodward-Clyde Consultants** Consulting Engineers, Geologists and Environmental Scientists Baton Rouge, Louisiana		SITE LOCATION AND SURFACE FEATURES	FILE NO. 91B432C
	SCALE: 1" = 2000'	DRAWN BY: KPQ DATE: 07/01/92		FIG. NO. 4
		CHKD. BY: A. Duhon DATE: 6/7/92		

Plot Plan, Grenada Plant, Koppers Industries, June 5, 1991
TANK LISTING (FIGURE)
Koppers Industries, Grenada Plant



BUILDING DIMENSIONS

Building	Height (ft)	Length (ft)	Width (ft)	Diameter (ft)
Silo	55			26
Boiler Room	38	60	36	
Standby Boiler	22	40	40	
Water Tower	100			30
Tank No. 6	27			30
Tank No. 5	31			27
Tank No. 1	39			29
Tank No. 10	39			38.5

BASIS FOR INFORMATION

The following provides a description of the wood preserving and wastewater treatment processes at the Koppers Industries, Inc., Grenada, Mississippi plant. The information presented is based on calendar year 1992.

General Operations: This wood treatment facility operates 24 hours per day, 6 days per week, 300 days per year. The facility treats ties, lumber and poles made from dry and green oak, pine and mixed hardwood. A total of 2,331,516 ft^3 of wood was treated in 1992.

1. A waste wood boiler supplies steam for all of the plant's heating needs. Fuel for the boiler consists of waste wood scraps, chips and peelings.

2. The plant has a total of five treating cylinders, two are dedicated to Creosote, two are dedicated to pentachlorophenol (PCP), one is used for steam conditioning of untreated wood. All cylinders measure 6 feet in diameter; four are 130 feet in length and one of the PCP cylinders is 160 feet in length.

3. Creosote Treatment Process (See Figure 1 for Flow Diagram)

   a. A 60/40 Creosote/coal tar mixture and grade 1 Creosote are delivered to the plant in heated rail cars or tank truck. The Creosote is stored in a 111,666 gallon storage tank and the 60/40 mixture is stored in two 29,800 gallon work tanks. There is another 29,800 gallon work tank dedicated to Creosote and two other 4,200 gallon vertical work tanks and two 22,400 gallon horizontal work tanks used for both grade 1 Creosote and the 60/40 mixture. The storage and work tanks are maintained at approximately 200°F. The Creosote is transferred from the work tanks to the treating cylinders for wood ~~treatment and the Creosote is transferred back to the wood tanks~~ after treatment.

   b. The Boulton process is used to condition or remove moisture from only green oak ties prior to treatment with Creosote. In this process, the cylinder is filled with preservative, and a 25-inch Hg vacuum is pulled on the cylinder. Vapors from the cylinder are condensed in a shell and tube condenser, and the condensate is collected in the Creosote blowdown tank. Boultonizing lasts approximately 12 hours. After Boultonizing, the Creosote is drained from the cylinder and returned to the work tank. During this blow back, the vapors in the work tank are displaced by the Creosote and are vented to the atmosphere.

   Steaming and vacuum are also used to precondition dry pine poles to remove moisture from green pine lumber and poles prior to treatment with Creosote. The green pine lumber and poles are steamed in the cylinder from 10 to 12 hours. The dry pine poles are steamed in the cylinder for 3 hours. After steaming is complete, a 25-inch Hg vacuum is pulled on the cylinder for 2 to 3 hours. Vapors from the cylinder are condensed in a shell and tube condenser, and the condensate is collected in the Creosote blowdown tank.

c. After conditioning, the wood is treated with Creosote using the Rueping process. Except for oak ties, which do not require initial air pressure, the cylinder is initially pressurized with air to between 50 and 60 psi. Then, for all wood, Creosote is added to the cylinder and heated. The cylinder is further pressurized at 150 to 180 psig, and the pressure is maintained for 3 to 4 hours until the desired product retention is reached. After pressurization, the Creosote is drained from the cylinder and returned to the work tank. During this blow back, the vapors in the work tank are displaced by the Creosote and are vented to the atmosphere.

d. Following treating, a 25-inch Hg vacuum is pulled on the cylinder for a period of 2 to 2-1/2 hours.

e. The vacuum needed for Boultonizing and the Rueping process is maintained by a water sealed vacuum pump. Vapors removed from the cylinder are sent to a shell and tube condenser. Condensate from the condenser collects in the Creosote blowdown tank and from there is transferred to the wastewater treatment system. Vapors from the vacuum pump are vented directly to the atmosphere.

4. Pentachlorophenol Treatment Process (See Figure 1 for Flow Diagram)

a. Concentrated 40% PCP and diesel fuel solvent are delivered to the plant separately, stored in separate tanks, mixed in the PCP mix tank, and the 8.5% PCP stored in the two 29,800 gallon work tanks. The 10,800 gallon 40% PCP storage tank and the two 8.5% PCP tanks vent to the atmosphere.

b. Green pine poles are conditioned in the PCP cylinder by steaming and vacuuming prior to treatment with PCP. Vapors from the cylinder are condensed in a shell and tube condenser and the condensate is collected in the PCP blowdown tanks. The steam from the cylinder is vented to blowdown tanks. The green pine poles are steamed in the cylinder for approximately 12 hours. After steaming is complete, a 25-inch Hg vacuum is pulled on the cylinder for 2 to 4 hours. Vapors from the cylinder are condensed in a shell and tube condenser, and the condensate is collected in the PCP blowdown tanks. Steaming only 1-1/2 hours is used to precondition dry pine poles prior to PCP treatment.

c. The treatment process used in the PCP unit is identical to the one used in the Creosote unit. The pine poles are pressure treated with PCP for 1/2 to 1 hour.

d. Following treatment with PCP, the dry and green pine poles are placed under a 25-inch Hg vacuum for 2 hours.

<u>Creosote and PCP Wastewater Treatment System</u> (See Figure 2 for Flow Diagram)

The process condensate from the Creosote blowdown tank is transferred to the surge tank. PCP process water from the PCP blowdown and work tank is sent to the primary and secondary PCP separators, where PCP is separated out and returned to the PCP work tanks and the separated water goes to the surge tank. The oil/water from the surge tank and the stormwater tank is separated in the API Separator and the heavier Creosote is dehydrated in two (2) dehydrators and returned to the Creosote work tanks. The water from the API Separator is processed through an aeration tank and a clarifier and then discharged off site to the POTW.

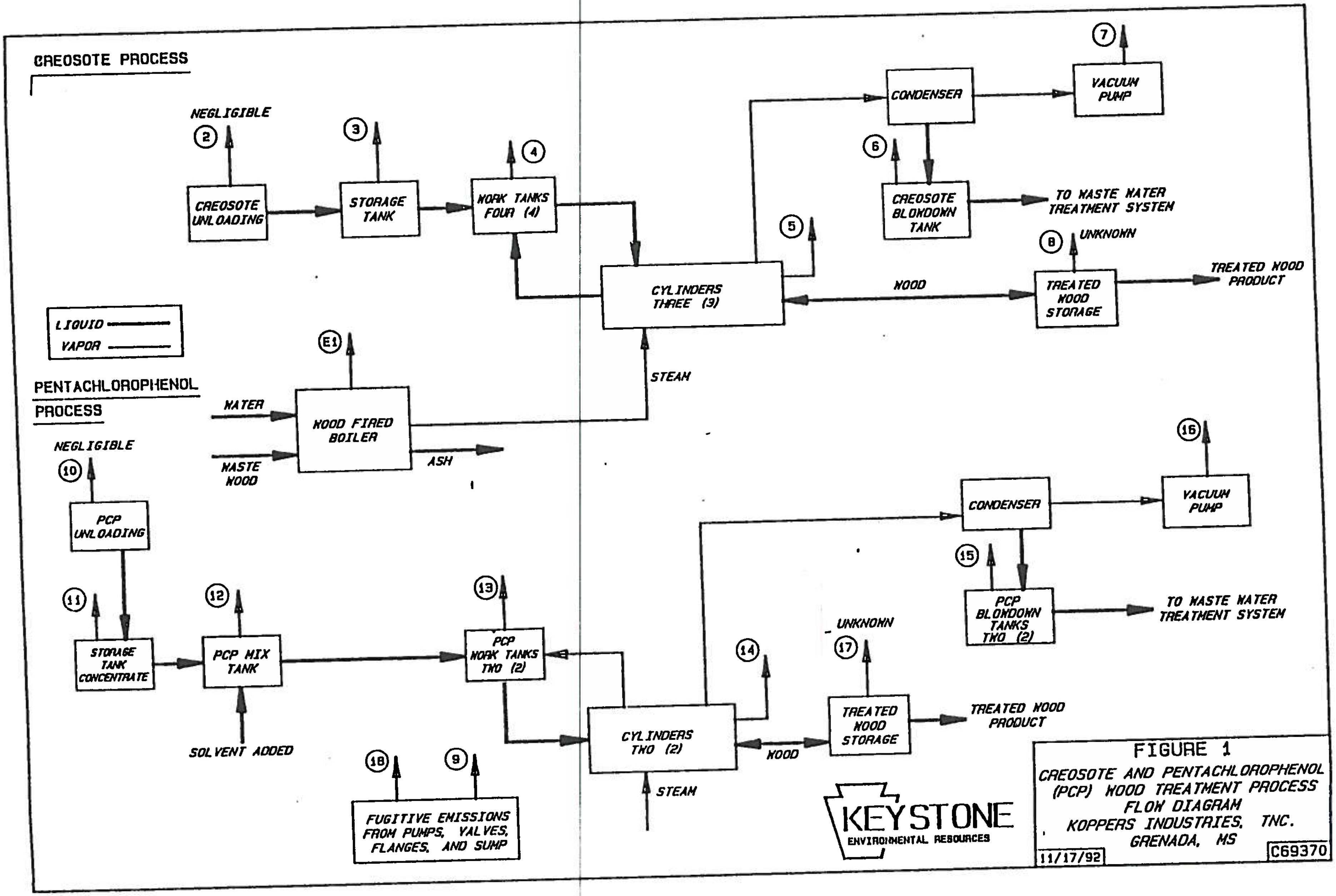
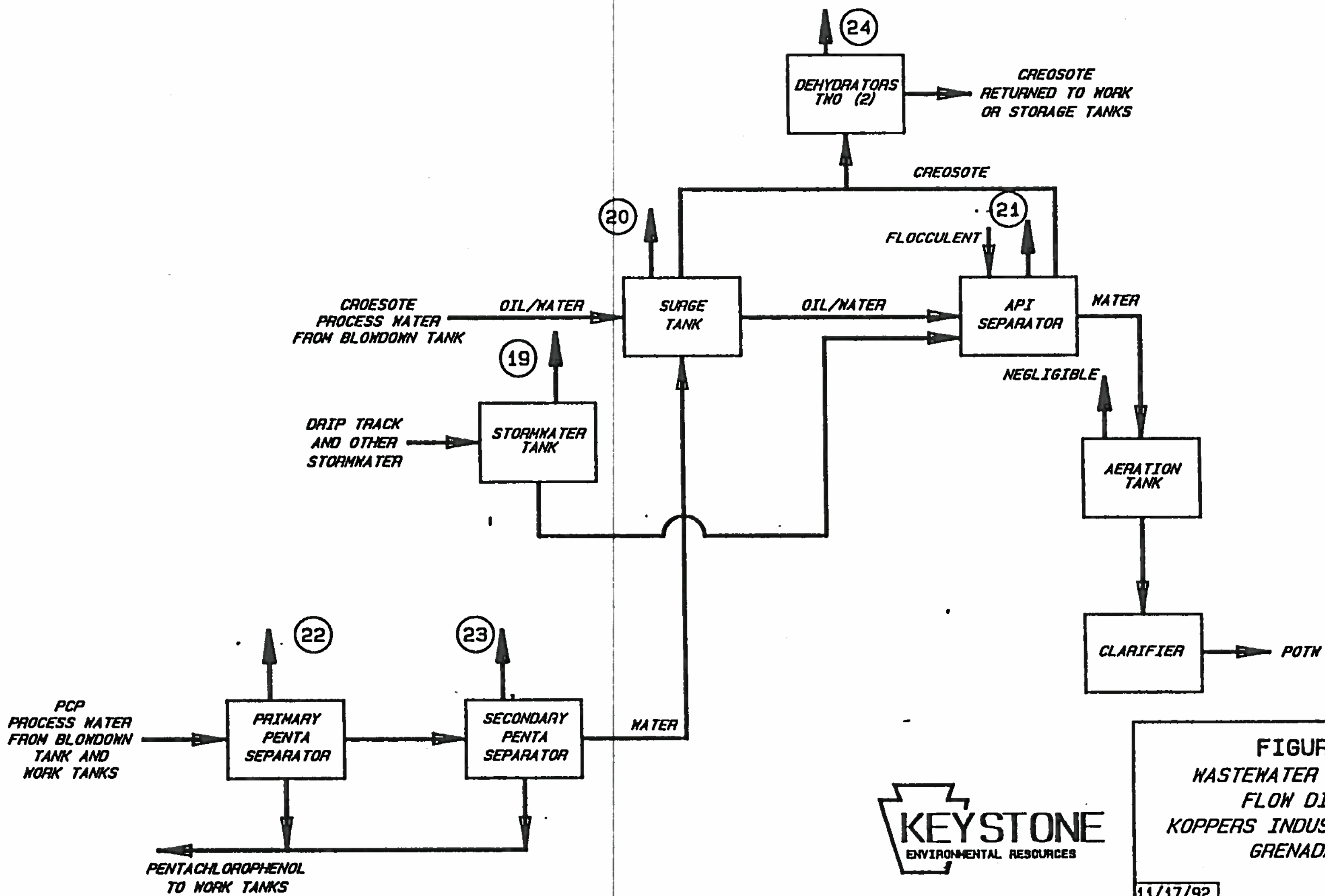


FIGURE 1
CREOSOTE AND PENTACHLOROPHENOL (PCP) WOOD TREATMENT PROCESS FLOW DIAGRAM
KOPPERS INDUSTRIES, INC.
GRENADA, MS
11/17/92
C69370

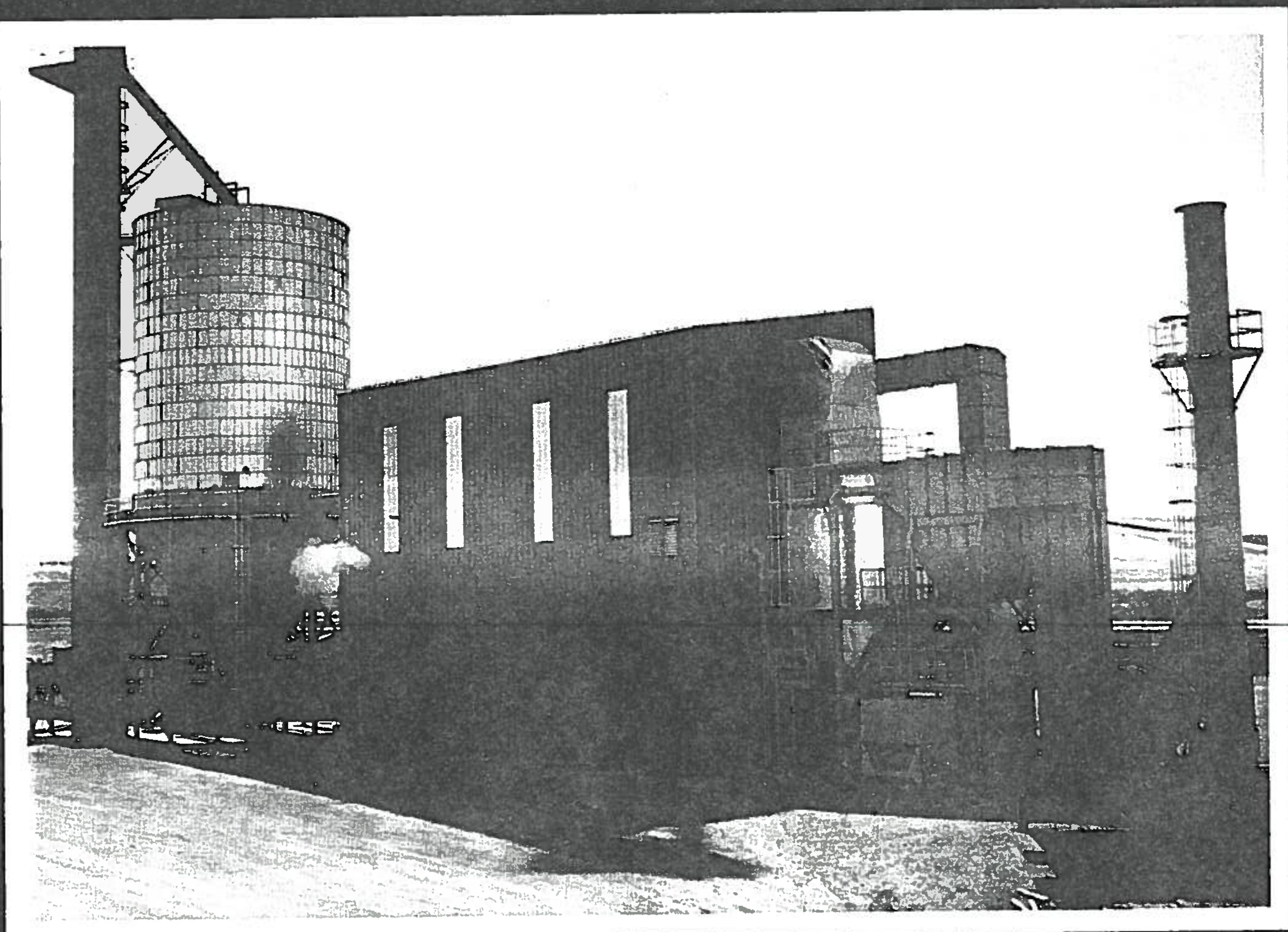


KEYSTONE ENVIRONMENTAL RESOURCES

FIGURE 2
WASTEWATER TREATMENT
FLOW DIAGRAM
KOPPERS INDUSTRIES, INC.
GRENADA, MS

11/17/92 C69371

WELLONS WOOD FIRED



BOILER SYSTEMS

WOOD TO STEAM ENERGY

The Wellons Wood Fired Boiler System is time-proven, with over 20 years of experience and over 125 systems now in operation. Steam generating capacities range from 3000 PPH to 60,000 PPH with factory assembled boiler units. Sizes over 60,000 PPH utilize field erected boilers. (Request bulletin 683 covering these larger units.) (Front cover photo: A 60,000 PPH Wellons wood-fired system in California, with boiler and storage bin.)

Wellons Presents

- THE CYCLO-BLAST FURNACE SYSTEM - efficient combustion of wood fuel.
- THE POSI-FLO STORAGE BIN - a reliable, automatic fuel supply.
- LOW EMISSIONS - efficient combustion and thorough design.
- RELIABILITY - ease of operation, ruggedly built.
- EFFICIENCY - low operating horsepower needs.
- QUALITY - an ASME code facility.
- COMPLETE SERVICE - engineering, installation, training, startup, field service, and replacement parts service.

Cyclo-Blast Furnace

The Wellons Cyclo-Blast furnace burns any combination of hogged wood, sawdust, bark, planer shavings, sanderdust and other woody fuels. Wet or dry - no gas or oil fuel supplement is required for start-up or operation. A 3" maximum particle size is recommended for ease of handling.

A refractory lined chamber provides the necessary conditions for efficient combustion.

The combustion system is designed for varying fuel characteristics - up to 50% moisture content (half fuel and half water).

Wood gasification occurs on Wellons water-cooled grates; particles are intentionally kept out of suspension -most non-combustibles (ash-dirt-minerals) are collected on the grates for easy removal - access to the grate is convenient. This results in minimum particulate in the combustion gases, requiring only a multicone collector to achieve low particulate emissions levels.

Control is fully automatic. The furnace quickly responds to changing demands and maintains the proper balance for clean, efficient combustion. Heat output can be varied up to 5:1 with a single Cyclo-Blast cell. High rate changes are achieved with multiple cell installations.

Emissions

The Wellons cell furnace system's unique firing process not only maximizes combustion efficiency through complete combustion and precise air control, but also provides positive benefits to the reduction of emissions.

Because char carry-over from the furnace system is minimal, reinjection is not required, and the need for high efficiency (and energy consuming) collection devices on the stack are eliminated or reduced.

Wellons Storage Bin

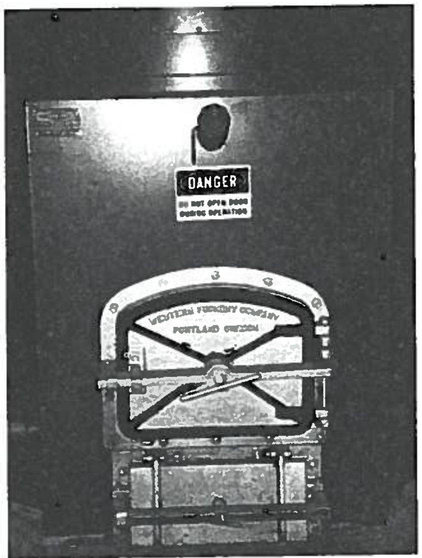
The most important link making Wellons power plants truly automatic is the Wellons Posi-Flo storage bin.

Unique in the industry, the Wellons Posi-Flo agitator undermines the very key of an arch or bridge within the storage bin. Any bin will "bridge" if the necessary conditions are set up — inactivity, particle shape, moisture content, compaction or interlocking of fuel particles that increase the "shear" strength of the mass. The Posi-Flo agitator is designed with the assumption that bridging is a constant probability. It saws its way around the periphery of the cone, feeding the loosened material down to the feedout augers below.

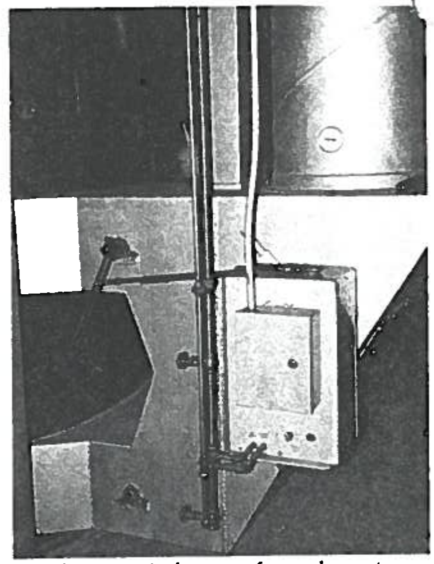
Minimum service or maintenance is required since the mechanical conveying equipment in the bin is simple and effective. Gravity performs the greatest portion of the conveying in a Wellons bin which reduces the power consumption to lowest levels.

The Wellons Posi-Flo storage bin is available in 24 standard sizes with usable storage capacities from 10 to 152 units of wood fuel. (One unit equals 200 cubic feet.)

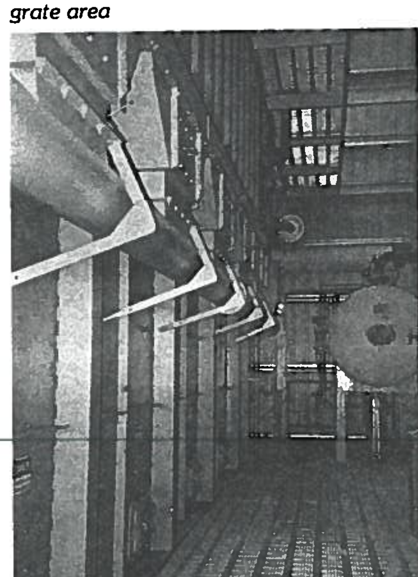
Our bulletin #286 provides additional information on the Wellons storage bin.



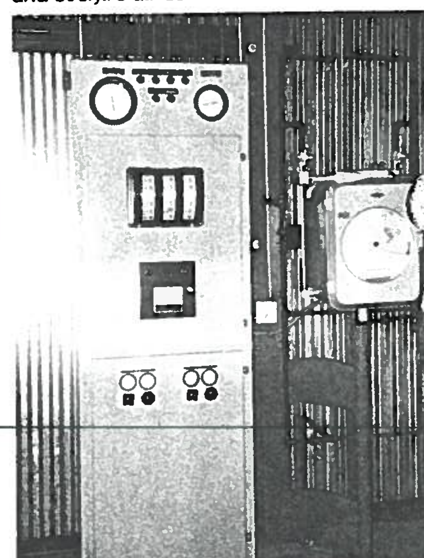
Cyclo-Blast Furnace - access doors to grate area



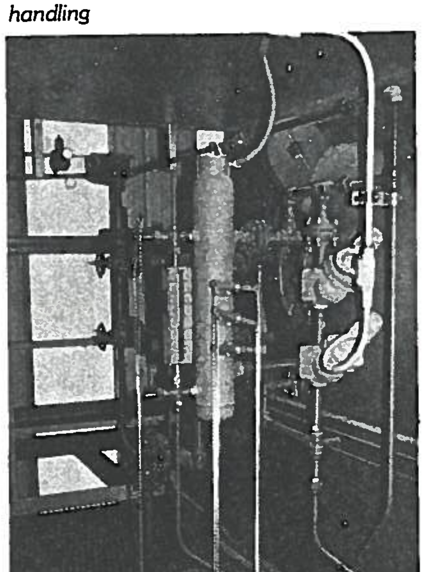
Combustion air dampers for undergrate and overfire air control



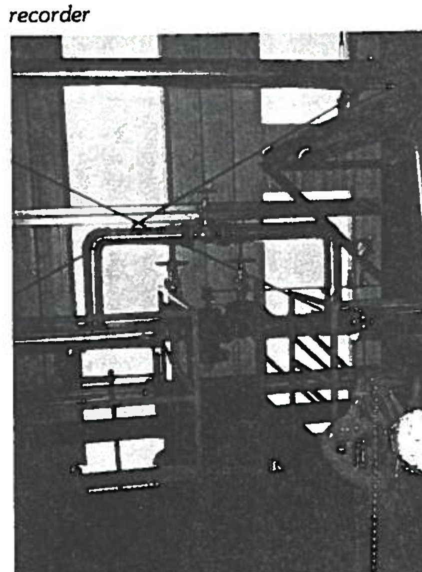
Ash drop out hoppers - pneumatic ash handling



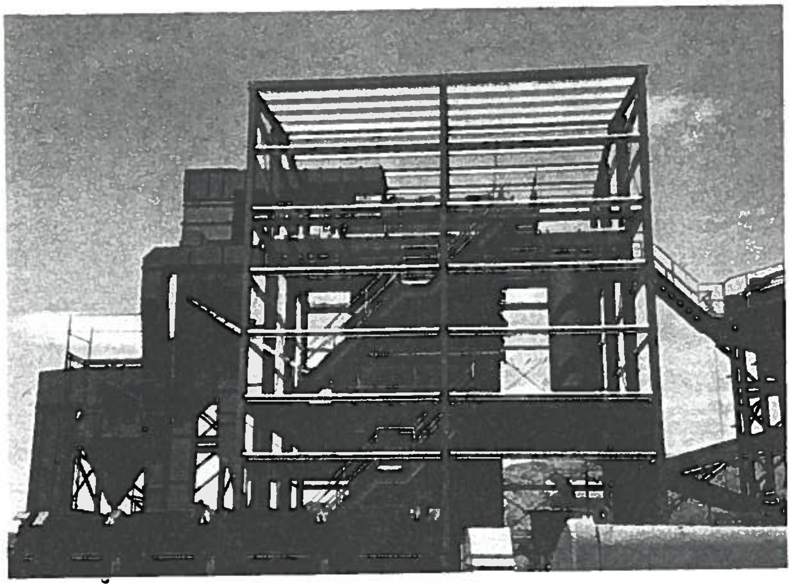
Combustion control panel and 24-hour recorder



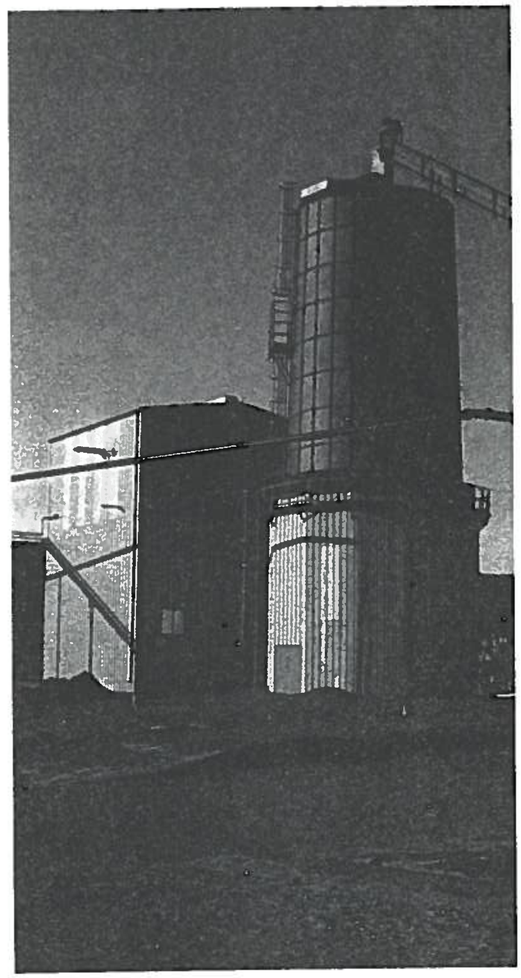
Water level and safety controls



Pressure reducing station - part of system piping



20,000 PPH system under construction in Washington. Stairways and decks provide convenient access to boiler equipment.



Completed 20.000 PPH system

Reliability and Quality

Wellons wood-fired boiler systems are designed for ease of operation and dependable service. Automatic controls minimize the need for operator attention. Experience gained from over 125 systems in service has resulted in a rugged, efficient, easy to operate design.

Wellons manufacturing plants are ASME code facilities, which provides our customers with the added assurance that a Wellons wood fired boiler is a quality system. We fabricate many of the components of our systems at our own facilites to ensure that they meet our standards.

Engineering/Installation/ Service

Wellons offers complete engineering and installation service for your total project. This includes fuel conveying and storage, furnaces and boilers, auxiliary equipment, boiler enclosures, steam main and condensate systems, combustion instrumentation, start-up services, operator training and field service for maintenance and troubleshooting.

Our replacement parts service is ready to help you obtain the replacement or repaired parts you need.

Modification of existing wood-fired boiler systems is a Wellons service. A Wellons modification to many systems can result in higher efficiencies and conformance with air pollution requirements.

We use our own personnel to install our systems when installation services are our responsibility. We can also provide supervision of your personnel if desired.

Efficiency and Power Savings

Using low air pressures and velocities, the fan electrical horsepower requirements are kept to a minimum.

Wellons storage bins utilize gravity. Our largest bin needs only 10½ horsepower total for fuel feed-out.

Our forced draft fan system draws warm inlet air from the upper level of the boiler building which increases efficiency. The combustion air also passes through a preheater (heat exchanger) in the stack to recover heat that would otherwise be wasted. Combined with minimum excess air requirements, highest possible efficiencies are obtained and maximum heat potential is extracted from the available fuel.

Where applicable, an optional economizer is provided which takes heat from the exhaust gases to preheat the feedwater, and further improve efficiency.

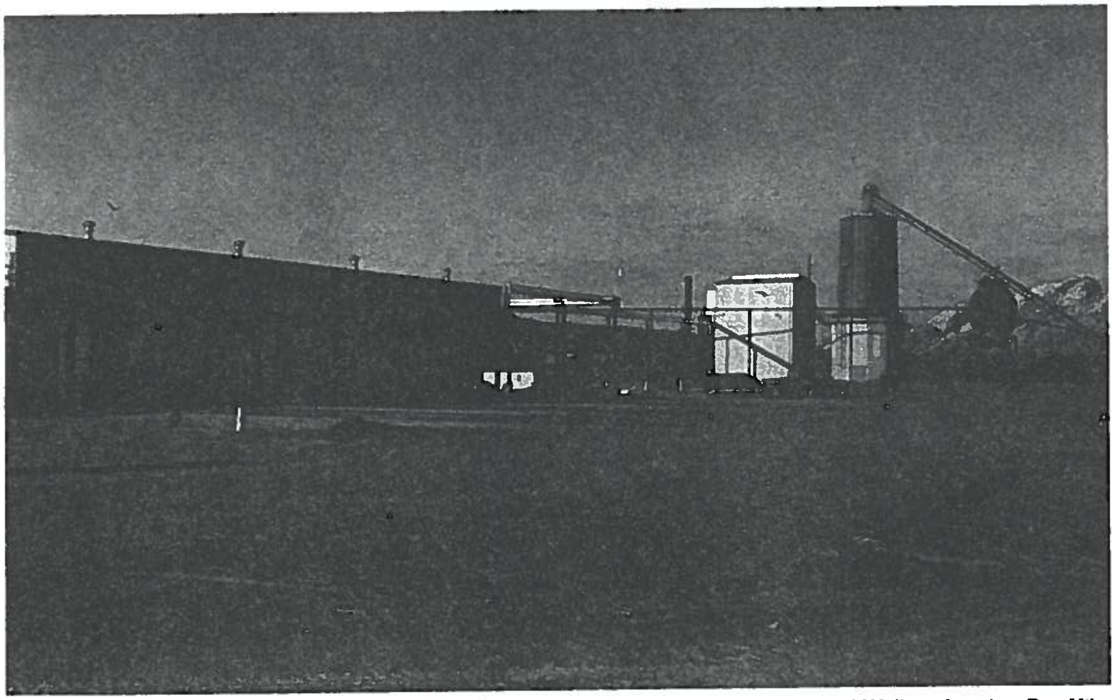
Combustion is completed within the furnace and combustion chamber. Because of clean boiler exhaust gases, high energy-using collection equipment is normally unnecessary, yielding further improved economies.

Auxiliary fuel burners are not required, even during start-up cycles.

Costly fuel preparation equipment such as hammermills, rotary drum dryers and elaborate conveyances are not required. The Wellons system requires only large pieces be hogged to a size that can be stored and fed to the furnace in a controllable manner.

TOTAL INSTALLED SYSTEMS

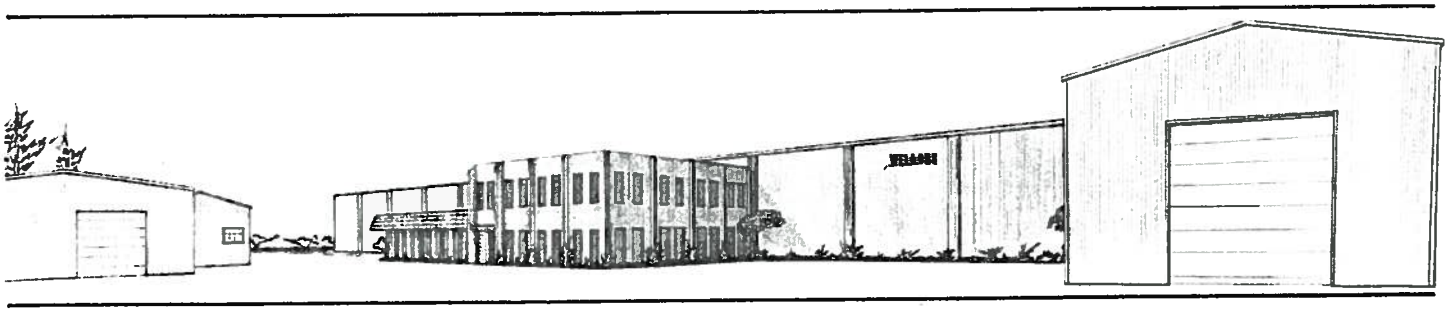
- ENGINEERING
- MANUFACTURING
- MANAGEMENT
- PROCUREMENT
- CONSTRUCTION
- EQUIPMENT INSTALLATION
- TRAINING
- STARTUP & TESTING
- FIELD MAINTENANCE SERVICE



A complete Wellons System with 20,000 PPH boiler, Wellons Posi-Flo Storage Bin and Wellons Lumber Dry Kilns.

U.S. Patents: 3027881 3215290 3330259 3339759 4098008 4233914 4266901

Canadian Patents: 1138193 1138426



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NEBRASKA Boiler, LINCOLN, NEB.

YEAR - 1978

MFG SER# 2D1806

NATIONAL BOARD # 1764

MAX AWP 200 PSIG

RATED STEAM capicity 30000 Lb/HR.

BLR. HTG. S. 4140 sq. ft.

Series W7525484

CONTINUOUS EMISSIONS MONITORING SYSTEM

The SNIFFER system is a completely integrated continuous emissions monitoring system. It includes probes, sample conditioning, gas analyzers, and a data acquisition and reporting system.

The system monitors the stacks and logs the data to disk in real-time. It also produces the required reports in fulfillment of the requirements of the Mississippi regulatory agency. This system is designed for optimum performance and reliability, minimizing down time and data loss. It is designed to anticipate future requirements for data collection, such as the addition of other monitoring instruments or the transfer of data from the system via telephone modem.

The following sections describe the various hardware elements of the system, as well as descriptions of the data collection and reporting being done for each pollutant or gas by-product which is to be monitored as part of the system.

This system is designed to provide compliance, in an easy-to-administer fashion, with the USEPA performance and siting specifications in USEPA 40 CFR Part 60 Appendix B US EPA BIF regulations. At the time of installation the system will be in full compliance with the applicable Mississippi state regulations and can be kept in compliance through the use of a maintenance contract.

1 DATA ACQUISITION HARDWARE

1.1 Processor

The data acquisition is designed around an IBM PC AT compatible. It consists of an 80486 based IBM PC AT compatible processor, four megabytes of memory, a 100 megabyte hard disk, a VGA color monitor, a keyboard and one dot matrix printer. Data collection is accomplished via a network of industrial input and output modules connected to a high speed local area network. This industry standard communication network provides for high speed data collection over long distances along with easy to install intelligent remote I/O.

1.2 Remote Data Collection Node

The remote data collection node is built around a series of intelligent input and output modules manufactured by General Electric. These modules are packaged for harsh industrial environments and communicate with the IBM PC AT compatible computer using the high speed industry standard RS-422. The use of the General Electric PLC 90/30 not only simplifies the design of the system and its maintenance, but also increases the reliability of the entire system.

Included in a typical system are analog-to-digital convertors which take signals from the monitoring instruments, and convert them into digital values with a high degree of accuracy. This conversion is performed at high speed, allowing the system to perform data collection on a large number of instruments without loss of performance or data. These digitized values are converted into engineering units within the remote data collection node.

Digital input points within the remote data collection node are used to detect the presence of conditions such as "calibration in progress" or "instrument fault detection". The input points can also be used to sense when the boiler is being operated.

Digital output points are used by the remote data collection node to force a particular instrument into calibration. Similarly, relay contacts are provided to indicate conditions such as "high emissions" or "fault conditions".

2 DATA ACQUISITION SOFTWARE

2.1 Operating System

The real-time nature of the operations being performed by the system, and the fact that they may be occurring asynchronously, requires that the system be based upon a real-time, multi-tasking operating system. This allows programs, or "tasks", responsible for the collection and computation of data to operate while other tasks are writing data to the disk, printing, or interacting with the operator. More than one operator terminal may be connected to the system with no changes to the software. The SNIFFER data acquisition system has been designed using the latest software techniques which contribute to the modular design of the software. SNIFFER is designed specifically for continuous emission monitoring system (CEM) applications.

The system can store up to one years data on-line and provides a method of archiving older data.

2.2 Application Programs

The SNIFFER system provides the following functions:

Log emissions data - The data logged for each monitoring instrument includes the raw reading from the instrument converted to engineering units and 16 bits of status information.

Log whether the boiler unit (or process) is up or down.

Log whether each instrument monitor is in or out of service.
Archive previously logged data to floppy disk for archive storage. The floppy disks can be formatted for either the MSDOS or UNIX format.

Edit the data - Though a password protected program the user can edit only the reason codes associated with the data. The raw data can not be edited.

Change calibration values - Each bottle of calibration gas may have a different value. This program allows the operator to change values such as calibration value, calibration time and other constants.

Export any report to a MSDOS floppy disk - So that it can be used with MSDOS word processing programs or spread sheet programs such as LOTUS 123.

Enter episode reason codes - When a high emission occurs the system records this event. The operator must enter a reason code for each episode. The operator does not have to enter the reason code immediately since the SNIFFER software remembers each episode. The reason codes can be entered when it is convenient for the operator.

The SNIFFER system also supports virtual channels - A virtual channel is any combination of one or more data channels combined mathematically. Virtual channels allow computed values such as lbs/million BTU to be displayed and or logged in real time.

Graph the data - The SNIFFER system provides trending graphs for all pollutants being monitored. These can be graphed individually or combined. The time frame is adjustable, i.e., hourly, daily, or weekly graphs can be generated.

3 CARBON MONOXIDE

3.1 CO Analyzer

The gas analyzer which monitors for carbon monoxide is part of a Horiba ENDA-1250 stack gas analyzer system. The CO analyzer has the following characteristics.

- Principle of operation non-dispersive infrared
- Range - dual range 0-200 or 0-3000 ppm
- Response time one minute for 90% response at inlet, repeatability $\pm$0.5 percent of full scale
- Drift zero $\pm$1% of full scale per week, span $\pm$2 % of full scale per week
- Materials in contact with sample 304 stainless steel, Teflon, fluororubber and PVC

3.2 Software associated with CO monitoring

The software which monitors the CO analyzer performs the following functions:

- Converts reading to parts per million, volume corrected for 7 percent oxygen
- Averages six readings every minute, noting validity of each average.
- Compares the minute average to a maximum allowable carbon monoxide set point, and requests operator to supply a reason code for any average exceeding that set point.
- Logs each one minute average to disk with appropriate reason or validity codes, as required.
- Provides rolling hourly averages.
- Senses calibration of the instrument, and maintains a log of the readings produced during calibration.
- Displays all "over set-point" averages or episodes awaiting reason codes.
- Prints a daily report of the averages and appropriate reason codes logged during the preceding 24 hour period.
- Provides the capability for environmental officer to archive data for any period desired onto diskette. In addition to providing a backup for regulatory purposes these diskettes can be used to study emissions using LOTUS-123 or other MSDOS programs.
- Allows an operator to retrieve data remotely via a modem telephone or local serial link between the system and another personal computer.

Any special modifications required to comply with your Mississippi permit guidelines are part of this proposal.

4 OXYGEN (DRY BASIS)

4.1 O_2 Analyzer (dry basis)

The gas analyzer which monitors for oxygen is part of a Horiba ENDA-1250 stack gas analyzer system. The O_2 analyzer has the following characteristics.

- Principle of operation magnetopneumatic
- Range - dual range 0-10 or 0-25 percent
- Response time one minute for 90% response at inlet, repeatability $\pm$0.5 percent of full scale
- Drift zero $\pm$1% of full scale per week, span $\pm$2 % of full scale per week
- Materials in contact with sample 304 stainless steel, Teflon, fluororubber and PVC

4.2 Software associated with O_2 (dry basis)

The software which monitors the O_2 analyzer performs the following functions:

- Converts reading to percentage oxygen (dry basis)
- Averages six readings every minute, noting validity of each average.
- Logs each one minute average to the disk with validity code.
- Retains one minute average for use in computing 7% oxygen adjustments for other monitoring instruments.
- Senses calibration of the instrument, and maintains a log of the readings produced during calibration.
- Prints a daily report of the minute and hourly averages logged during the preceding 24 hour period.
- Provides the capability for environmental officer to archive data for any period desired onto diskette. In addition to providing a backup for regulatory purposes these diskettes can be used to study emissions using LOTUS-123 or other MSDOS programs.
- Allows an operator to retrieve data remotely via a modem telephone or local serial link between the system and another personal computer.

Any special modifications required to comply with your Mississippi permit guidelines are part of this proposal.

5 TEMPERATURE

5.1 Temperature Probes

The temperature probes (primary and secondary) are provided by the boiler manufacturer.

5.2 Software associated with Temperature

The software which monitors the temperature probe performs the following functions:

- Converts reading to degrees F.
- Averages six readings every minute, noting validity of each average.
- Notes the validity of the reading based upon state regulatory agency quality assurance guidelines.
- Computes and displays a rolling hourly average
- Logs each one minute value to disk, including a status code
- Compares the minute average to a minimum allowable set point, and requests the operator to supply a reason code for any average exceeding the set point.
- Displays all "over set-point" averages or episodes awaiting reason codes.
- Prints a daily report of the one minute averages, and the hourly averages logged during each days twenty four hour period.
- Reports if the monitoring instrument is out of calibration
- Provides the capability for the environmental officer to archive the data onto diskette for any desired period. In addition to providing a backup for regulatory purposes these diskettes can be used to study emissions using LOTUS 123 or other MSDOS programs.
- Allows an operator to retrieve data remotely via a modem telephone or over a local serial link between the system and another personal computer.

6 REPORTS AND LOCKOUTS

6.1 Daily Reports

The data acquisition system can print the following daily reports:

Daily Carbon Monoxide (CO) either raw or corrected
Daily Oxygen (O2) dry
Daily Temperature
Daily Summary Report

6.2 Quarterly Report Generation

The data acquisition system can generate the quarterly reports required by the Mississippi regulatory agency. The data acquisition system uses the data recorded on disk for the quarter to generate quarterly reports in the format specified by the Mississippi state regulatory agency. A number of quarterly reports are provided with the system. One of the quarterly reports prints the start and stop times for the boiler unit. The standard emissions report summarizes emissions for carbon monoxide (CO) and oxygen as prescribed in the Mississippi Standard Emissions Report. Another quarterly report prints the instrument up and down times and the calibration for each day. The system also provides for a lockout incident report which details each of the lockouts which occurred during the quarter. The final report is the low temperature report which documents each time the boiler fell below the minimum secondary temperature.

The quarterly reports are as follows:

Quarterly standard emissions - Carbon monoxide (CO)
Quarterly low temperature
Quarterly lockout incident report
Quarterly boiler start stop report
Quarterly instrument failure and calibration report

6.3 Lockouts

There are several conditions which can cause lockout of the boiler. These conditions are handled by the remote data collection node (GE PLC) on a stand alone basis. These can be configured for each system.

7 EQUIPMENT PROVIDED

7.1 Data acquisition equipment

One IBM PC AT 80486 compatible computer system, with four megabytes of memory, one VGA color monitor, one keyboard, one 100 megabyte hard disk, one 1.2 megabyte floppy disk, one 240 char per second printer, one 2400 baud modem and an RS-422 interface. The data acquisition system can be located on any desk top in a clean office type environment.

One General Electric PLC 90/30 with eight analog to digital channels, eight digital output channels and eight digital input channels. The remote data collection node is mounted in the instrument rack.

7.2 Sample Conditioning Unit

The sampling conditioning unit is mounted in the same rack as the analyzers. By mounting all but the primary filter of the sample conditioning system in the analyzer cabinet easier maintenance is ensured. The sample conditioning system consists of three parts; the sample probe/primary filter assembly installed directly in the stack, the analyzer system mounted in the instrument house and the sample line connecting the first two parts.

7.3 Sample Probe/Primary Filter

The primary filter mounted at the sample probe collects most of the dust. In order to prevent condensation of moisture the primary filter is heated by a built in heater.

7.4 Sample Line

After the sample gas passes through the primary filter it travels along the sample line. The sample line is heated. The sample line also has a separate tube to carry the calibration gas up to the probe.

7.5 Analyzer Sample Conditioning

The sample gas next passes thru the sample handling system, which consists of a drain separator, a mist catcher, a particulate filter, a flow selector valve, a pump and a dehumidifier. All of these items are mounted in the same cabinet as the analyzers.

8 PROJECT SCHEDULE

Week 1	System Design and protocol document starts
Week 2	Order equipment (analyzers, computer, etc.)
Week 2	Deliver protocol documents to project engineer
Week 4	Design Review and Drawings sent to project engineer
Week 6	Factory inspection by customer project engineer
Week 10	System installation at customer site
Week 12	System acceptance

9 TECHNICAL TERMS AND CONDITIONS

A. Probes and instruments installed in the stack are suitable with average gas temperature of 400 degrees F.
B. Enertec supplies the gas probe for mounting in the boiler stack.
C. Customer installs the sample probe in the stack.
D. Customer installs the sample conditioning line from the sample probe to the instrument cabinet.
E. Enertec supplies 120 feet of sample conditioning line from the boiler sample probe to the instrument cabinet. Any additional sample line would be charged to the customer.
F. Customer must supply a phone line for use with the data acquisition system; if this option is purchased. This line must be available during system installation.
G. Service agreement includes four quarterly visits each year and up to three emergency visits.
H. Enertec prepares for the customer the protocol documents required by Mississippi regulatory agency.
I. Certification of the system is the customer's responsibility.
J. An Enertec engineer calibrates all of the instruments and check out the system the day before the stack test certification.
K. An Enertec engineer is present the day of the stack test.
L. If the stack test must be performed a second time an Enertec engineer is available both the day before and the day of the second stack test.
M. Enertec supplies the gas regulators for the calibration gases. Calibration gases are to be supplied by the customer, unless this option is purchased.
N. The instruments are F.O.B. Lansdale, PA.
O. Enertec provides three days of training at the customer. One day overview, one day on data acquisition and one day on the instruments.

10 GENERAL ELECTRIC INTERFACE

The General Electric PLC 90/30 is mounted in the same cabinet as the Horiba instruments. Between the data acquisition system and the remote data collection node, Enertec provides a two twisted pair cable over which the units can communicate. The following signals will be connected to the remote data collection node:

SIGNAL	DESCRIPTION	SOURCE	TYPE
CO analyzer	Horiba	ENDA-1250	Analog in 4-20 maDC
CO (in calibration)	Horiba	ENDA-1250	Digital Input
CO (fault)	Horiba	ENDA-1250	Digital Input
CO (cause calibration)	Collection	node	Digital Out
0_2 (dry) analyzer	Horiba	ENDA-1250	Analog in 4-20 maDC
0_2 in cal (dry)	Horiba	ENDA-1250	Digital Input
0_2 fault (dry)	Horiba	ENDA-1250	Digital Input
0_2 cause cal (dry)	Collection	node	Digital Out
Primary Temperature	Thermocouple		Analog in 4-20 maDC
Secondary Temperature	Thermocouple		Analog in 4-20 maDC
Boiler lock out	Boiler		Digital Out
Boiler on/off	Boiler		Digital input

11 TERMS and CONDITIONS

11.1 Price:

Total system price - see pricing page
First year service - see pricing page

11.2 Payment Schedule:

25% with release of purchase order
15% with protocol document approval
50% with delivery of all equipment at the customer site
10% with final acceptance or ninety days after on site delivery which ever comes first.

11.3 Terms: Enertec terms for payment are net thirty days for all invoices. There will be a 1.5% service charge added to invoices after 45 days. An additional 1% per week will be added after 60 days.

11.4 Warranty: Warranty is 15 months from shipment or 12 months from startup. Warranty includes all parts and labor. Travel expenses are billed at cost plus 10%.

11.5 Estimated Delivery Time:

Delivery of the hardware and software to the customer would be 10-12 weeks after project initiation.

11.6 Confidentiality:

Enertec will treat as confidential all customer information entrusted to Enertec and all new information created by Enertec for the customer.

11.7 Equal Opportunity: Enertec is an equal opportunity employer.

11.8 Location and Equipment:

Travel expenses for Enertec personnel and support companies are included in the cost of the system.

11.9 Insurance:

Enertec certifies that their employees are covered by Workman's Compensation and a one million dollar Umbrella Comprehensive insurance policy.

11.10 Small Business:

Enertec qualifies as a small business under federal guidelines.

PRICING

Quantity	Description	Price
1	HORIBA ENDA-1250 NDIR Cross Flow CO O2 analyzers; Includes stainless steel probe, sample conditioning cal gas regulators, 120 feet of Unitherm sample line.	
1	Remote data collection node (GE PLC 90/30) includes PLC rack, all wiring termination and documentation.	
1	Data Acquisition System. Includes IBM PC 80486 desk top 14 inch color monitor, 100 megabyte hard disk, one printer, serial interface to remote data collection node, 2400 baud modem.	
1	Protocol document for submittal to MS regulatory agency.	
3 days	On-site installation and training	
2	Sets of operating manuals	
1	Fifteen month warranty; includes all parts, labor.	
TOTAL SYSTEM PRICE		$ 70,660

OPTIONS

1	Inconel probe assembly	$ 800
1	Hastelloy probe assembly	$ 1,100
	Additional sample line (per foot)	$ 30
1	CEM Shelter with heat pump, 1 door, ~ 8'x8' 1 window, lighting completely wired	$ 7,190
1	Strip chart recorder. If this option is purchased instead of the Data Acquisition System, delete $13,200 from total system price	

This proposal is good for 30 days from above date.

Prepared by Enertec, Inc. - Proposal #Q1302
Represented by Bob Baker - Scientific Pittsburgh

Enertec inc.

811 W. Fifth St., P.O. Box 1312, Lansdale, PA. 19446, U.S.A.

telephone: (215) 362-0966 FAX: (215) 362-2404

SNIFFER

CONTINUOUS EMISSIONS MONITORING SYSTEM

Monitors and records emissions data necessary to meet EPA and state air pollution collection and reporting requirements.

Enertec has installed over 60 SNIFFER systems with a variety of continuous emission monitoring instruments.

- The data acquisition software utilizes an IBM PC or compatible 386 personal computer.

- The data acquisition system is based on a Unix platform; so it is truly multi-tasking and multi-user.

- SNIFFER software continuously organizes, logs and displays the data by:

* Typical type of emission; CO, NOx, SO2, HCl, wet O_2, dry O_2, Opacity, etc.
* Typical type of parameter; flow, temperature, process on/off
* Date and time
* Episode (emission is over the limit)
* Reason code for the episode
* Corrective action for the emission

- All fifty states reporting format available; both printed and on floppy disk.

Includes Telemetry requirement.

Full fifteen month warranty includes parts, labor, & travel.

(over)

SNIFFER

MAJOR COMPONENTS INCLUDE:

- IBM PC COMPATIBLE 80386 with 4 MEGABYTES
- EIGHTY MEGABYTE OR LARGER HARD DISK
- VGA COLOR MONITOR
- PRINTER(S)
- MODEM(S)
- REMOTE DATA COLLECTION NODE(S); GE or A/B PLC
- FLOPPY DISK
- TAPE BACKUP

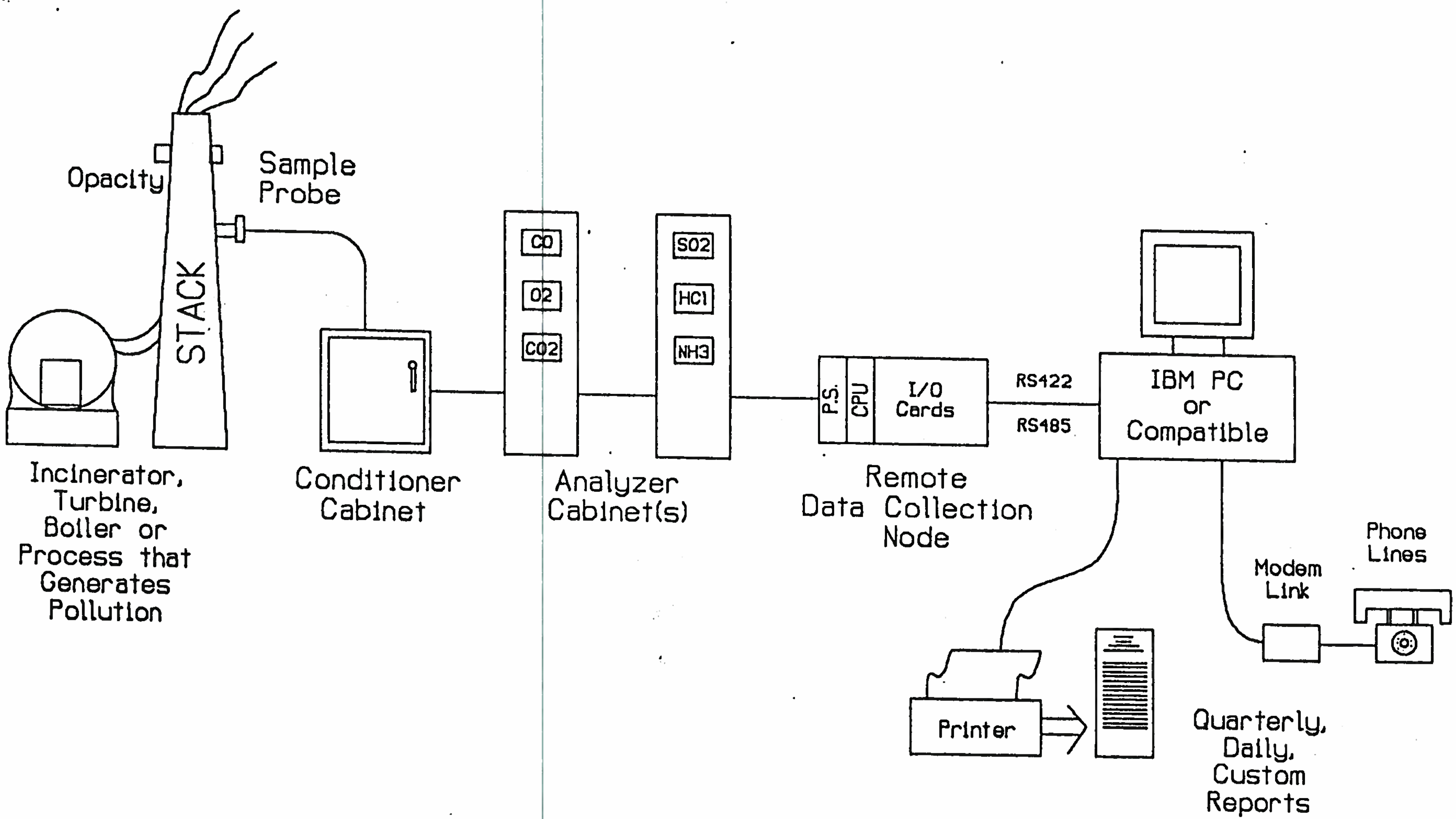
ALL SNIFFER SYSTEMS ARE SUPPLIED WITH MODEMS TO SUPPORT REMOTE CALIBRATION, DOWNLOADING SOFTWARE ENHANCEMENTS, AND REMOTE TROUBLESHOOTING.

Enertec supplies complete continuous emission monitoring systems for:

- VOC INCINERATORS
- COAL FIRED BOILERS
- MEDICAL WASTE INCINERATORS
- HAZARDOUS WASTE INCINERATORS
- CO-GENERATION PLANTS
- FLUIDIZED BED COAL BOILERS
- ELECTRIC UTILITY GAS TURBINES

For your demonstration call 215-362-0966

Enertec SNIFFER



Continuous Emissions Monitoring System

GRN 01

KOPPERS INDUSTRIES

Koppers Industries, Inc.
436 Seventh Avenue
Pittsburgh, PA 15219-1800

Telephone: (412) 227-2001
FAX: (412) 227-2423

Registered Mail

October 4, 1993

Ms. Elizabeth Bartlett
U. S. EPA Region 4
RCRA and Federal Facilities Branch
Second Floor
345 Courtland Street
Atlanta, GA 30365

---AND---

David Peacock
Hazardous Waste Division
Department of Environmental Quality
P.O. Box 10385
Jackson, MS 39289-0385

Re: Withdrawal of Class 3 Permit Modification Application and submittal of revised Part A and Notice of Hazardous Waste Activity forms, Koppers Industries, Inc. Grenada Plant, MSD 007 027 543

Dear Ms. Bartlett and Mr. Peacock:

Since early 1991, Koppers Industries, Inc. (KII) has been attempting to obtain a permit to resume beneficially burning material, which we generate as a manufacturing waste, as fuel in our existing industrial boiler at Tie Plant, MS. KII was previously permitted to use process wastes as fuel in our boiler, but stopped due to the listing of this material as hazardous in June 1990. The requested permit would have allowed KII to recycle as fuel high BTU value process wastes from our various manufacturing operations, internalize most waste disposal, reduce our dependence on commercial waste disposal, save us money, and provide more jobs at our plant. In support of this process, KII has spent several hundred thousand dollars on consultants, boiler and facility improvements, and many manhours of effort. We find it appalling that in over 24 months since KII first proposed this project, it has not been allowed a technical review on its merits.

Instead of a technical evaluation, we have been subjected to bureaucratic inaction and regulatory inflexibility with the conspicuous goal of delaying any progress as long as possible. It has become clear that, contrary to EPA's stated goal of minimizing the volume and toxicity of hazardous waste, the agency is philosophically opposed to any form of recycling for energy recovery. The final and clearest message was delivered in the form of the Browner administration "temporary capacity freeze" announced on May 18, 1993. This guidance made further delay the official EPA policy for the next 18 months.

The EPA has also made it clear that any company which does ever successfully obtain a permit to burn hazardous waste will be subject to extreme "oversight" in their operation. Such a company can expect large, punitive fines for any infractions, without regard to how minor the violation or whether any public or environmental harm is caused.

KII has concluded that, given the antagonistic environment related to combustion technolgies now created by the EPA, the benefits of proceeding with this project do not outweigh the liabilities. Therefore, KII hereby withdraws our application for the Class 3 permit modification for operation of the hazardous waste industrial boiler and container storage facility.

No hazardous waste has been burned in the boiler so no closure of that unit will be required. The container storage facility, which also has not been permitted, will continue to be used for accumulation of hazardous waste generated on-site prior to off-site disposal for periods of up to 90 days. Thus, no closure of this unit is believed necessary.

Enclosed is a revised Part A Permit and revised Notice of Hazardous Waste Activity reflecting the application withdrawal.

Mr. Peacock, your agency has been forthright and prompt in your dealings with us. We appreciate that. Unfortunately, Mississippi will not be obtaining authority to implement the Boiler and Industrial Furnace regulations in the foreseeable future. If you had done so, our decision may have been different.

KII continues to believe that recycling materials by burning for energy recovery is environmentally sound, socially responsible, and meets the Congressional intent of reducing the volume and toxicity of hazardous waste. Unfortunately, we have also found it politically impossible.

Sincerely,

Stephen T. Smith

Stephen T. Smith
Environmental Program Manager

cc with attachments:
Ron Murphey, Plant Manager, Grenada, MS
Terry Faye, BEI, K-1000

cc without attachments:
Patrick Tobin, Acting Administrator, EPA, Region 4
Doug McCurry, Chief RCRA Permitting, EPA, Region 4
R. S. Ohlis, Vice President, Wood Operations, K-1750
J. R. Batchelder, Vice President, Environmental and Technical, K-1701

bcc:
Dudley DeVille, Woodward Clyde Consultants, Baton Rouge, LA (with attachments)
W. R. Donley, K-1750 (w/o attachments)
Rob Markwell, Beazer East, Inc. K-1101 (with attachments)

Please print or type with ELITE type (12 characters per inch) in the unshaded areas only

Form Approved. OMB No. 2050-0034 Expires 12-31-91
GSA No. 0246-EPA-OT

For EPA Regional Use Only

Date Received
Month Day Year

EPA
United States Environmental Protection Agency
Washington, DC 20460

Hazardous Waste Permit Application Part A

(Read the Instructions before starting)

For State Use Only

I. ID Number(s)

A. EPA ID Number: M S D 0 0 7 0 2 7 5 4 3

B. Secondary ID Number *(If applicable)*:

II. Name of Facility

K O P P E R S I N D U S T R I E S I N C .

III. Facility Location *(Physical address not P.O. Box or Route Number)*

A. Street: T I E P L A N T R O A D

Street *(continued)*:

City or Town: T I E P L A N T

State: M S

ZIP Code: 3 8 9 6 0 –

County Code *(If known)*:

County Name: G R E N A D A

B. Land Type *(enter code)*: P

C. Geographic Location

LATITUDE *(degrees, minutes, & seconds)*: 33 44 04

LONGITUDE *(degrees, minutes, & seconds)*: 89 47 19

D. Facility Existence Date

Month: Day: Year: 1980

IV. Facility Mailing Address

Street or P.O. Box: B O X 1 6 0

City or Town: T I E P L A N T

State: M S

ZIP Code: 3 8 9 6 0 =

V. Facility Contact *(Person to be contacted regarding waste activities at facility)*

Name *(last)*: M U R P H E Y

(first): R O N A L D

Job Title: P L A N T M A N A G E R

Phone Number *(area code and number)*: 6 0 1 - 2 2 6 - 4 5 8 4

VI. Facility Contact Address *(See instructions)*

A. Contact Address

Location:

Mailing: X

B. Street or P.O. Box: B O X 1 6 0

City or Town: T I E P L A N T

State: M S

ZIP Code: 3 8 9 6 0 -

Please print or type with ELITE type (12 characters per inch) in the unshaded areas only

Form Approved. OMB No. 2050-0034 Expires 12-31-91
GSA No. 0246-EPA-OT

EPA I.D. Number *(enter from page 1)*: M S D 0 0 7 0 2 7 5 4 3

Secondary ID Number *(enter from page 1)*:

VII. Operator Information *(see instructions)*

Name of Operator: SEE ATTACHED

Street or P.O. Box:

City or Town: | **State**: | **ZIP Code**:

Phone Number *(area code and number)*: - -

B. Operator Type:

C. Change of Operator Indicator: Yes ☐ No ☐

Date Changed: Month / Day / Year

VIII. Facility Owner *(see instructions)*

A. Name of Facility's Legal Owner: KOPPERS INDUSTRIES INC.

Street or P.O. Box: 436 SEVENTH AVENUE

City or Town: PITTSBURGH | **State**: PA | **ZIP Code**: 15219-

Phone Number *(area code and number)*: 412-227-2001

B. Owner Type:

C. Change of Owner Indicator: Yes ☐ No X

Date Changed: Month / Day / Year

IX. SIC Codes *(4-digit, in order of significance)*

Primary		Secondary	
2491	*(description)* WOOD PRESERVING		*(description)* N/A
Secondary		**Secondary**	
	(description) N/A		*(description)* N/A

X. Other Environmental Permits *(see instructions)*

A. Permit Type *(enter code)*	B. Permit Number	C. Description
E	0960-00012	STATE-AIR PERMIT FOR BOILER
R	HW-88-543-01	Post Closure Care and Detection Monitoring Program of Closed Surface Impoundment.

Please print or type with ELITE type (12 characters per inch) in the unshaded areas only

GSA No. 0246-EPA-OT

EPA I.D. Number (*enter from page 1*)	Secondary ID Number (*enter from page 1*)
M S D 0 0 7 0 2 7 5 4 3	

XI. Nature of Business (*provide a brief description*)

The Plant deals with the preservation of wood products utilizing pressure treatment process. The preservation process utilizes pentachlorophenol and coal tar base products. Beazer East, Inc. does not commercially operate at this facility.

XII. Process – Codes and Design Capacities

A. PROCESS CODE – *Enter the code from the list of process codes below that best describes each process to be used at the facility. Twelve lines are provided for entering codes. If more lines are needed, attach a separate sheet of paper with the additional information. If a process will be used that is not included in the list of codes below, then describe the process (including its design capacity) in the space provided in item XIII.*

B. PROCESS DESIGN CAPACITY – *For each code entered in column A, enter the capacity of the process.*

1. AMOUNT – *Enter the amount. In a case where design capacity is not applicable (such as in a closure/post–closure or enforcement action) enter the total amount of waste for that process unit.*
2. UNIT OF MEASURE – *For each amount entered in column B(1), enter the code from the list of unit measure codes below that describes the unit of measure used. Only the units of measure that are listed below should be used.*

C. PROCESS TOTAL NUMBER OF UNITS – *Enter the total number of units used with the corresponding process code.*

PROCESS CODE	PROCESS	APPROPRIATE UNITS OF MEASURE FOR PROCESS DESIGN CAPACITY
	DISPOSAL:	
D79	INJECTION WELL	GALLONS; LITERS; GALLONS PER DAY; OR LITERS PER DAY
D80	LANDFILL	ACRE-FEET OR HECTARE-METER
D81	LAND APPLICATION	ACRES OR HECTARES
D82	OCEAN DISPOSAL	GALLONS PER DAY OR LITERS PER DAY
D83	SURFACE IMPOUNDMENT	GALLONS OR LITERS
	STORAGE:	
S01	CONTAINER (barrel, drum, etc.)	GALLONS OR LITERS
S02	TANK	GALLONS OR LITERS
S03	WASTE PILE	CUBIC YARDS OR CUBIC METERS
S04	SURFACE IMPOUNDMENT	GALLONS OR LITERS
	TREATMENT:	
T01	TANK	GALLONS PER DAY OR LITERS PER DAY
T02	SURFACE IMPOUNDMENT	GALLONS PER DAY OR LITERS PER DAY
T03	INCINERATOR	SHORT TONS PER HOUR; METRIC TONS PER HOUR; GALLONS PER HOUR; LITERS PER HOUR; OR BTU'S PER HOUR
T04	OTHER TREATMENT (Use for physical, chemical, thermal or biological treatment processes not occurring in tanks, surface impoundment or incinerators. Describe the processes in the space provided in Item XIII.)	GALLONS PER DAY; LITERS PER DAY; POUNDS PER HOUR; SHORT TONS PER HOUR; KILOGRAMS PER HOUR; METRIC TONS PER DAY; METRIC TONS PER HOUR; OR SHORT TONS PER DAY

UNIT OF MEASURE	UNIT OF MEASURE CODE
GALLONS	G
GALLONS PER HOUR	E
GALLONS PER DAY	U
LITERS	L
LITERS PER HOUR	H
LITERS PER DAY	V
SHORT TONS PER HOUR	D
METRIC TONS PER HOUR	W
SHORT TONS PER DAY	N
METRIC TONS PER DAY	S
POUNDS PER HOUR	J
KILOGRAMS PER HOUR	R
CUBIC YARDS	Y
CUBIC METERS	C
ACRES	B
ACRE-FEET	A
HECTARES	Q
HECTARE-METER	F
BTU's PER HOUR	X

EPA I.D. Number (enter from page 1)

M	S	D	0	0	7	0	2	7	5	4	3

Secondary ID Number (enter from page 1)

XII. Process - Codes and Design Capacities (continued)

EXAMPLE FOR COMPLETING ITEM XII (shown in line numbers X-1 and X-2 below): A facility has two storage tanks, one tank can hold 200 gallons and the other can hold 400 gallons. The facility also has an incinerator that can burn up to 20 gallons per hour.

Line Number		A. PROCESS CODE (from list above)			B. PROCESS DESIGN CAPACITY 1. AMOUNT (specify)	B. 2. UNIT OF MEASURE (enter code)	C. PROCESS TOTAL NUMBER OF UNITS			FOR OFFICIAL USE ONLY				
X	1	S	0	2	600	G	0	0	2					
X	2	T	0	3	20	E	0	0	1					
	1	D	8	0*	0.75	A	0	0	1					
	2	D	8	0	1.5	A	0	0	1					
	3	S	0	3	Approximately 4000	Y	0	0	1					
	4	S	0	3	Approximately 1000	Y	0	0	1					
	5													
	6													
	7													
	8	*SURFACE IMPOUNDMENT CLOSED AS A LANDFILL. ALL VISIBLE												
	9	WASTE WAS REMOVED, HOWEVER, CLEAN CLOSURE WAS NOT ACHIEVED.												
1	0													
1	1													
1	2													

NOTE: If you need to list more than 12 process codes, attach an additional sheet(s) with the information in the same format as above. Number the lines sequentially, taking into account any lines that will be used for additional treatment processes in item XIII.

XIII. Additional Treatment Processes (follow instructions from Item XII)

Line Number (enter numbers in sequence with Item XII)		A. PROCESS CODE			B. TREATMENT PROCESS DESIGN CAPACITY 1. AMOUNT (specify)	B. 2. UNIT OF MEASURE (enter code)	C. PROCESS TOTAL NUMBER OF UNITS			D. DESCRIPTION OF PROCESS
		T	0	4						
		T	0	4						
		T	0	4						
		T	0	4						

EPA I.D. Number (enter from page 1)												Secondary ID Number (enter from page 1)
M	S	D	0	0	7	0	2	7	5	4	3	

XIV. Description of Hazardous Wastes

A. **EPA HAZARDOUS WASTE NUMBER** - *Enter the four-digit number from 40 CFR, Part 261 Subpart D of each listed hazardous waste you will handle. For hazardous wastes which are not listed in 40 CFR, Part 261 Subpart D, enter the four-digit number(s) from 40 CFR, Part 261 Subpart C that describes the characteristics and/or the toxic contaminants of those hazardous wastes.*

B. **ESTIMATED ANNUAL QUANTITY** - *For each listed waste entered in column A estimate the quantity of that waste that will be handled on an annual basis. For each characteristic or toxic contaminant entered in column A estimate the total annual quantity of all the non-listed waste(s) that will be handled which possess that characteristic or contaminant.*

C. **UNIT OF MEASURE** - *For each quantity entered in column B enter the unit of measure code. Units of measure which must be used and the appropriate codes are:*

ENGLISH UNIT OF MEASURE	CODE	METRIC UNIT OF MEASURE	CODE
POUNDS	P	KILOGRAMS	K
TONS	T	METRIC TONS	M

If facility records use any other unit of measure for quantity, the units of measure must be converted into one of the required units of measure taking into account the appropriate density or specific gravity of the waste.

D. **PROCESSES**

1. **PROCESS CODES:**

For listed hazardous waste: For each listed hazardous waste entered in column A select the code(s) from the list of process codes contained in Item XII A. on page 3 to indicate how the waste will be stored, treated, and/or disposed of at the facility.

For non-listed hazardous waste: For each characteristic or toxic contaminant entered in column A, select the code(s) from the list of process codes contained in Item XII A. on page 3 to indicate all the processes that will be used to store, treat, and/or dispose of all the non-listed hazardous wastes that processes that characteristic or toxic contaminant.

NOTE: THREE SPACES ARE PROVIDED FOR ENTERING PROCESS CODES. IF MORE ARE NEEDED:

1. *Enter the first two as described above.*
2. *Enter "000" in the extreme right box of Item XIV-D(l).*
3. *Enter in the space provided on page 7, Item XIV-E, the line number and the additional code(s).*

2. **PROCESS DESCRIPTION** : *If a code is not listed for a process that will be used, describe the process in the space provided on the form (D.(2)).*

NOTE: HAZARDOUS WASTES DESCRIBED BY MORE THAN ONE EPA HAZARDOUS WASTE NUMBER- Hazardous wastes that can be described by more than one EPA Hazardous Waste Number shall be described on the form as follows:

1. *Select one of the EPA Hazardous Waste Numbers and enter it in column A. On the same line complete columns B, C, and D by estimating the total annual quantity of the waste and describing all the processes to be used to treat, store, and/or dispose of the waste.*
2. *In column A of the next line enter the other EPA Hazardous Waste Number that can be used to describe the waste. In column D(2) on that line enter "Included with above" and make no other entries on that line.*
3. *Repeat step 2 for each EPA Hazardous Waste Number that can be used to describe the hazardous waste.*

EXAMPLE FOR COMPLETING ITEM XIV (shown in line numbers X-1, X-2, X-3, and X-4 below) - A facility will treat and dispose of an estimated 900 pounds per year of chrome shavings from leather tanning and finishing operation. In addition, the facility will treat and dispose of three non-listed wastes. Two wastes are corrosive only and there will be an estimated 200 pounds per year of each waste. The other waste is corrosive and ignitable and there will be an estimated 100 pounds per year of that waste. Treatment will be in an incinerator and disposal will be in a landfill.

Line Number		A. EPA HAZARD WASTE NO. (enter code)				B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESS (1) PROCESS CODES (enter)									D. PROCESS (2) PROCESS DESCRIPTION (If a code is not entered in D(1))
X	1	K	0	5	4	900	P	T	0	3	D	8	0				
X	2	D	0	0	2	400	P	T	0	3	D	8	0				
X	3	D	0	0	1	100	P	T	0	3	D	8	0				
X	4	D	0	0	2												Included With Above

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GSA No. 0246-EPA-OT

EPA I.D. Number (enter from page 1): M S D 0 0 7 0 2 7 5 4 3

Secondary ID Number (enter from page 1):

XIV. Description of Hazardous Wastes (continued)

Line Number	A. EPA HAZARDOUS WASTE NO. (enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES (1) PROCESS CODES (enter)	D. PROCESSES (2) PROCESS DESCRIPTION (If a code is not entered in D(1))
1	K 0 0 1	SEE COMMENTS		D 8 0	Former Surface
2					Impoundment closed
3					as landfill.
4	K 0 0 1	SEE COMMENTS		D 8 0	Boiler ash landfarm
5	U 0 5 1				closed as landfill.
6					
7	F 0 3 2	SEE COMMENTS		S 0 3	Waste piles containing
8					soils excavated and placed
9					in pile prior to June 6,
10					1991. This is submitted
11					as a protective filing
12					and should not be construed
13					as an admission by Beazer
14					or KII that the material
15					is the listed hazardous
16					waste F032, or that it is
17					being managed in a manner
18					that would subject it to
19					regulation under RCRA.
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
31					
32					
33					

EPA I.D. Number *(enter from page 1)*

M	S	D	0	0	7	0	2	7	5	4	3

Secondary ID Number *(enter from page 1)*

XIV. Description of Hazardous Waste *(continued)*

E. USE THIS SPACE TO LIST ADDITIONAL PROCESS CODES FROM ITEM D(1) ON PAGE 6.

Line Number	Additional Process Codes (enter)

XV. Map

Attach to this application a topographic map of the area extending to at least one mile beyond property boundaries. The map must show the outline of the facility, the location of each of its existing and proposed intake and discharge structures, each of its hazardous waste treatment, storage, or disposal facilities, and each well where it injects fluids underground. Include all springs, rivers and other surface water bodies in this map area. See instructions for precise requirements.

XVI. Facility Drawing

All existing facilities must include a scale drawing of the facility (see instructions for more detail).

XVII. Photographs

All existing facilities must include photographs (aerial or ground-level) that clearly delineate all existing structures; existing storage, treatment and disposal areas; and sites of future storage, treatment or disposal areas (see instructions for more detail).

XVIII. Certification(s)

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Owner /Operator (Koppers Industries, Inc.)
#1 James R Batchelder

Date Signed: 9/30/93

Name and Official Title *(type or print)*
James R. Batchelder, Vice President, Environmental and Technical

Operator #2 (Beazer East, Inc.)

Date Signed: 10/4/93

Name and Official Title *(type or print)*
Richard Graham, Vice President, Environmental

XIX. Comments

SEE ATTACHED COMMENTS.

Note: Mail completed form to the appropriate EPA Regional or State Office. (refer to instructions for more information)

EPA ID No. MSD 007 027 543

HAZARDOUS WASTE PERMIT
PART A APPLICATION
COMMENTS

As stated on page 2, block VIII, the facility owner is Koppers Industries, Inc. There are two operators at this facility, as explained below:

OPERATOR #1

KOPPERS INDUSTRIES, INC.
436 Seventh Avenue, K-1701
Pittsburgh, PA 15219
(412)227-2001

Status of Operator #1: P

Operator #1 (Koppers) is the current owner and operator of the wood preserving business on this site.

Koppers previously submitted and, with this submittal, has withdrawn an application to operate a hazardous waste boiler (T04) and hazardous waste storage unit (S01). During the application time, these units did not operate as permitted units.

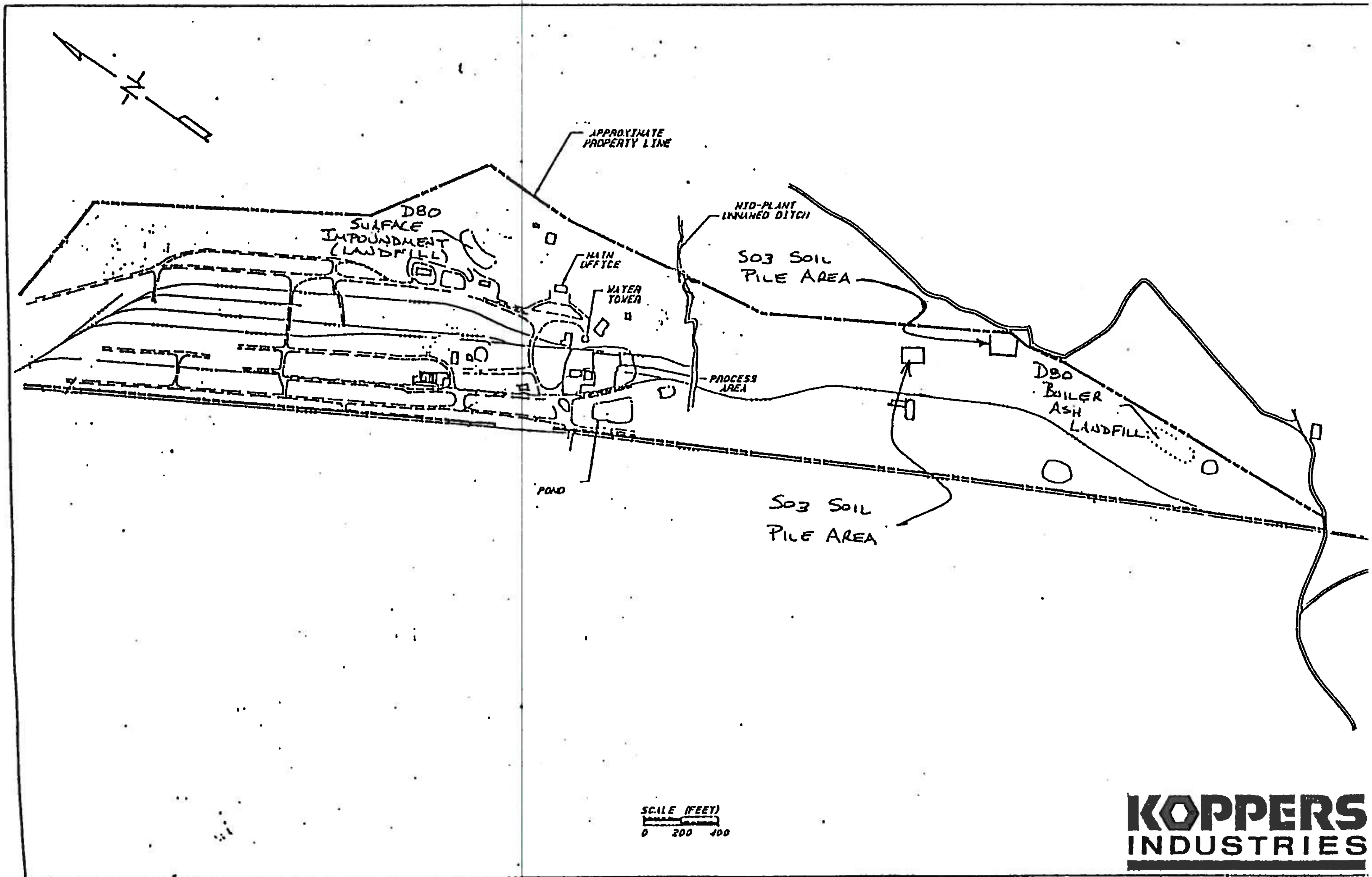
OPERATOR #2

BEAZER EAST, INC.
436 Seventh Avenue, K-1401
Pittsburgh, PA 15219
(412)227-2430

Status of Operator #2: P

Operator #2 (Beazer) is the operator of four inactive units on the facility, a former surface impoundment closed as a landfill (D80), a boiler ash landfarm closed as a landfill (D80), and two waste piles (S03) which contain soil resulting from on-site construction activity and which was placed in the piles prior to June 6, 1991.

Operator #2 has had no involvement in the application process for the container storage facility (S01) or the industrial boiler (T04) and, therefore, if there are any obligations under the relevant statutes and regulations pertaining to those units, including but not limited to any and all financial assurance requirements, they are solely those of Operator #1.



KOPPERS INDUSTRIES

Please print or type with ELITE type (12 characters per inch) in the unshaded areas only

Form Approved. OMB No. 2050-0028. Expires 9-30-92
GSA No. 0246-EPA-OT

Please refer to the *Instructions for Filing Notification* before completing this form. The information requested here is required by law *(Section 3010 of the Resource Conservation and Recovery Act)*.

EPA

Notification of Regulated Waste Activity

United States Environmental Protection Agency

Date Received (For Official Use Only)

I. Installation's EPA ID Number *(Mark 'X' in the appropriate box)*

[ ] A. First Notification [X] B. Subsequent Notification *(complete item C)*

C. Installation's EPA ID Number: MSD007027543

II. Name of Installation *(Include company and specific site name)*

KOPPERS INDUSTRIES INC.

III. Location of Installation *(Physical address not P.O. Box or Route Number)*

Street: TIE PLANT ROAD

Street (continued):

City or Town: TIE PLANT State: MS ZIP Code: 38960 -

County Code: County Name: GRENADA

IV. Installation Mailing Address *(See Instructions)*

Street or P.O. Box: PO BOX 160

City or Town: TIE PLANT State: MS ZIP Code: 38960 -

V. Installation Contact *(Person to be contacted regarding waste activities at site)*

Name *(last)*: MURPHEY *(first)*: RONALD

Job Title: PLANT MANAGER Phone Number *(area code and number)*: 601-226-4584

VI. Installation Contact Address *(See Instructions)*

A. Contact Address: Location [ ] Mailing [ ]

B. Street or P.O. Box:

City or Town: State: ZIP Code: -

VII. Ownership *(See Instructions)*

A. Name of Installation's Legal Owner: KOPPERS INDUSTRIES INC.

Street, P.O. Box, or Route Number: 436 SEVENTH AVE. K-1700

City or Town: PITTSBURGH State: PA ZIP Code: 15219 -

Phone Number *(area code and number)*: 412-227-2001

B. Land Type: P

C. Owner Type: P

D. Change of Owner Indicator: Yes [ ] No [X] (Date Changed) Month Day Year

EPA Form 8700-12 (Rev. 9-92) Previous edition is obsolete.

Please print or type with ELITE type (12 characters per inch) in the unshaded areas only

Form Approved. OMB No 2050-0028. Expires 9-30-92
GSA No. 0246-EPA-OT

ID – For Official Use Only

VIII. Type of Regulated Waste Activity *(Mark 'X' in the appropriate boxes. Refer to instructions.)*

A. Hazardous Waste Activity

1. Generator (See instructions)
   - [X] a. Greater than 1000kg/mo (2,200 lbs.)
   - [ ] b. 100 to 1000 kg/mo (220 – 2,200 lbs.)
   - [ ] c. Less than 100 kg/mo (220 lbs.)
2. Transporter (Indicate Mode in boxes 1-5 below)
   - [ ] a. For own waste only
   - [ ] b. For commercial purposes

   Mode of Transportation
   - [ ] 1. Air
   - [ ] 2. Rail
   - [ ] 3. Highway
   - [ ] 4. Water
   - [ ] 5. Other – specify
3. [X] Treater, Storer, Disposer (at installation) Note: A permit is required for this activity; see instructions.
4. Hazardous Waste Fuel
   - [ ] a. Generator Marketing to Burner
   - [ ] b. Other Marketers
   - [ ] c. Boiler and/or Industrial Furnace
     - [ ] 1. Smelter Deferral
     - [ ] 2. Small Quantity Exemption

     Indicate Type of Combustion Device(s)
     - [ ] 1. Utility Boiler
     - [ ] 2. Industrial Boiler
     - [ ] 3. Industrial Furnace
5. [ ] Underground Injection Control

B. Used Oil Fuel Activities

1. Off-Specification Used Oil Fuel
   - [ ] a. Generator Marketing to Burner
   - [ ] b. Other Marketer
   - [ ] c. Burner – indicate device(s) – Type of Combustion Device
     - [ ] 1. Utility Boiler
     - [ ] 2. Industrial Boiler
     - [ ] 3. Industrial Furnace
2. [ ] Specification Used Oil Fuel Marketer (or On-site Burner) Who First Claims the Oil Meets the Specification

IX. Description of Regulated Wastes *(Use additional sheets if necessary)*

A. Characteristics of Nonlisted Hazardous Wastes. Mark 'X' in the boxes corresponding to the characteristics of nonlisted hazardous wastes your installation handles. *(See 40 CFR Parts 261.20 – 261.24)*

1. Ignitable *(D001)*	2. Corrosive *(D002)*	3. Reactive *(D003)*	4. Toxicity Characteristic *(D000)*	(List specific EPA hazardous waste number(s) for the Toxicity characteristic contaminant(s))
[ ]	[ ]	[ ]	[ ]	

B. Listed Hazardous Wastes. (See 40 CFR 261.31 – 33. See instructions if you need to list more than 12 waste codes.)

1	2	3	4	5	6
K001	U051	F032	F034		
7	**8**	**9**	**10**	**11**	**12**

C. Other Wastes. (State or other wastes requiring a handler to have an I.D. number. See instructions.)

1	2	3	4	5	6

X. 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 the 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 violations.

Signature	Name and Official Title *(type or print)*	Date Signed
J R Batchelder	J. R. Batchelder, V.P., Env.	9-21-92

XI. Comments

Submitted with withdrawl of RCRA Application for Burner and Storage

Note: Mail completed form to the appropriate EPA Regional or State Office. (See Section III of the booklet for addresses.)

1992 AIR EMISSIONS INVENTORY FOR GRENADA FACILITY

TANK POINT EMISSIONS

EMISSION SOURCE	PROCESS DESCRIPTIO	TANK NO.	TANK CAPACITY (x1000 gal)	TANK TEMP (°F)	TREATING AGENT	MW	VAPOR PRESS. (psia)	TANK DIA. D (ft)	TANK HT. (ft)	VAPOR SPACE H (ft)	$\bar{T}$ (°F)	F subP (1)	C (1)	K subC (1)	BRTHN LOSSES LsubB (lb/yr)	TANK TURN OVERS (1)	K subN (1)	WRKG. LOSSES LsubW (lb/yr)	THRUPUT (1000gal/yr)	TOTAL TANK LOSSES (2) (lb/yr)
E-13a	PENTA WK	1WT	29.8	150	8.5% PENTA	266	0.00008	13.0	30.0	2.0	20	1.4	0.67	1.0	0.8	269	0.28	1.1	8002.6	1.9
E-13b	PENTA WK	5WT	29.8	150	8.5% PENTA	266	0.00008	13.0	30.0	2.0	20	1.4	0.67	1.0	0.8	412	0.24	1.5	12274.3	2.3
E-12	PENTA MIX	19	9.9	160	8.5% PENTA	266	0.00008	10.0	16.0	6.0	20	1.4	0.54	1.0	0.7	132	0.42	0.3	1308.8	1.0
E-11	PENTA TAN	KB-3	10.8	160	40%PENTA	266	0.00038	10.0	18.0	6.0	20	1.4	0.54	1.0	2.1	23	1.00	0.6	251.5	2.7
E-15	PENTA BLO	P-BD	8.2	80	PENTA	266	0.00008	10.0	14.0	3.0	20	1.4	0.54	1.0	0.5	148	1.00	0.6	1215.9	1.1
E-22	PRIM. SEPE	P-S	12.3	70	PENTA	266	0.00008	10.0	21.0	3.0	20	1.4	0.54	1.0	0.5	99	1.00	0.6	1215.9	1.1
E-23	SECOND. SE	S-S	12.3	70	PENTA	266	0.00008	10.0	21.0	3.0	20	1.4	0.54	1.0	0.5	99	1.00	0.8	1215.9	1.1
																	TOTAL EMISSIONS			11.3

(1) Dimensionless

(2) Total losses include breathing losses (LsubB) and working losses (LsubW).

VACUUM PUMP EMISSIONS

EMISSION SOURCE	NO. OF PUMPS	COMPONENT	EMISSION FACTOR (lb/cu ft)	VOLUME (x1000) (cu ft/yr)	EMISSION (lb/yr)
E-16	1	PENTA	5.35E-07	32616	17.4

FUGITIVE CYLINDER EMISSIONS: UNLOADING

EMISSION SOURCE	PROCESS DESCRIPTIO	BATCH /YEAR	VOID SPACE (cf/batch)	TEMP (°F)	TREATING AGENT	MW	PP (psi)	D (ft)	L (ft)	EMISSIONS (lb/yr)
E-14a	CYLINDER 1	346	2941	140	8.5% PEN	266	0.00008	6.0	160	3.4
E-14b	CYLINDER 5	550	2093	140	8.5% PEN	266	0.00008	6.0	130	3.8
							TOTAL EMISSIONS			7.195

FUGITIVE EQUIPMENT LEAKS

EMISSION SOURCE	PROCESS DESCRIPTION	NUMBER IN SERVICE	EMISSIONS (lb/hr/source)	OPERATING HOURS (hrs/yr)	EMISSIONS (lb/yr)
E-18	PUMP SEALS	2	0.00047	225	0.2
E-18	VALVES(IN LINE)	39	0.0000051	225	0.0
E-18	PRESSURE RELIEF VA	3	0.0023	225	1.6
E-18	OPEN ENDED VALVES	5	0.000037	225	0.0
E-18	FLANGES	114	0.000018	225	0.5
			TOTAL EMISSIONS		2.3

EMISSION SOURCE	COMPOUND EMISSIONS	COMPOUND WEIGHT %	EMISSIONS (lb/yr)
E-18	PENTA	8.50	0.2

1992 AIR EMISSIONS INVENTORY FOR GRENADA FACILITY

TANK POINT EMISSIONS

EMISSION SOURCE	PROCESS DESCRIPTIO	TANK NO.	TANK CAPACITY (x1000 gal)	TANK TEMP (˚F)	TREATING AGENT	MW	VAPOR PRESS. (psia)	TANK DIA. D (ft)	TANK HT. (ft)	VAPOR SPACE H (ft)	ET (˚F)	F subP (1)	C (1)	K subC (1)	BRTHN LOSSES LsubB (lb/yr)	TANK TURN OVERS (1)	K subN (1)	WRKG. LOSSES LsubW (lb/yr)	THRUPUT (1000gal/yr)	TOTAL TANK LOSSES (3) (lb/yr)
E-24a	DEHYDRAT	DEH-1	5.0	212	CREO.	168	0.28	6.0	19.7	3.3	20	1.4	0.30	1.0	0.0	0	1.00	0.0	0.0	0.0
E-24b	DEHYDRAT	DEH-2	5.0	212	CREO.	168	0.28	6.0	19.7	3.3	20	1.4	0.45	1.0	29.9	22	1.00	121.9	108.0	151.8
E-3a	STORAGE TANK	T-1S	111.6	60	CREO.	168	0.002	29.0	24.2	10.7	20	1.4	1.00	1.0	63.4	5	1.00	4.2	523.7	67.6
E-3b	STORAGE TANK	T-6	105.7	60	60/40CRE.	168	0.002	30	20	10	20	1.4	1.00	1.0	63.4	5	1.00	4.2	523.9	67.6
E-4b	WORK TANK	T-2W	29.8	200	60/40CRE.	168	0.2220	13.0	30.0	2.0	20	1.4	0.65	1.0	108.6	261	0.26	1809	7772.4	1917.5
E-4b	WORK TANK	T-2W	29.8	200	CREO.	168	0.2220	13.0	30.0	2.0	20	1.4	0.65	1.0	108.6	5	1.00	131.2	146.6	239.8
E-4c	#4 VERT	T-4V	4.2	200	CREO.	168	0.2220	6.7	20.0	2.0	20	1.4	0.35	1.0	18.4	90	0.24	81.0	377.1	99.4
E-4d	#4 HORIZ	T-4H	22.4	200	CREO.	168	0.2220	6.7	106.0	3.3	20	1.2	0.35	1.0	20.3	228	0.32	1461	5100	1481.2
E-4e	# 4 VERT	T-4V	4.2	200	60/40CRE.	168	0.2220	6.7	20	2	20	1.4	0.35	1	4.4	118	0.48	1461	31.4	1465.2
E-19	STORMWAT STORAGE TANK	17	259.0	90	5% CREO.	168	0.007	35.1	36.0	18.0	20	1.3	1.00	1.0	250.3	7	1.00	49.4	1750.0	15.0
E-20	PROCESS SURGE TANK	13	111.0	85	15% CREO.	168	0.0060	28.0	24.1	12.6	20	1.4	0.99	1.0	135.5	47	1.00	124.9	5161.9	39.1
E-6	CREO BLOW	C-BD	8.2	90	15% CREO	168	0.007	5.0	14.0	3.0	20	1.4	0.25	1.0	0.9	121	1.00	27.9	990.0	4.3
E-21	SEPERATOR	S-1	66	70	10% CREO	168	0.003	22.0	11.5	3.0	20	1.4	0.92	1.0	24.9	105	0.48	40.1	6912.0	6.5
																			TOTAL	5,555.0

(1) Dimensionless

(2) Total losses include breathing losses (LsubB) and working losses (LsubW).

1992 AIR EMISSIONS INVENTORY FOR GRENADA FACILITY

UNLOADING EMISSIONS

EMISSION SOURCE	PROCESS DESCRIPTIO	COMPO.	TANK CAPACITY (x1000 gal)	TEMP (¯F)	MW	VAPOR PRESS (psia)	SATURATION FACTOR	(1)LOADING LOSSES (lb/yr)	THROUGHPUT (1000 gal/yr)	TOTAL LOSSES (lb/yr)
E-2	TANK CARS	CREO.	19.1	220	168	0.33	0.5	1.565	57.4	89.8

(1) Loading losses (lb/1000 gals.) = 12.46*saturation factor*molecular weight*vapor pressure (psia)/temperature(F)
AP-42 Section 4.4, Equation 1.

FUGITIVE CYLINDER EMISSIONS: UNLOADING

EMISSION SOURCE	PROCESS DESCRIPTIO	BATCH /YEAR	VOIO SPACE (cf/batch)	TEMP (¯F)	TREATING AGENT	MW	PP (psi)	D (ft)	L (ft)	EMISSIONS (lb/yr)
E-5a	CYLINDER 2	91	2492	190	#1 CREO	168	0.17	6.0	130	930
E-5b	CYLINDER 4	239	2492	190	#1 CREO	168	0.17	6.0	130	2441
E-5a	CYLINDER 2	273	1899	190	60/40 CCTS	168	0.17	6.0	130	2125
E-5b	CYLINDER 4	16	1899	190	60/40 CCTS	168	0.17	6.0	130	2125
							TOTAL EMISSIONS			7621

FUGITIVE EQUIPMENT LEAKS

#1 CREOSOTE

EMISSION SOURCE	PROCESS DESCRIPTIO	NUMBER N SERVICE	EMISSIONS (lb/hr/source)	OPERATING HOURS (hrs/yr)	EMISSIONS (lb/yr)
E-9	PUMP SEAL	3	0.0047	1320	18.6
E-9	VALVES(IN	35	5.1E-05	1320	2.4
E-9	PRESSURE VALVES	2	0.023	1320	60.7
E-9	OPEN ENOE	7	0.00037	1320	3.4
E-9	FLANGES	125	0.00018	1320	29.7
				TOTAL EMISSIONS	114.8

FUGITIVE EQUIPMENT LEAKS

60/40 CCTS

EMISSION SOURCE	NUMBER IN SERVICE	EMISSIONS (lb/hr/source)	OPERATING HOURS (hrs/yr)	EMISSIONS (lb/yr)
PUMP SEALS	6	0.005	1069	30.1
VALVES(IN LINE)	54	5E-05	1069	2.9
PRESSURE RELIEF	4	0.023	1069	98.3
OPEN ENDED VALVES	19	4E-04	1069	7.5
FLANGES	190	2E-04	1069	36.6
		TOTAL EMISSIONS		175.5
				114.8
				290.3

1992 AIR EMISSIONS INVENTORY FOR GRENADA FACILITY

VACUUM PUMP EMISSIONS

EMISSION SOURCE	TREATING AGENT	CYCLE	EMISSION FACTOR	VACUUM/ (hrs/chg)	NO. OF CHARGES	EMISSIONS (lb/yr)
E-9	CREOSOTE	FV	0.01055	2	330	6.98
E-9	60/40 CCTS	BOLT.	0.01055	11	115	13.35
	60/40 CCTS	FV	0.0054	2.5	289	3.90
						24.21

TÀNK BREATHING AND WORKING LOSSES, AP-42, 9/85 ed.

FUGITVE CYLINDER EMISSIONS ARE BASED ON CALCULATIONS FROM EPA 560/4-88-002, DECEMBER 1987, PAGES 3-10,11.

FUGITIVE EQUIPMENT LEAKS ARE BASED ON EMISSION FACTORS OBTAINED FROM APPENDIX D-1 OF EPA 560/4-88-002, THE CREOSOTE/CTS EMISSION FACTORS AND PENTA EMISSION FACTORS WERE DIVIDED BY 10 AND BY 100, RESPECTIVELY, IN ACCORDANCE WITH AWPI GUIDANCE DOCUMENT, MAY 1990, PAGE 7.

HOURS/YEAR FOR FUGITIVE EQUIPMENT LEAKS ARE BASED ON TYPICAL TREATING TIMES PER CHARGE AND CHARGES PER YEAR OBTAINED FROM WORKSHEET 5 OF SARA TITLE III, FORM R.

VACUUM PUMP EMISSIONS- GUIDANCE DOCUMENT IN COMPLETION OF SARA SECTION 313 OF TOXIC CHEMICAL RELEASE INVENTORY REPORT, AMERICAN WOOD PRESERVERS INSTITUTE, JUNE 1989.

SUSQUEHENNA VACUUM PUMP EMISSION STUDY, PERFORMED BY KEYSTONE ENVIRONMENTAL RESOURCES, MAY 1990.

Worksheet 1
(Chemical Information)

KOPPERS INDUSTRIES, INC.
WOOD TREATING PLANTS
TITLE III, FORM R

Plant: Grenada, MS   Reporting Year 1992

Chemicals	Total Usage (lbs)	Maximum Inventory (lbs)	Total Cubic Feet Treated for Each Preservative	% of Treated Material Contained On concrete	Is Lath Used To Separate Layers On Charges (yes/no) ?
Creosote (lbs)	4,973,540 lbs.	870,499 lbs.	398,972	100%	Piling, Poles - No Square Stock - Yes
Creosote Coal Tar Solution (lbs)	3,959,074 lbs.	861,426 lbs	512,950	100%	YES
50/50 Solution (creosote/ petroleum) (lbs)	NA	NA	NA	NA	NA
Pure Penta-chlorophenol (lbs)	930,982 lbs.	32,148 lbs.	1,419,594	100%	Poles - No Lumber - yes
CCA (lbs of Oxide)	NA	NA	NA	NA	NA
NCX (Formaldehyde, phosphoric acid)	NA	NA	NA	NA	NA
FCAP (Disodium Arsenate, Sodium Chromate)	NA	NA	NA	NA	NA
Other Chemicals on Section 313 List (specify)	Sodium Hydroxide 17,550 lbs.	5200 LBS	NA	NA	NA
	Sulfric Acid 8400 lbs.	700 lbs.	2,331,516		
	Phosphoric Acid 4970 lbs.	710 lbs.			

Information Completed by: Mark Good

Worksheet 3
(Air Information)

KOPPERS INDUSTRIES, INC.
WOOD TREATING PLANTS
TITLE III, FORM R

Plant: Grenada, MS Reporting Year 1992

Point Source Emissions

Tank No.	1992 Throughput (gal./yr.)	Material Stored*	Maintenance	Emissions Control Devices (Y/N) If yes, describe)
#1 W.T.	6,960,000 (20,000 gal/charge x 348 charges)	8.5% Penta	None	No
#2 W.T.	(20,000 gal/charge x 273 charges)	60/40 Creo/CTS	None	No
#2 W.T. (Horizontal)	1,820,000 (20,000 gal/charge x 91 charges)	Creosote	None	No
#4 W.T.	320,000 (20,000 x 16 charges) 4,780,000 (20,000 x 239 charges)	60/40 CTS Creosote	None	No
(Vertical) #4 W.T.	377,000	Creosote	None	No
#5 W.T.	11,000,000 (20,000 gal/charge x 550 charges)	8.5% Penta	None	No
#19 Penta Mix TK	1,308,882	8.5% Penta	None	No
Penta Con TK	251,546	40% Penta Concentrate	None	No
Tank # 12 #1 S.T. TK	523,723	Creosote	None	No

Maintanence includes improvement of tank condition such as painting, color changes, or restructuring.

Note: In the emission control devise column, please include the type of devise and reduction of emissions expected.

Reactivation of an old tank, or installation of a new tank, requires additional tank information to the lines above and the completion of a storage tank data sheet provided in the packet.

Worksheet 3
(Air Information)

KOPPERS INDUSTRIES, INC.
WOOD TREATING PLANTS
TITLE III, FORM R

Plant: Grenada, Ms Reporting Year 1992

Point Source Emissions

Tank No.	1992 Throughput (gal./yr.)	Material Stored*	Maintenance	Emissions Control Devices (Y/N) If yes, describe)
Tank #15 #6 St. TK.	523929	60/40 Creo/CTS	None	No
Tank #14 #5 St. TK	1,228,309	#2 Diesel for mixing Penta	None	No
Dehydrator #1	-0-	50% Creo/Water mix	None	No
Dehydrator #2	108,000	50% Creo/Water mix	None	No
Tank #13 Process Surge TK	5,161,900	15% Creo/Water mix	None	No
Tank #17 Stormwater S.T.	1,750,000	15% Creo/Water mix	None	No
W. T. #4 (Horizontal)	31,436	60/40 Creo/CTS	None	No

Maintanence includes improvement of tank condition such as painting, color changes, or restructuring.

Note: In the emission control devise column, please include the type of devise and reduction of emissions expected.

Reactivation of an old tank, or installation of a new tank, requires additional tank information to the lines above and the completion of a storage tank data sheet provided in the packet.

Worksheet 4

KOPPERS INDUSTRIES, INC.
WOOD TREATING PLANTS
TITLE III, FORM R

FUGITIVE EMISSION INVENTORY

Plant: Grenada, Ms Reporting year 1992

Preservative System: 8.5% Penta

	Total #
Pipe Valves	39
Open-end Valves (Sample valves)	5
Flanges	114
Pumps	2
Pressure-relief Valves	3

Valve, Flange and Pump Count

Please fill out a new Fugitive Emission Inventory Form for each preservative system and (creosote, 60/40 CCTS, penta, etc.). It is important to count only those flanges, valves and pumps that have throughputs or pressure from product chemical listed on Worksheet 1.

Information Completed by: Mack Good

Worksheet 4

KOPPERS INDUSTRIES, INC.
WOOD TREATING PLANTS
TITLE III, FORM R

FUGITIVE EMISSION INVENTORY

Plant: Grenada, Ms Reporting year 1992

Preservative System: Creosote (Grade #1)

	Total #
Pipe Valves	35
Open-end Valves (Sample valves)	7
Flanges	125
Pumps	3
Pressure-relief Valves	2

Valve, Flange and Pump Count

Please fill out a new Fugitive Emission Inventory Form for each preservative system and (creosote, 60/40 CCTS, penta, etc.). It is important to count only those flanges, valves and pumps that have throughputs or pressure from product chemical listed on Worksheet 1.

H-306

Information Completed by: Mark Good

Worksheet 4

KOPPERS INDUSTRIES, INC.
WOOD TREATING PLANTS
TITLE III, FORM R

FUGITIVE EMISSION INVENTORY

Plant: Grenada, Ms   Reporting year 1992

Preservative System: 60/40 Creo/CTS

	Total #
Pipe Valves	54
Open-end Valves (Sample valves)	19
Flanges	190
Pumps	6
Pressure-relief Valves	4

Valve, Flange and Pump Count

Please fill out a new Fugitive Emission Inventory Form for each preservative system and (creosote, 60/40 CCTS, penta, etc.). It is important to count only those flanges, valves and pumps that have throughputs or pressure from product chemical listed on Worksheet 1.

H-306

Information Completed by: Mark Good

Worksheet 4 (Cont'd)

KOPPERS INDUSTRIES, INC.
WOOD TREATING PLANTS
TITLE III, FORM R

FUGITIVE EMISSION INVENTORY

Plant: Grenada, MS Reporting year 1992

Fugitive Emissions

Cylinder No.*	No. of Charges Treated 1992	Preservative
#1	348	8.5% Penta
#2	273	60/40 Creo/CTS
#2	91	Creosote
#4	16	60/40 Creo/CTS
#4	239	Creosote
#5	550	8.5% Penta

* If any cylinders have been added, list length and diameter.

H-306

Information Completed by: Mark Good

WORKSHEET 5
Typical Tr[illegible] Practices; Operational Sequence

KOPPERS INDUSTRIES, INC.
WOOD TREATING PLANTS
TITLE III, FORM R

Plant: Grenada, Ms

Reporting Year 1992

PRODUCT	PRESERVATIVE	CHARGES PER YEAR	CU. FT. PER YEAR	PRECONDITION (HRS.)		BOULTON (HRS.)	INITIAL AIR		PRESSURE (HRS.)	FINAL VACUUM (HRS.)	FINAL STEAMING (HRS.)
				STEAMING	VACUUM		TIME (HRS.)	PRESSURE (PSI)			
Dry Oak Ties	60/40 c/CTS	86	132,016	NONE	NONE	NONE	NONE	NONE	4	2.5	NONE
Green Oak Ties	60/40 c/CTS	84	133,638	NONE	NONE	12.0	NONE	NONE	4	2.5	NONE
Dry Mixed Hardwood Ties	60/40 c/CTS	63	100,668	NONE	NONE	NONE	0.5	50	3	2.5	NONE
Green Mixed Hardwood Ties	60/40 c/CTS	31	47,952	NONE	NONE	8.0	0.5	50	3	2.5	NONE
Green Pine Lumber	60/40 c/CTS	9	13,631	10	2	NONE	0.5	50	4	2	NONE
Green Pine Lumber	Creosote	21	31 804	10	2	NONE	0.5	50	4	2	NONE
Dry Pine Poles	Creosote	60	85,538	3	0	NONE	0.5	50	4	2	NONE
Green Pine Poles	Creosote	231	318,483	15	2.5	NONE	0.5	50	4	2	NONE
Dry Pine Poles	8.5 Penta	406	688665	1.5	0	NONE	0.5	60	0.5	1.5	1.5
Green Pine Poles	8.5 Penta	492	730,929	12	3	NONE	0.5	60	0.5	2	NONE
Dry Pine Lumber	Creosote	34	48192	3	0	NONE	0.5	50	4	2	NONE

Worksheet 8

KOPPERS INDUSTRIES, INC.
WOOD TREATING PLANTS
TITLE III, FORM R

Plant: Grenada, Ms Reporting year 1992

CREOSOTE TANK CAR UNLOADING INFORMATION

Number of Creosote Tank Cars Unloaded 3

Total Gallons of Creosote Unloaded from Tank cars 57 378

Number of Hours Heated 8

Average Temperature of Creosote 220°F

Air Agitation Used While Heating
(Yes or No) Yes

Overhead or Bottom Unloading System over Head

KII Workshi8

Completed by: Mark Good

SUS-WF

SUSQUEHANNA PLANT FUEL ANALYSES

NO.	DATE	%C	%H	%N	%O	WET %S	DRY %S	WET %ASH	DRY %ASH	%H2O	WET BTU/#	DRY BTU/#
1a	10JAN90										7931	
1b	10JAN90										7297	
2	07MAR90	55.51	5.39	0.63	34.48		0.05	3.08	3.94	21.93	7029	9003
3	07MAR90	51.17	5.74	0.35	40.36		0.05	1.71	2.33	26.61	5361	7305
4	20MAR90	54.62	5.67	0.03	29.63	0.64	0.75	7.68	9.00	14.65	8063	9447
5	20MAR90	47.97	5.18	0.35	32.13	0.17	0.21	11.36	14.16	19.80	6842	8531
6	27MAR90	50.90	5.56	0.37	41.03	0.05	0.05	1.15	2.06	44.95	4675	8492
7	16MAR90	44.89	4.31	0.59	30.80	0.05	0.05	16.08	19.36	16.96	5938	7151
8	30MAR90	49.87	5.08	0.44	42.11	0.09	0.14	1.51	2.36	35.90	5577	8700
9a	30MAY90	49.44	5.44	0.30	41.72	0.05	0.05	2.06	3.05	32.52	5773	8555
9b	31MAY90	51.96	5.58	0.59	36.95	0.05	0.05	3.34	4.87	31.45	5901	8609
10	14MAY90	47.99	5.21	0.57	45.07	0.05	0.05	0.85	1.11	23.71	6525	8553
11	14MAY90	47.77	5.23	0.66	37.58	0.05	0.08	5.40	8.68	37.84	5039	8107
12a	25MAY90	52.06	5.63	0.45	40.66	0.05	0.05	0.82	1.15	29.01	5966	8404
12b	25MAY90	52.95	5.72	0.38	40.02	0.05	0.05	0.59	0.88	32.79	5849	8703
13a	23MAY90	51.60	5.67	0.52	38.92	0.05	0.05	2.31	3.25	28.69	6088	8538
13b	24MAY90	51.85	5.63	0.46	36.59	0.05	0.05	4.01	5.42	25.93	6471	8736
	AVG.	50.70	5.40	0.44	37.87	0.11	0.12	4.13	5.44	28.18	6254	8456
	MAX.	55.51	5.74	0.66	45.07	0.64	0.75	16.08	19.36	44.95	8063	9447
	MIN.	44.89	4.31	0.03	29.63	0.05	0.05	0.59	0.88	14.65	4675	7151

Enseco
A Corning Company

C.C.R. METALS
California Title 22 (Title 26) Protocol
TTLC (Total) Data Sheet

Client Name: Koppers Company, Inc.
Client ID: RR.T
Lab ID: 065543-0001-SA
Matrix: SOLID
Authorized: 22 AUG 92

Sampled: 25 AUG 92
Prepared: See Below

Received: 31 AUG 92
Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Antimony	ND	mg/kg	15.0	6010	NA	15 SEP 92
Arsenic	ND	mg/kg	50.0	7060	NA	14 SEP 92
Barium	ND	mg/kg	100	6010	NA	15 SEP 92
Beryllium	ND	mg/kg	0.75	6010	NA	15 SEP 92
Cadmium	ND	mg/kg	1.0	6010	NA	15 SEP 92
Chromium	7.0	mg/kg	5.0	6010	NA	15 SEP 92
Cobalt	ND	mg/kg	80.0	6010	NA	15 SEP 92
Copper	ND	mg/kg	25.0	6010	NA	15 SEP 92
Lead	ND	mg/kg	5.0	7421	NA	14 SEP 92
Mercury	ND	mg/kg	2.0	7470,7471	NA	18 SEP 92
Molybdenum	ND	mg/kg	350	6010	NA	15 SEP 92
Nickel	ND	mg/kg	20.0	6010	NA	15 SEP 92
Selenium	ND	mg/kg	5.0	7740	NA	16 SEP 92
Silver	ND	mg/kg	5.0	6010	NA	15 SEP 92
Thallium	ND	mg/kg	100	7841	NA	15 SEP 92
Vanadium	ND	mg/kg	24.0	6010	NA	15 SEP 92
Zinc	ND	mg/kg	250	6010	NA	15 SEP 92

Used RR tie data @ FR

ND = Not detected
NA = Not applicable

Reported By: Ron Hubbartt

Approved By: Barry Votaw

The cover letter is an integral part of this report.
Rev 230787

NOV 02 1992

KOPPERS INDUSTRIES, INC.
FLORENCE

WORK ORDER #M92-10-33

KEYSTONE-MONROEVILLE

Treated Wood
Fuel (Creo +
Penta Mixed)
+ Ash

FLORENCE, SC

Houston
Monroeville
Pittsburgh

Keystone Lab-Monroeville
3000 Tech Center Drive
Monroeville, PA 15146
412-825-9833
FAX 412-825-9727

CHESTER LabNet

October 30, 1992

Mr. Steve Smith
Koppers Industries, Inc.
436 Seventh Avenue
Suite 1701
Pittsburgh, PA 15219

Dear Mr. Smith:

Thank you for selecting Keystone Lab-Monroeville to carry out your recent sample analyses. We have completed the analyses that you requested and have enclosed a summary of the data for your review.

Your confidence in our service is appreciated. We look forward to serving you again.

Sincerely,

Penny R. Gardner/KAR

Penny R. Gardner
Laboratory Director

PRG:kar #R002

Enclosure

CHAIN OF CUSTODY RECORD

PLANT CODE: Florence
PROJECT NAME: TReATed wood CHips +AsH
SAMPLERS (Signature): Barry Killian

STA. NO.	DATE	TIME	COMP.	GRAB	WELL	STATION LOCATION	NUMBER OF CONTAINERS	TCLP	PAH'S Identified				REMARKS OR OBSERVATIONS
	9/24/92	11:00A		✓		Florence, SC	1	✓	✓				1-A is wood Ash from Boiler
	9/24/92	11:00A		✓		〃	1	✓	✓				2-B is trt wd Chips tale burned

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Relinquished by: (Signature)	Date	Time	Received by: (Signature)
Barry Killian	10/1/92	1:00P					
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Relinquished by: (Signature)	Date	Time	Received by: (Signature)

Relinquished by: (Signature)	Date	Time	Received for Laboratory by: (Signature)	Date	Time	Remarks:
			Stephen France	10-2-92	1100	

DISTRIBUTION: Original accompanies shipment; Copy to Coordinator Field Files.

WORK ORDER: M92-10-33
DATE RECEIVED: 2-OCT-1992
DATE REPORTED: 30-OCT-1992

REPORT TO:
[illegible]ers Industries Inc
[illegible] Seventh Avenue
Pittsburgh PA 15219

PREPARED BY:
Keystone Lab - Monroeville
3000 Tech Center Drive
Monroeville, PA 15146
(412) 825-9600

REVISION

ATTENTION: Steve Smith

PROJECT ID:
P.O. NUMBER:

CERTIFIED BY : Kenneth J Kuzia

Please call the above number if you have any questions regarding this Work Order. NOTE: All samples will be retained for 60 days. Unused soil and waste samples will be returned to you at no charge. Alternately, Keystone can make disposal arrangement for a fee.

Samples included in this report:

Keystone Sample ID	Client's Sample Name	Date Collected	Sample Matrix
M92-10-33-001	LAB BLANK		OTHER
M92-10-33-002	LAB CONTROL SAMPLE		OTHER
M92-10-33-003	2-B WOOD CHIP	24-SEP-1992	OTHER
M92-10-33-004	1-A WOOD ASH	24-SEP-1992	OTHER
M92-10-33-005	MS		OTHER

Analyses and Descriptions referred to in this report.

Analysis ID	Parameter Description
8270	Semi-Volatiles
8270X	(Soil) Semi-Volatiles
TCLPN	Non-Volatile TCLP Extraction Procedure

KEYSTONE LAB - MONROEVILLE

REVISION

Summary of Analytical Results

Date received: 2-OCT-1992 Customer: Koppers Industries Inc Job name: M92-10-33

		Samples	
Keystone ID		33-003	33-004
Date Sampled		24-SEP-1992	24-SEP-1992
Customer ID		2-B WOOD CHIP	1-A WOOD ASH
Parameters	Units		
TCLP EXTRACT - 8270			
2-Chlorophenol	ug/L	<100	<10.0
2,4-Dichlorophenol	ug/L	<100	<10.0
2,4-Dimethylphenol	ug/L	427	<10.0
4,6-Dinitro-2-Methylphenol	ug/L	<500	<50.0
2,4-Dinitrophenol	ug/L	<500	<50.0
2-Methylphenol	ug/L	<100	<10.0
4-Methylphenol	ug/L	<100	<10.0
2-Nitrophenol	ug/L	<100	<10.0
4-Nitrophenol	ug/L	<500	<50.0
4-Chloro-3-Methylphenol	ug/L	<100	<10.0
Pentachlorophenol	ug/L	1630	<50.0
Phenol	ug/L	<100	<10.0
2,4,5-Trichlorophenol	ug/L	<500	<50.0
2,4,6-Trichlorophenol	ug/L	<100	<10.0
Acenaphthene	ug/L	405	<10.0
Acenaphthylene	ug/L	<100	<10.0
Anthracene	ug/L	<100	<10.0
Benzo(a)anthracene	ug/L	<100	<10.0
Benzo(a)pyrene	ug/L	<100	<10.0
Benzo(b)fluoranthene	ug/L	<100	<10.0
Benzo(g,h,i)perylene	ug/L	<100	<10.0
Benzo(k)fluoranthene	ug/L	<100	<10.0
Benzoic Acid	ug/L	<500	<50.0
Benzyl Alcohol	ug/L	<100	<10.0
Bis(2-Chloroethoxy) methane	ug/L	<100	<10.0
Bis(2-Chloroethyl) ether	ug/L	<100	<10.0
Bis(2-Chloroisopropyl) ether	ug/L	<100	<10.0
Bis(2-ethylhexyl) phthalate	ug/L	<100	<10.0
4-Bromophenyl phenyl ether	ug/L	<100	<10.0
Butyl Benzyl phthalate	ug/L	<100	<10.0
4-Chloroaniline	ug/L	<100	<10.0
2-Chloronaphthalene	ug/L	<100	<10.0
4-Chlorophenyl phenyl ether	ug/L	<100	<10.0
Chrysene	ug/L	<100	<10.0
Dibenzo(a,h)anthracene	ug/L	<100	<10.0
Dibenzofuran	ug/L	401	<10.0
1,2-Dichlorobenzene	ug/L	<100	<10.0
1,3-Dichlorobenzene	ug/L	<100	<10.0
1,4-Dichlorobenzene	ug/L	<100	<10.0
3,3'-Dichlorobenzidine	ug/L	<200	<20.0
Diethyl phthalate	ug/L	<100	<10.0

KEYSTONE LAB - MONROEVILLE

REVISION

Summary of Analytical Results

Date received: 2-OCT-1992 Customer: Koppers Industries Inc Job name: M92-10-33

		Samples	
Keystone ID		33-003	33-004
Date Sampled		24-SEP-1992	24-SEP-1992
Customer ID		2-B WOOD CHIP	1-A WOOD ASH
Parameters	Units		
TCLP EXTRACT - 8270 (continued)			
Dimethyl phthalate	ug/L	<100	<10.0
Di-n-butyl phthalate	ug/L	<100	<10.0
2,4-Dinitrotoluene	ug/L	<100	<10.0
2,6-Dinitrotoluene	ug/L	<100	<10.0
Di-n-octyl phthalate	ug/L	<100	<10.0
Fluoranthene	ug/L	127	<10.0
Fluorene	ug/L	531	<10.0
Hexachlorobenzene	ug/L	<100	<10.0
Hexachlorobutadiene	ug/L	<100	<10.0
Hexacyclochloropentadiene	ug/L	<100	<10.0
Hexachloroethane	ug/L	<100	<10.0
Indeno(1,2,3-cd)pyrene	ug/L	<100	<10.0
Isophorone	ug/L	5030	<10.0
2-Methylnaphthalene	ug/L	340	<10.0
Naphthalene	ug/L	1410	<10.0
2-Nitroaniline	ug/L	<500	<50.0
3-Nitroaniline	ug/L	<500	<50.0
4-Nitroaniline	ug/L	<500	<50.0
Nitrobenzene	ug/L	<100	<10.0
N-nitrosodi-n-propylamine	ug/L	<100	<10.0
N-nitrosodiphenylamine	ug/L	<100	<10.0
Phenanthrene	ug/L	451	<10.0
Pyrene	ug/L	<100	<10.0
1,2,4-Trichlorobenzene	ug/L	<100	<10.0

REVISION

KEYSTONE LAB - MONROEVILLE

Summary of Analytical Results

Date received: 2-OCT-1992 Customer: Koppers Industries Inc Job name: M92-10-33

		Samples	
Keystone ID		33-003	33-004
Date Sampled		24-SEP-1992	24-SEP-1992
Customer ID		2-B WOOD CHIP	1-A WOOD ASH
Parameters	Units		
8270X			
2-Chlorophenol	ug/Kg	<165000	<330
2,4-Dichlorophenol	ug/Kg	<165000	<330
2,4-Dimethylphenol	ug/Kg	<165000	<330
4,6-Dinitro-2-methylphenol	ug/Kg	<800000	<1600
2,4-Dinitrophenol	ug/Kg	<800000	<1600
2-Methylphenol	ug/Kg	<165000	<330
4-Methylphenol	ug/Kg	<165000	<330
2-Nitrophenol	ug/Kg	<165000	<330
4-Nitrophenol	ug/Kg	<800000	<1600
4-Chloro-3-methylphenol	ug/Kg	<165000	<330
Pentachlorophenol	ug/Kg	1920000	<1600
Phenol	ug/Kg	<165000	<330
2,4,5-Trichlorophenol	ug/Kg	<800000	<1600
2,4,6-Trichlorophenol	ug/Kg	<165000	<330
Acenaphthene	ug/Kg	2660000	<330
Acenaphthylene	ug/Kg	225000	<330
Anthracene	ug/Kg	1400000	<330
Benzo(a)anthracene	ug/Kg	960000	<330
Benzo(a)pyrene	ug/Kg	239000	<330
Benzo(b)fluoranthene	ug/Kg	292000	<330
Benzo(g,h,i)perylene	ug/Kg	<165000	<330
Benzo(k)fluoranthene	ug/Kg	363000	<330
Benzoic Acid	ug/Kg	<800000	<1600
Benzyl Alcohol	ug/Kg	<165000	<330
Bis(2-Chloroethoxy) methane	ug/Kg	<165000	<330
Bis(2-Chloroethyl) ether	ug/Kg	<165000	<330
Bis(2-Chloroisopropyl) ether	ug/Kg	<165000	<330
Bis(2-ethylhexyl) phthalate	ug/Kg	<165000	<330
4-Bromophenyl phenyl ether	ug/Kg	<165000	<330
Butyl Benzyl phthalate	ug/Kg	<165000	<330
4-Chloroaniline	ug/Kg	<165000	<330
2-Chloronaphthalene	ug/Kg	<165000	<330
4-Chlorophenyl phenyl ether	ug/Kg	<165000	<330
Chrysene	ug/Kg	916000	<330
Dibenzo(a,h)anthracene	ug/Kg	<165000	<330
Dibenzofuran	ug/Kg	1580000	<330
1,2-Dichlorobenzene	ug/Kg	<165000	<330
1,3-Dichlorobenzene	ug/Kg	<165000	<330
1,4-Dichlorobenzene	ug/Kg	<165000	<330
3,3'-Dichlorobenzidine	ug/Kg	<330000	<660
Diethyl phthalate	ug/Kg	<165000	<330

KEYSTONE LAB - MONROEVILLE

Summary of Analytical Results

REVISION

Date received: 2-OCT-1992 Customer: Koppers Industries Inc Job name: M92-10-33

		Samples	
Keystone ID		33-003	33-004
Date Sampled		24-SEP-1992	24-SEP-1992
Customer ID		2-B WOOD CHIP	1-A WOOD ASH
Parameters	Units		
8270X (continued)			
Dimethyl phthalate	ug/Kg	<165000	<330
Di-n-butyl phthalate	ug/Kg	<165000	<330
2,4-Dinitrotoluene	ug/Kg	<165000	<330
2,6-Dinitrotoluene	ug/Kg	<165000	<330
Di-n-octyl phthalate	ug/Kg	<165000	<330
Fluoranthene	ug/Kg	2310000	<330
Fluorene	ug/Kg	2640000	<330
Hexachlorobenzene	ug/Kg	<165000	<330
Hexachlorobutadiene	ug/Kg	<165000	<330
Hexacyclochloropentadiene	ug/Kg	<165000	<330
Hexachloroethane	ug/Kg	<165000	<330
Indeno(1,2,3-cd)pyrene	ug/Kg	<165000	<330
Isophorone	ug/Kg	293000	<330
2-Methylnaphthalene	ug/Kg	1590000	<330
Naphthalene	ug/Kg	2790000	1150
2-Nitroaniline	ug/Kg	<800000	<1600
3-Nitroaniline	ug/Kg	<800000	<1600
4-Nitroaniline	ug/Kg	<800000	<1600
Nitrobenzene	ug/Kg	<165000	<330
N-nitrosodi-n-propylamine	ug/Kg	<165000	<330
N-nitrosodiphenylamine	ug/Kg	<165000	<330
Phenanthrene	ug/Kg	3990000	<330
Pyrene	ug/Kg	2450000	<330
1,2,4-Trichlorobenzene	ug/Kg	<165000	<330

KEYSTONE LAB - MONROEVILLE

Summary of QA/QC Results

Date received: 2-OCT-1992 Customer: Koppers Industries Inc Job name: M92-10-33

		Samples		
Keystone ID		33-001	33-002	33-005
Sampling Point		QA_QC	QA_QC	QA_QC
Customer ID		LAB BLANK	LAB CONTROL SAMPLE	MS
Parameters	Units			
TCLP EXTRACT - 8270				
2-Chlorophenol	ug/L	<10.0	NR	NR
2,4-Dichlorophenol	ug/L	<10.0	NR	NR
2,4-Dimethylphenol	ug/L	<10.0	NR	NR
4,6-Dinitro-2-Methylphenol	ug/L	<50.0	NR	NR
2,4-Dinitrophenol	ug/L	<50.0	NR	NR
2-Methylphenol	ug/L	<10.0	72.9 % Rec.	63.2 % Rec.
4-Methylphenol	ug/L	<10.0	127 % Rec.	132 % Rec.
2-Nitrophenol	ug/L	<10.0	NR	NR
4-Nitrophenol	ug/L	<50.0	NR	NR
4-Chloro-3-Methylphenol	ug/L	<10.0	NR	NR
Pentachlorophenol	ug/L	<50.0	70.4 % Rec.	63.7 % Rec.
Phenol	ug/L	<10.0	NR	NR
2,4,5-Trichlorophenol	ug/L	<50.0	69.9 % Rec.	67.2 % Rec.
2,4,6-Trichlorophenol	ug/L	<10.0	85.7 % Rec.	85.6 % Rec.
Acenaphthene	ug/L	<10.0	NR	NR
Acenaphthylene	ug/L	<10.0	NR	NR
Anthracene	ug/L	<10.0	NR	NR
Benzo(a)anthracene	ug/L	<10.0	NR	NR
Benzo(a)pyrene	ug/L	<10.0	NR	NR
Benzo(b)fluoranthene	ug/L	<10.0	NR	NR
Benzo(g,h,i)perylene	ug/L	<10.0	NR	NR
Benzo(k)fluoranthene	ug/L	<10.0	NR	NR
Benzoic Acid	ug/L	<50.0	NR	NR
Benzyl Alcohol	ug/L	<10.0	NR	NR
Bis(2-Chloroethoxy) methane	ug/L	<10.0	NR	NR
Bis(2-Chloroethyl) ether	ug/L	<10.0	NR	NR
Bis(2-Chloroisopropyl) ether	ug/L	<10.0	NR	NR
Bis(2-ethylhexyl) phthalate	ug/L	<10.0	NR	NR
4-Bromophenyl phenyl ether	ug/L	<10.0	NR	NR
Butyl Benzyl phthalate	ug/L	<10.0	NR	NR
4-Chloroaniline	ug/L	<10.0	NR	NR
2-Chloronaphthalene	ug/L	<10.0	NR	NR
4-Chlorophenyl phenyl ether	ug/L	<10.0	NR	NR
Chrysene	ug/L	<10.0	NR	NR
Dibenzo(a,h)anthracene	ug/L	<10.0	NR	NR
Dibenzofuran	ug/L	<10.0	NR	NR
1,2-Dichlorobenzene	ug/L	<10.0	NR	NR
1,3-Dichlorobenzene	ug/L	<10.0	NR	NR
1,4-Dichlorobenzene	ug/L	<10.0	52.9 % Rec.	59.2 % Rec.
3,3'-Dichlorobenzidine	ug/L	<20.0	NR	NR
Diethyl phthalate	ug/L	<10.0	NR	NR

KEYSTONE LAB - MONROEVILLE

Summary of QA/QC Results

Date received: 2-OCT-1992 Customer: Koppers Industries Inc Job name: M92-10-33

		Samples		
Keystone ID		33-001	33-002	33-005
Sampling Point		QA_QC	QA_QC	QA_QC
Customer ID		LAB BLANK	LAB CONTROL SAMPLE	MS
Parameters	Units			
TCLP EXTRACT - 8270 (continued)				
Dimethyl phthalate	ug/L	<10.0	NR	NR
Di-n-butyl phthalate	ug/L	<10.0	NR	NR
2,4-Dinitrotoluene	ug/L	<10.0	90.8 % Rec.	90.4 % Rec.
2,6-Dinitrotoluene	ug/L	<10.0	NR	NR
Di-n-octyl phthalate	ug/L	<10.0	NR	NR
Fluoranthene	ug/L	<10.0	NR	NR
Fluorene	ug/L	<10.0	NR	NR
Hexachlorobenzene	ug/L	<10.0	79.8 % Rec.	65.3 % Rec.
Hexachlorobutadiene	ug/L	<10.0	60.9 % Rec.	46.6 % Rec.
Hexacyclochloropentadiene	ug/L	<10.0	NR	NR
Hexachloroethane	ug/L	<10.0	58.3 % Rec.	52.7 % Rec.
Indeno(1,2,3-cd)pyrene	ug/L	<10.0	NR	NR
Isophorone	ug/L	<10.0	NR	NR
2-Methylnaphthalene	ug/L	<10.0	NR	NR
Naphthalene	ug/L	<10.0	NR	NR
2-Nitroaniline	ug/L	<50.0	NR	NR
3-Nitroaniline	ug/L	<50.0	NR	NR
4-Nitroaniline	ug/L	<50.0	NR	NR
Nitrobenzene	ug/L	<10.0	81.2 % Rec.	84.2 % Rec.
N-nitrosodi-n-propylamine	ug/L	<10.0	NR	NR
N-nitrosodiphenylamine	ug/L	<10.0	NR	NR
Phenanthrene	ug/L	<10.0	NR	NR
Pyrene	ug/L	<10.0	NR	NR
1,2,4-Trichlorobenzene	ug/L	<10.0	NR	NR

KEYSTONE LAB - MONROEVILLE

Summary of QA/QC Results

Date received: 2-OCT-1992 Customer: Koppers Industries Inc Job name: M92-10-33

		Samples	
Keystone ID		33-001	33-002
Sampling Point		QA_QC	QA_QC
Customer ID		LAB BLANK	LAB CONTROL SAMPLE
Parameters	Units		
8270X			
2-Chlorophenol	ug/Kg	<330	73.7 % Rec.
2,4-Dichlorophenol	ug/Kg	<330	NR
2,4-Dimethylphenol	ug/Kg	<330	NR
4,6-Dinitro-2-methylphenol	ug/Kg	<1600	NR
2,4-Dinitrophenol	ug/Kg	<1600	NR
2-Methylphenol	ug/Kg	<330	NR
4-Methylphenol	ug/Kg	<330	NR
2-Nitrophenol	ug/Kg	<330	NR
4-Nitrophenol	ug/Kg	<1600	77.8 % Rec.
4-Chloro-3-methylphenol	ug/Kg	<330	79.9 % Rec.
Pentachlorophenol	ug/Kg	<1600	55.9 % Rec.
Phenol	ug/Kg	<330	88.0 % Rec.
2,4,5-Trichlorophenol	ug/Kg	<1600	NR
2,4,6-Trichlorophenol	ug/Kg	<330	NR
Acenaphthene	ug/Kg	<330	73.9 % Rec.
Acenaphthylene	ug/Kg	<330	NR
Anthracene	ug/Kg	<330	NR
Benzo(a)anthracene	ug/Kg	<330	NR
Benzo(a)pyrene	ug/Kg	<330	NR
Benzo(b)fluoranthene	ug/Kg	<330	NR
Benzo(g,h,i)perylene	ug/Kg	<330	NR
Benzo(k)fluoranthene	ug/Kg	<330	NR
Benzoic Acid	ug/Kg	<1600	NR
Benzyl Alcohol	ug/Kg	<330	NR
Bis(2-Chloroethoxy) methane	ug/Kg	<330	NR
Bis(2-Chloroethyl) ether	ug/Kg	<330	NR
Bis(2-Chloroisopropyl) ether	ug/Kg	<330	NR
Bis(2-ethylhexyl) phthalate	ug/Kg	<330	NR
4-Bromophenyl phenyl ether	ug/Kg	<330	NR
Butyl Benzyl phthalate	ug/Kg	<330	NR
4-Chloroaniline	ug/Kg	<330	NR
2-Chloronaphthalene	ug/Kg	<330	NR
4-Chlorophenyl phenyl ether	ug/Kg	<330	NR
Chrysene	ug/Kg	<330	NR
Dibenzo(a,h)anthracene	ug/Kg	<330	NR
Dibenzofuran	ug/Kg	<330	NR
1,2-Dichlorobenzene	ug/Kg	<330	NR
1,3-Dichlorobenzene	ug/Kg	<330	NR
1,4-Dichlorobenzene	ug/Kg	<330	72.9 % Rec.
3,3'-Dichlorobenzidine	ug/Kg	<660	NR
Diethyl phthalate	ug/Kg	<330	NR

KEYSTONE LAB - MONROEVILLE

Summary of QA/QC Results

Date received: 2-OCT-1992 Customer: Koppers Industries Inc Job name: M92-10-33

		Samples	
Keystone ID		33-001	33-002
Sampling Point		QA_QC	QA_QC
Customer ID		LAB BLANK	LAB CONTROL SAMPLE
Parameters	Units		
8270X (continued)			
Dimethyl phthalate	ug/Kg	<330	NR
Di-n-butyl phthalate	ug/Kg	<330	NR
2,4-Dinitrotoluene	ug/Kg	<330	74.8 % Rec.
2,6-Dinitrotoluene	ug/Kg	<330	NR
Di-n-octyl phthalate	ug/Kg	<330	NR
Fluoranthene	ug/Kg	<330	NR
Fluorene	ug/Kg	<330	NR
Hexachlorobenzene	ug/Kg	<330	NR
Hexachlorobutadiene	ug/Kg	<330	NR
Hexacyclochloropentadiene	ug/Kg	<330	NR
Hexachloroethane	ug/Kg	<330	NR
Indeno(1,2,3-cd)pyrene	ug/Kg	<330	NR
Isophorone	ug/Kg	<330	NR
2-Methylnaphthalene	ug/Kg	<330	NR
Naphthalene	ug/Kg	<330	NR
2-Nitroaniline	ug/Kg	<1600	NR
3-Nitroaniline	ug/Kg	<1600	NR
4-Nitroaniline	ug/Kg	<1600	NR
Nitrobenzene	ug/Kg	<330	NR
N-nitrosodi-n-propylamine	ug/Kg	<330	NR
N-nitrosodiphenylamine	ug/Kg	<330	58.7 % Rec.
Phenanthrene	ug/Kg	<330	NR
Pyrene	ug/Kg	<330	64.6 % Rec.
1,2,4-Trichlorobenzene	ug/Kg	<330	80.6 % Rec.

From: Environmental Diagnostic Laboratories
P.O. Box 15098
Hattiesburg, MS 39404-5098
(601) 264-2222

MAY 1 1 1993

May 13, 1993

To: Mr. Mark Good
Koppers Industries
P.O. Box 160
Tie Plant, MS 38960

The following analytical results have been obtained for the indicated sample which was submitted to this laboratory:

Sample I.D. AA01561
Location Code: KOPPERS
Purchase order number: VERBAL
Sample Description: Boiler Ash
Sample collector: MARK GOOD
Sample collection date: 05/10/93 Time: 08:00
Lab submittal date: 05/11/93 Time: 09:30
Received by: RLH Validated by: RLH

Parameter: TCLP Extraction (Leach)
Method reference: SW846-1311
Result: Completed MDL or sensitivity:
Date started: 05/11/93 Date finished: 05/12/93
Time started: 10:30 Analyst: PBD

Parameter: TCLP Extraction for volatiles
Method reference: SW846-1311
Result: Completed MDL or sensitivity:
Date started: 05/11/93 Date finished: 05/12/93
Time started: 10:30 Analyst: PBD

Parameter: TCLP Volatiles
Method reference: SW846-8240
Result: see below
Date started: 05/12/93 Date finished: 05/12/93
Time started: 12:06 Analyst: PBD

Parameter: TCLP Semivolatiles
Method reference: SW846-8270
Result: see below
Date started: 05/12/93 Date finished: 05/13/93
Time started: 21:09 Analyst: JPH

Parameter: TCLP Metals
Method reference: SW846-6010
Result: see below
Date started: 05/13/93 Date finished: 05/13/93
Time started: 09:50 Analyst: MSJ

Parameter: BNA Extraction on TCLP Fluid
Method reference: SW846-8270
Result: Completed
Date started: 05/12/93
Time started: 10:10
MDL or sensitivity:
Date finished: 05/12/93
Analyst: SPH

Parameter: Solid pH
Method reference: SW846-9045
Result: 11.2 pH Units
Date started: 05/11/93
Time started: 10:30
MDL or sensitivity: .01
Date finished: 05/11/93
Analyst: JPH

Parameter: Reactive Sulfide
Method reference: SW846
Result: Less than mg release/Kg
Date started: 05/11/93
Time started: 10:30
MDL or sensitivity: 10
Date finished: 05/11/93
Analyst: SPH

Parameter: Reactive Cyanide
Method reference: SW846
Result: Less than mg release/Kg
Date started: 05/11/93
Time started: 11:00
MDL or sensitivity: 10
Date finished: 05/11/93
Analyst: SPH

Data for TCLP Volatiles ug/L:

Component Name		Result	Component MDL
Benzene		Not detected	10
Carbon Tetrachloride		Not detected	10
Chlorobenzene		Not detected	10
Chloroform		Not detected	10
1,2-Dichloroethane		Not detected	10
1,1-Dichloroethene		Not detected	10
2-Butanone		Not detected	50
Tetrachloroethene		Not detected	10
Trichloroethene		Not detected	10
Vinyl Chloride		Not detected	20
1,2-Dichloroethane-d4 (surr)	% Recovery	96	
Toluene-d8 (surr)	% Recovery	103	
4-Bromofluorobenzene (surr)	% Recovery	101	

Data for TCLP Semivolatiles ug/L:

Component Name	Result	Component MDL
2-Methylphenol (o-Cresol)	Not detected	10
3- & 4-Methylphenol (m & p Cresol),total	Not detected	10
1,4-Dichlorobenzene	Not detected	10
2,4-Dinitrotoluene	Not detected	10
Hexachlorobenzene	Not detected	10
Hexachlorobutadiene	Not detected	10
Hexachloroethane	Not detected	10
Nitrobenzene	Not detected	10

Data for TCLP Semivolatiles (continued):

Component Name		Result	Component MDL
Pentachlorophenol		Not detected	50
Pyridine		Not detected	20
2,4,5-Trichlorophenol		Not detected	50
2,4,6-Trichlorophenol		Not detected	50
2-Fluorophenol (surr)	% Recovery	36	
Phenol-d5 (surr)	% Recovery	34	
2-Chlorophenol-d4 (surr)	% Recovery	58	
1,2-Dichlorobenzene (surr)	% Recovery	64	
Nitrobenzene-d5 (surr)	% Recovery	73	
2-Fluorobiphenyl (surr)	% Recovery	70	
2,4,6-Tribromophenol (surr)	% Recovery	91	
Terphenyl-d14 (surr)	% Recovery	103	

Data for TCLP Metals mg/L:

Component Name	Result	Component MDL
Arsenic	Not detected	0.05
Barium	2.94	0.003
Cadmium	0.014	0.004
Chromium	Not detected	0.007
Lead	0.3	0.05
Mercury	Not detected	0.001
Selenium	0.05	0.05
Silver	Not detected	0.007

Sample comments:

Reference Lab Report No. R1162.

QA/QC Data:

Volatile Organics

Method Blank - All target compounds less than MDL.

Compound	MS %Rec	MSD %Rec	RPD %
1,1-Dichloroethene	93	88	6
Trichloroethene	94	93	1
Benzene	94	93	1
Toluene	94	94	0
Chlorobenzene	95	93	2

Semi-Volatile Organics

Method Blank - All target compounds less than MDL.

Compound	MS %Rec	MSD %Rec	RPD %
Phenol	25	23	8
2-Chlorophenol	69	68	1
1,4-Dichlorobenzene	47	48	2
N-Nitroso-di-n-propylamine	63	62	2
1,2,4-Trichlorobenzene	53	54	2
4-Chloro-3-methylphenol	83	85	2
Acenaphthene	64	67	5
4-Nitrotoluene	28	23	20

Sample comments (continued):

2,4-Dinitrotoluene	82	79	4
Pentachlorophenol	93	87	7
Pyrene	100	95	5

Metals
Method Blank - All target metals less than MDL.

Metal	MS %Rec	MSD %Rec	RPD %
Arsenic	99	96	3
Barium	100	103	3
Cadmium	86	83	3
Chromium	96	91	5
Lead	113	112	1
Mercury	96	96	0
Selenium	101	97	4
Silver	95	97	2

If there are any questions regarding this data, please call.

Reviewed by: Ricky L. Hatton, Ph.D.

Environmental Diagnostic
Laboratories, Inc.

39 King Road • Hattiesburg, MS 39402
P.O. Box 15098
Office: 601-264-2222 • Fax: 601-268-2030

CHAIN OF CUSTODY RECORD

PROJ NO.	Project Name
	Koppers
Samplers: (signature)	Mark Good

No. of Containers	O+G	Blank				

SAMP NO	STA. NO.	DATE	TIME	COMP	GRAB	DESCRIPTION	REMARKS
1	1	5/10	8:00 Am		1	Discharge	
2	1				1		
3					1	Boiler	
4					1	Ash	

On Boiler Ash
TCLP Volatiles
TCLP Semi Volatiles
TCLP Metals
Reactivity – (Sulfides + cyanides)
pH

Relinquished by:	Date	Time	Received by:	Date	Time	Relinquished by:	Date	Time	Received by:	Date	Time
MGood	5/10										

Relinquished by:	Date	Time	Received for Lab by:	Date	Time	REMARKS
			[illegible]	5/11/93	09:30	

KEYSTONE
ENVIRONMENTAL RESOURCES, INC.

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

July 1, 1988

CERTIFIED MAIL
RETURN RECEIPT
REQUESTED

Mr. Dan Jackson
Mississippi Department of Natural
Resources
Bureau of Air Pollution Control
2380 Highway 80 West
Jackson, MS 39209

Re: Koppers Company, Inc.
Grenada Facility
Boiler Stack Test Results

Dear Mr. Jackson:

As stipulated by the air operating permit for the Koppers Company, Inc,. Grenada, MS facility, please find enclosed the results for the boiler stack test performed during the week of May 2, 1988. These results show that the boiler is well within compliance with regards to particulate emissions, and that the boiler effectively destroys constituents associated with using wood treating wastes as fuel additive material.

If you would like additional information or have any questions, please call.

Sincerely,

Robert J. Anderson

Robert J. Anderson
Staff Program Manager
Koppers Treated Wood Products

RJA/cr
Enclosure

cc: [redacted]
J. Batchelder
J. Kane (w/o enclosure)
J. Lampe (w/o enclosure)

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1.0 INTRODUCTION

Koppers Company, Inc. undertook a trial burn program at its Grenada, Mississippi Tie Plant, wood treating plant during the week of May 2, 1988. This program tested emmissions from the wood fired boiler steam generation plant. The tests determined the destruction and removal efficiency (DRE) of principal organic hazardous constituents (POHC) of a blended process by-product used as a fuel additive. Other parameters evaluated as part of the program were opacity, particulate, and chloride emission rates. Also established was the relationship between the combustion zone temperature and DRE. The purpose of the program was to provide the Mississippi Department of Natural Resources (DNR), Bureau of Pollution Control, data on this temperature relationship and fulfill the permit obligation which requires source retest within three years of the permit issuance date.

The tests were performed by the Air Quality Engineering division (AQE) of Keystone Environmental Resources, Inc. The test team was comprised of Mark Grunebach, Vince Bouma, and Frank Paola. The Department of Natural Resources was represented by Ken Petre.

The results of the modified method 5 testing showed average total PAH emissions of 0.018 lb/hr with a creosote fuel additive feed rate of 400 lb/hr and 0.010 lb/hr with a creosote feed rate of 800 lb/hr. When burning pentachlorophenol in oil preservative (penta) analysis was performed for pentachlorophenol emissions (PCP) and an average emission rate of 0.00045 lb/hr PCP was calculated.

The results of testing can be analyzed by reviewing the destruction and removal efficiency values (DRE) for the different test conditions. The results of the destruction and removal efficiency evaluations show DRE values of 99.99% or better in 12 of 17 calculations for removing principal organic hazardous constituents while 400 lb/hr of creosote fuel additive were fed to the boiler with all DREs greater than 99.93%. The DREs were above 99.99% for 14 of 17 calculations for a creosote feed fuel additive rate of 800 lb/hr for all DREs with all DREs above 99.96%. These results show that the boiler efficiently destroys the POHC associated with wood treating process wastes.

KOPPERS COMPANY, INC.
GRENADA, MISSISSIPPI

TABLE 1
Boiler Test Burn
Test Sequence

Run # (GR-BS)	Date	Time	Description
44	5/3/88	10:30-11:34	This series of tests was conducted under normal conditions
45		11:41-12:47	
46		12:16-13:36	
47		13:05-14:14	
48		13:51-15:15	
49		14:44-15:59	
50	5/4/88	8:45-9:49	This series of tests was conducted with a creosote feed rate of 400 lb/hr.
51		9:18-10:33	
52		10:01-11:11	
53		10:40-11:50	
54		11:18-12:31	
55		12:00-13:03	
56	5/4/88	15:32-16:36	This series of tests was conducted with a creosote feed rate of 800 lb/hr.
57		16:05-17:14	
58		16:43-17:54	
59		17:32-18:39	
60		18:08-19:33	
61		19:02-20:07	
62	5/5/88	8:30-9:35	This series of tests was conducted with a penta feed rate of 400 lb/hr.
63		9:03-10:19	
64		9:48-11:25	
65		10:44-12:08	
66		11:37-12:55	
67		12:24-13:32	

2.0 TEST DESIGNATION AND PROGRAM

Stack test runs made during the trial burn program have been identified by nomenclature which identifies the Grenada plant (GR) and the boiler stack (BS) as the source on which these test runs were conducted. Individual runs are identified by numbers starting with 44 (GR-BS-44) through GR-BS-67. The numbering begins with 44 as previous runs were performed on the source by Air Quality Engineering in May, 1982 and August 1984.

Due to the clean-up and extraction procedures necessary for the two classes of principal organic hazardous constituents, six separate runs were necessary to calculate the required data for each condition. Even numbered runs were used for the benzene extractable principal organic hazardous constituents found in the penta in oil by-product as well as chloride and chlorine emission rates. Odd numbered runs were used for the methylene chloride extractable POHC found in the creosote by-product. Particulate determinations were also performed on odd numbered runs.

Table 1 lists a description of the testing sequence as performed during the May trial burns. The information is organized to include a single description for groups of runs which are averaged to yield a single trial burn test.

3.0 FUEL ADDITIVE MATERIAL PARAMETERS

The purpose of this program was to acquire data which would allow the operating permit to be renewed. The stack emissions were monitored under four operating conditions. These conditions were:

1. Operating the boiler with no fuel additive feed (primary fuel woodwaste only).

2. Operating the boiler with a creosote process waste fuel additive feed rate of 400 lb/hr.

3. Operating the boiler with a creosote process waste fuel additive feed rate of 800 lb/hr.

4. Operating the boiler with a penta process waste fuel additive feed rate of 400 lb/hr.

Samples were collected of the fuel additive feed stock and returned to Monroeville for analysis. This data is presented in Table 2.

4.0 BOILER OPERATION

The unit for which this study was performed is a wood-waste fired boiler/steam generator. The boiler currently uses bark, wood chips, sawdust, and hogged material as the primary fuel. The fuel is stored in a bin which has a 3-day storage capacity. Fuel is drawn from the bottom of the bin by screw conveyor. These conveyors drop the wood waste on a drag-chain conveyor which runs to a surge bin for each cell of the boiler combustion process.

The boiler consists of two identical combustion cells. The wood waste is fed to each cell by screw conveyor from the bottom of the surge bins. The fuel falls to the bottom of the combustion cell forming a pile. Combustion takes place in what approximates two-stage oxidation. The wood wastes decompose pyrolytically in the cell pile producing a combustible gas. This gas burns in the upper region of the cell.

Air is introduced to the combustion zone in three areas. The primary air is fed to the waste pile through the bottom grates. Secondary air is fed tangentially to the combustion zone through openings in the lower walls of the cell. Tertiary air is fed diagonally in the upper region of the combustion cell to break-up cyclonic flow of the exit gas. The combustion gas is now approximately 2000^{o}F. This gas flows into the entrainment zone which, together with the combustion zone, affords approximately a two second retention time at a minimum temperature of 1400^{o}F.

The hot off-gas, contacts the boiler tubes above the entrainment zone. The tubes represent the area of the boiler where the actual steam is produced. The off-gas is cooled to between 500 to 600^{o}F in the tube section. The off-gas is further processed for removal of particulate by a multiclone inertial separator before discharge at the stack. Further heat is recovered from the off-gas in the air preheater. The combustion gas is cooled to 200 to 300^{o}F while heating ambient air prior to use in the combustion zone. Figure 1 offers a sketch showing the approximate layout of the steam generation process.

Fuel additive is added to the primary fuel drag-chain from its storage bin by a drag-chain. This chain is activated by the primary drag-chain operation and an affirmative signal from the lockout instrumentation installed as described in the permit. This instrumentation requires the boiler to be operating at a specified load and for

KOPPERS COMPANY, INC
GRENADA, MISSISSIPPI

TABLE 2

FUEL ADDITIVE ANALYTICAL RESULTS

	400 lb/hr	800 lb/hr
Acenaphthene	44100	23000
Acenapthylene	5260	3500
Anthracene	97400	5380
Benzo(a)anthracene	5690	6660
Benzo(a)pyrene	1950	1200
Benzo(b)fluoranthene	2860	1960
Benzo(g,h,i)perylene	1800	1380
Benzo(k)fluoranthene	1100	748
Chrysene	6840	7610
Dibenz(ah)anthracene	2420	2490
Fluoranthene	40000	20600
Fluorene	34000	20000
Indeno(123-cd)pyrene	1040	801
Phenanthrene	92800	62200
Pyrene	33600	15300
Carbazole	35300	8800
Naphthalene	36900	22000

All weights in mg/Kg.

temperatures of the combustion zone of entrainment zone at or above a pre-set condition. Failure of any one of these conditions electrically shuts down the additive feeder.

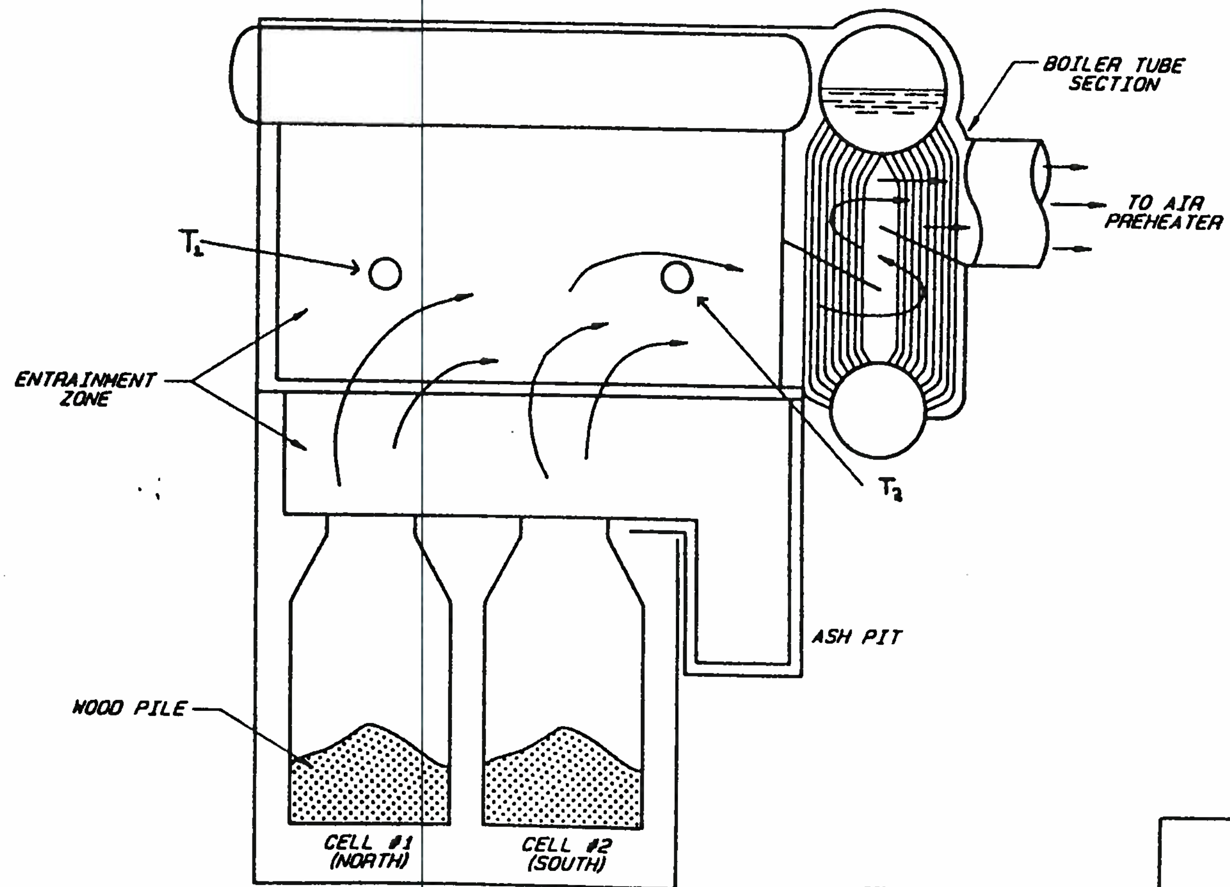
Appendix A contains strip charts of all pertinent operating data. Also in Appendix A are the field sheets which develop the temperature profile of the combustion/entrainment zones during testing conditions. Tables 3-6 lists the boiler temperature and date for each day of testing. Also, Figure 1 is an arrangement of the boiler process which also gives approximate locations of the temperature monitoring points.

5.0 STACK TEST METHODOLOGY

The brunt of the data gathered for the trial burns centers around the measurement of the required stack gas constituents and parameters. The direction of the program produces data as required for a hazardous waste incineration program as well as additional data requested by the DNR. This direction is taken to show that, while the process is technically not hazardous waste incineration, the process is environmentally sound.

Pursuing the required parameters meant development of data on particulate and principal organic hazardous constituents (POHC) as well as chlorine and chloride. Stack test methods follow EPA Methods 1 through 4 for determination of sample point location, traverse points, and stack gas velocity, moisture and molecular weight (fixed gases). Particulate is determined utilizing EPA Method 5.

POHC has been captured from the stack gas using a modification of the Method 5 train as well as additional analysis of the particulate catch once the gravimetric procedures outlined in Method 5 are completed. The train modification involves fitting a canister with approximately 40 g of a sorbent resin between the third and fourth impingers. The resin, XAD-2, has been chosen because of its good properties of adsorption and solvent desorption of the desired POHC. The additional analysis, which proceeds once particulate and moisture determinations are made, involve extraction of these materials. The acetone probe, glassware rinse residue, and the filter are extracted in methylene chloride for creosote components and benzene for penta components. Likewise, the impinger volumes and XAD resin are extracted with the corresponding solvent. Individual sample train extracts are combined with sample train rinses and condensed to yield a sample which represents an extract of the entire sample train. Methylene chloride extracts are analyzed by EPA Method 610. Penta components are determined utilizing two chromatographic techniques. Variations of the stack test technique are incorporated in the penta-benzene extractable sample trains (even numbered tests). A filter was incorporated but particulate analysis was not performed. Sample train front half was only rinsed with benzene. Also, the impinger solution was 1 percent (wt) sodium hydroxide. The caustic solution is better for absorbing penta and will pick-up chloride and chlorine in the sample stream. A volume of 20 ml. of impinger solution was set aside for chloride/chlorine analysis. Chloride was determined by ion chromatography.



KEYSTONE ENVIRONMENTAL RESOURCES, INC.

FIGURE 1

BOILER ARRANGEMENT

GRENADA, MISSISSIPPI

KOPPERS COMPANY, INC. C676-4

KOPPERS COMPANY, INC.
GRENADA, MISSISSIPPI

TABLE 3
Boiler Operating Data
Background Testing
May 3, 1988

Time	T_1	T_2	Flow	Steam Pressure	Temp	CO % 0-1000	CO_2 %	O_2 % O-25
10:30	1700	1650	27,000	155	430	75	6.1	14.0
10:45	1750	1700	30,500	155	430	100	7.1	14.0
11:00	1775	1725	29,000	155	430	60	6.1	14.5
11:15	1750	1725	28,000	160	440	110	6.7	14.0
11:30	1775	1745	27,000	165	435	70	6.4	14.5
11:45	1725	1650	28,000	150	435	50	5.8	14.7
12:00	1750	1700	27,500	165	440	75	6.2	14.0
12:15	1700	1650	29,500	157	440	80	5.8	15.0
12:30	1400	1400	30,000	75	400	100	4.5	16.5
12:45	1650	1600	32,000	90	410	100	6.0	15.0
13:00	1700	1650	30,000	100	430	100	5.8	14.5
13:15	1725	1700	30,000	145	430	75	6.6	14.5
13:30	1750	1725	29,500	140	430	75	6.6	14.5
13:45	1750	1725	28,000	155	440	75	6.6	14.5
14:00	1750	1700	31,000	135	430	100	6.2	15.0
14:15	1700	1650	27,000	150	45	0100	6.4	14.5
14:30	1800	1775	30,000	160	430	100	6.7	15.0
14:45	1750	1725	29,000	155	440	90	6.4	15.0
15:00	1600	1550	28,000	150	440	100	4.7	15.5
15:15	1650	1600	25,000	150	430	70	6.1	15.0
15:30	1700	1650	28,000	150	440	105	6.3	15.0
15:45	17175	1750	25,000	170	440	90	6.2	14.5

KOPPERS COMPANY, INC.
GRENADA, MISSISSIPPI

TABLE 4
Boiler Operating Data
400 lb/hr Creosote
May 4, 1988

Time	T_1	T_2	Flow	Steam Pressure	Temp	CO % 0-1000	CO_2 %	O_2 % O-25
8:45	1800	1650	27,000	155	430	40	5.8	14.5
9:00	1800	1700	27,000	160	440	50	5.7	14.8
9:15	1750	1650	29,000	150	440	50	5.6	15.0
9:30	1825	1725	30,000	140	440	60	6.6	14.5
9:45	1875	1850	31,000	160	440	70	7.0	14.0
10:00	1750	1650	27,000	160	440	60	5.5	14.5
10:15	1750	1650	27,000	160	440	60	5.6	15.0
10:30	1750	1650	27,000	160	440	50	6.0	15.0
10:45	1750	1650	27,000	160	440	60	5.8	15.0
11:00	1850	1750	28,000	165	440	75	6.5	14.5
11:15	1800	1700	27,500	165	440	75	6.0	15.0
11:30	1800	1750	31,000	155	440	90	6.8	14.0
11:45	1800	1750	33,000	160	440	-	7.0	14.0
12:00	1900	1850	28,000	165	440	-	7.1	14.0
12:15	1800	1750	31,000	130	440	75	6.1	14.8
12:30	1750	1700	27,000	160	440	75	6.4	14.5
12:45	1850	1750	26,000	100	440	100	6.7	14.0

KOPPERS COMPANY, INC.
GRENADA, MISSISSIPPI

TABLE 5
Boiler Operating Data
800 lb/hr Creosote
May 4, 1988

Time	T_1	T_2	Flow	Steam Pressure	Temp	CO % 0-1000	CO_2 %	O_2 % O-25
3:30	1775	1700	29,000	140	440	50	6.0	14.5
3:45	1800	1700	29,000	155	440	40	5.8	14.5
4:00	1800	1700	28,000	160	440	30	5.3	15.0
4:15	1800	1750	27,000	155	445	50	5.3	14.5
4:30	1800	1725	28,000	170	445	60	5.4	64.5
4:45	1750	1650	25,000	165	440	25	6.0	14.5
5:00	1750	1650	29,000	150	440	25	6.1	14.5
5:15	1750	1650	27,000	155	440	100	5.6	15.0
5:30	1800	1750	27,000	165	445	75	5.5	15.0
5:45	1800	1700	26,000	160	440	50	5.4	15.0
6:00	1400	1750	25,000	160	440	75	5.1	15.0
6:15	1750	1700	26,000	160	440	75	5.0	15.0
6:30	1700	1650	25,000	150	440	60	4.8	16.0
6:45	1700	1650	24,000	160	440	60	4.4	16.0
7:00	1750	1675	30,000	140	440	50	6.0	14.5
7:15	1750	1650	29,000	130	440	60	5.5	15.0
7:30	1700	1650	29,000	140	440	75	5.5	15.0
7:45	1700	1650	29,000	140	440	100	6.0	14.5
8:00	1700	1650	30,000	150	440	70	5.9	15.0

KOPPERS COMPANY, INC.
GRENADA, MISSISSIPPI

TABLE 6
Boiler Operating Data
400 lb/hr Penta
May 5, 1988

Time	T_1	T_2	Flow	Steam Pressure	Temp	CO % 0-1000	CO_2 %	O_2 % O-25
8:30	1800	1700	28,000	150	430	20	6.0	14.5
8:45	1800	1700	30,000	150	450	25	6.0	14.5
9:00	1850	1750	30,000	150	430	40	6.2	14.5
9:15	1800	1750	30,000	150	430	45	6.2	14.5
9:30	1725	1700	27,000	155	440	50	5.6	15.0
9:45	1800	1700	22,000	160	440	50	8.7	15.0
10:00	1800	1725	27,000	160	440	60	5.9	14.5
10:15	1850	1750	29,000	165	440	50	6.0	64.0
10:30	2000	1600	32,000	150	440	40	5.9	14.5
10:45	1900	1800	30,000	155	440	75	6.3	15.0
11:00	1900	1800	30,000	150	440	60	6.5	14.0
11:15	1800	1700	27,000	150	440	100	6.8	14.0
11:30	1675	1650	25,000	150	440	100	5.8	14.5
11:45	1700	1600	30,000	150	440	30	5.2	15.0
12:00	1750	1650	30,000	150	440	40	5.4	14.5
12:15	1750	1650	28,000	150	440	50	5.6	15.0
12:30	1775	1700	29,000	150	440	50	5.6	15.0
12:45	1750	1650	31,000	155	450	50	5.4	15.0
1:00	1750	1650	30,000	150	440	40	5.2	15.2

6.0 RESULTS

Stack test results and DRE results are listed in Tables 7 through 14. These tables contain the information necessary to determine compliance with the hazardous waste incinerator guidelines and DNR requirements. Each of the tables lists three individual runs made during a feed condition. The data of each is used to calculate an average for each parameter of that feed condition. In Tables 7 through 9, data accumulation stops at this point as it represents information collected for the background test. Tables 10 through 14 have two additional columns of information. The first includes the quantity of each POHC that is fed to the boiler at the given additive feed rate. The second additional column is the calculated DRE which is the average mass emission rate of the given component corrected for background and divided by the boiler input rate of that component. The correction for background levels as mentioned yields the change in POHC emission due to the thermal treatment of these materials. The background tests provide the initial information of how much of each POHC is emitted when only the primary fuel is fired in the boiler. This number is subtracted from the average of the three stack runs for a given additive feed condition. The individual emission rate calculations of the POHC as well as a printout of all calculations for each stack run is included in Appendix B.

Values listed in Tables 10 through 14 under the DRE calculation as approximately 100 are determinations whose value is less than the average background level of that POHC but not equal to zero.

KOPPERS COMPANY, INC
GRENADA, MISSISSIPPI

TABLE 7

FUEL ADDITIVE TEST BURN
BACKGROUND TEST

	Run 1	Run 2	Run 3	
5/03/88	GR-BS-44	GR-BS-46	GR-BS-48	
Start Time	10:30	12:26	13:51	
Finish Time	11:34	13:36	15:15	
Component:		Emissions (lb/hr)		Average
Particulate	7.22003	7.58788	3.68719	6.16503

6.16 lb/hr x 24 x 365
= 53,961 lb
= 27 TN

KOPPERS COMPANY, INC
GRENADA, MISSISSIPPI

TABLE 8

FUEL ADDITIVE TEST BURN
BACKGROUND TESTS

5/03/88	Run 1	Run 2	Run 3	
	GR-BS-45	GR-BS-47	GR-BS-49	
Start Time	11:41	13:05	14:44	
Finish Time	12:47	14:14	15:59	
Component:		Emissions (lb/hr)		Average
Acenaphthene	0.0016002	0.0017656	0.0031900	0.0021852
Acenapthylene	0.0005238	0.0007521	0.0007719	0.0006826
Anthracene	0.0003275	0.0004409	0.0012539	0.0006741
Benzo(a)anthracene	0.0001433	0.0002244	0.0004418	0.0002698
Benzo(a)pyrene	0.0000130	0.0000419	0.0000304	0.0000284
Benzo(b)fluoranthene	0.0000316	0.0000985	0.0000627	0.0000642
Benzo(g,h,i)perylene	0.0000167	0.0000907	0.0000235	0.0000436
Benzo(k)fluoranthene	0.0000140	0.0000332	0.0000255	0.0000242
Chrysene	0.0001200	0.0002166	0.0004810	0.0002725
Dibenz(ah)anthracene	0.0000270	0.0001249	0.0000519	0.0000679
Fluoranthene	0.0005647	0.0008779	0.0016751	0.0010392
Fluorene	0.0010327	0.0013071	0.0033900	0.0019099
Indeno(123-cd)pyrene	0.0000130	0.0000751	0.0000108	0.0000329
Phenanthrene	0.0026900	0.0037000	0.0084500	0.0049466
Pyrene	0.0003433	0.0005307	0.0010286	0.0006342
Carbazole	0.0000930	0.0000975	0.0000980	0.0000961
Naphthalene	0.0052300	0.0050800	0.0059500	0.0054200
TOTAL PAH	0.0127838	0.0154571	0.0269351	

KOPPERS COMPANY, INC
GRENADA, MISSISSIPPI

TABLE 9

FUEL ADDITIVE TEST BURN
400 LB/HR CRESOTE

5/04/88	Run 1	Run 2	Run 3	
	GR-BS-56	GR-BS-58	GR-BS-60	
Start Time	15:32	16:43	18:08	
Finish Time	16:36	17:54	19:33	
Component:		Emissions (lb/hr)		Average
Particulate	6.85876	7.61755	7.28475	7.25368

KOPPERS COMPANY, INC
GRENADA, MISSISSIPPI

TABLE 10

FUEL ADDITIVE TEST BURN
400 LB/HR CREOSOTE

	Run 1	Run 2	Run 3			
5/04/88	GR-BS-51	GR-BS-53	GR-BS-55		Boiler	
Start Time	9:18	10:40	12:00		Feed	DRE
Finish Time	10:33	11:50	13:03		Rate	
Component:		Emissions (lb/hr)		Average	(lb/hr)	(%)
Acenaphthene	0.0035700	0.0028300	0.0029700	0.0023425	17.64	99.98
Acenapthylene	0.0015282	0.0009691	0.0012168	0.0009285	2.10	99.93
Anthracene	0.0004984	0.0004533	0.0005250	0.0003691	38.96	~100.00
Benzo(a)anthracene	0.0002414	0.0002053	0.0002257	0.0001681	2.78	99.99
Benzo(a)pyrene	0.0000175	0.0000119	0.0000245	0.0000134	0.78	~100.00
Benzo(b)fluoranthene	0.0000438	0.0000317	0.0000373	0.0000282	1.14	99.99
Benzo(g,h,i)perylene	0.0000428	0.0000179	0.0000186	0.0000198	0.72	99.99
Benzo(k)fluoranthene	0.0000165	0.0000109	0.0000147	0.0000105	0.44	99.99
Chrysene	0.0002239	0.0001577	0.0002251	0.0001516	2.74	99.99
Dibenz(ah)anthracene	0.0000311	0.0000258	0.0000343	0.0000228	0.97	99.99
Fluoranthene	0.0009247	0.0007509	0.0009204	0.0006490	16.00	99.99
Fluorene	0.0018884	0.0016665	0.0018644	0.0013548	13.6	99.98
Indeno(123-cd)pyrene	0.0000127	0.0000079	0.0000088	0.0000073	0.42	~100.00
Phenanthrene	0.0044200	0.0038300	0.0047300	0.0032450	37.12	99.98
Pyrene	0.0006551	0.0005515	0.0005338	0.0004351	13.44	99.99
Carbazole	0.0000973	0.0000992	0.0000981	0.0000736	14.12	~100.00
Naphthalene	0.0063200	0.0064500	0.0041700	0.0042350	14.76	99.94
TOTAL PAH	0.0205318	0.0180696	0.0176175			

KOPPERS COMPANY, INC
GRENADA, MISSISSIPPI

TABLE 11

FUEL ADDITIVE TEST BURN
800 LB/HR CRESOTE

5/03/88	Run 1	Run 2	Run 3	
	GR-BS-50	GR-BS-52	GR-BS-54	
Start Time	8:45	10:02	11:18	
Finish Time	9:49	11:11	12:31	
Component:		Emissions (lb/hr)		Average
Particulate	6.83715	17.84440	10.03795	11.57317

KOPPERS COMPANY, INC
GRENADA, MISSISSIPPI

TABLE 12

FUEL ADDITIVE TEST BURN
400 LB/HR ~~CRESOTE~~ PENTA

	Run 1	Run 2	Run 3	
5/05/88	GR-BS-62	GR-BS-64	GR-BS-66	
Start Time	8:30	9:48	11:37	
Finish Time	9:35	11:25	12:55	
Component:		Emissions (lb/hr)		Average
Particulate	6.52303	12.17014	6.81583	8.50300
Chloride	0.01029	0.01064	0.01028	0.01043

KOPPERS COMPANY, INC
GRENADA, MISSISSIPPI

TABLE 13

FUEL ADDITIVE TEST BURN
800 LB/HR CRESOTE

5/04/88	Run 1	Run 2	Run 3			
	GR-BS-57	GR-BS-59	GR-BS-61		Boiler	DRE
Start Time	16:05	17:23	19:02		Feed	
Finish Time	17:14	18:39	20:07		Rate	
Component:		Emissions (lb/hr)		Average	(lb/hr)	(%)
Acenaphthene	0.0002572	0.0034100	0.0015618	0.0013072	18.40	99.98
Acenapthylene	0.0001411	0.0004697	0.0008420	0.0003632	2.80	99.97
Anthracene	0.0000355	0.0004687	0.0002373	0.0001853	4.30	99.99
Benzo(a)anthracene	0.0000144	0.0001139	0.0000230	0.0000378	5.33	~100.00
Benzo(a)pyrene	0.0000019	0.0000250	0.0000110	0.0000094	0.96	~100.00
Benzo(b)fluoranthene	0.0000038	0.0000320	0.0000050	0.0000102	1.57	~100.00
Benzo(g,h,i)perylene	0.0000067	0.0000190	0.0000070	0.0000081	1.10	~100.00
Benzo(k)fluoranthene	0.0000019	0.0000120	0.0000030	0.0000042	0.60	~100.00
Chrysene	0.0000163	0.0001209	0.0000481	0.0000463	6.09	~100.00
Dibenz(ah)anthracene	0.0000029	0.0000280	0.0000120	0.0000107	1.99	~100.00
Fluoranthene	0.0000614	0.0006306	0.0003704	0.0002656	16.48	99.99
Fluorene	0.0001228	0.0019887	0.0009321	0.0007609	16.00	99.99
Indeno(123-cd)pyrene	0.0000048	0.0000120	0.0000050	0.0000054	0.64	~100.00
Phenanthrene	0.0003128	0.0045100	0.0021900	0.0017532	49.76	99.99
Pyrene	0.0000470	0.0003158	0.0002343	0.0001492	12.24	~100.00
Carbazole	0.0000960	0.0000999	0.0001001	0.0000744	7.04	~100.00
Naphthalene	0.0005921	0.0058200	0.0037300	0.0025355	17.60	99.96
TOTAL PAH	0.0017186	0.0180762	0.0103121			

KOPPERS COMPANY, INC
GRENADA, MISSISSIPPI

TABLE 14

FUEL ADDITIVE TEST BURN
400 LB/HR PENTA

5/05/88 Start Time Finish Time Component:	Run 1 GR-BS-63 9:03 10:19	Run 2 GR-BS-65 10:44 12:08 Emissions (lb/hr)	Run 3 GR-BS-67 12:24 20:07	Average	Boiler Feed Rate (lb/hr)	DRE (%)
PCP	0.0002572	0.0000308	0.0000261	0.0001047	2.65	99.99
OCDD/OCDF	0.0001411	0.0000030	0.0000021	0.0000487	0.20	99.97

7.0 QUALITY ASSURANCE

Part of the POHC test procedure included a backup sorbent resin canister in the sample train. The extract of this second canister is analyzed separately and compared to the total sample train catch. A total of three runs were performed with the use of the backup canister. Table 15 represent a tabulation of the data generated through this portion of the program. The table lists the run number of each test for which the second tube is incorporated. The data for each run is further broken down to list the catch of each component in the second canister. Also listed is percent of the total weight which the sample train catch represents. It should be noted that the amount of each component as listed for each run as the backup catch is included in the total sample train catch used to calculate the actual stack emission rate.

KOPPPERS COMAPANY, INC.
GRENADA, MISSISSIPPI
TABLE 15

MODIFIED METHOD 5 COLLECTION EFFICIENCY

	GR-BS-49			GR-BS-55			GR-BS-61	
	Sample Train	Series Cannister	Sample Train Catch(%)	Sample Train	Series Cannister	Sample Train Catch(%)	Sample Train	Series Cannister
Acenaphthene	32.6	2.74	91.60	30.3	12.0	60.40	INT	INT
Acenapthylene	7.88	<1.0	~100.00	12.4	<1.0	~100.00	8.41	<1
Anthracene	12.8	<0.25	~100.00	5.35	<0.25	~100.00	2.37	<0.25
Benzo(a)anthracene	4.51	<0.02	~100.00	2.3	<0.02	~100.00	0.225	0.022
Benzo(a)pyrene	0.306	<0.02	~100.00	0.248	<0.02	~100.00	0.109	<0.02
Benzo(b)fluoranthene	0.644	<0.02	~100.00	0.376	<0.02	~100.00	0.049	<0.02
Benzo(g,h,i)perylene	0.238	<0.05	~100.00	0.186	<0.05	~100.00	0.07	<0.05
Benzo(k)fluoranthene	0.264	<0.05	~100.00	0.148	<0.05	~100.00	0.032	<0.05
Chrysene	4.91	<0.15	~100.00	2.6	<0.15	~100.00	0.479	<0.15
Dibenz(ah)anthracene	0.528	<0.03	~100.00	0.349	<0.03	~100.00	0.115	<0.03
Fluoranthene	17.1	0.214	98.75	9.38	0.177	98.11	3.7	0.198
Fluorene	34.6	0.31	99.10	19.0	0.18	99.05	9.31	1.59
Indeno(123-cd)pyrene	0.112	<0.05	~100.00	0.091	<0.05	~100.00	<0.05	<0.05
Phenanthrene	86.3	0.733	99.15	48.2	0.716	98.51	21.9	0.91
Pyrene	10.5	0.117	98.89	5.44	0.105	98.07	2.34	0.135
Carbazole	<1.0	<1.0	~100.00	<1.0	<1.0	~100.00	<1.0	<1.0
Naphthalene	60.7	2.18	96.41	42.5	3.88	90.87	37.3	4.72

All weighis are in ug/Kg.

8.0 CONCLUSIONS

The results of the test program show the boiler's combustion process to effectively destroy the hydrocarbon constituents of the fuel additive materials studied in the permit renewal process.

The determination of particulate matter for the conditions tested in this program showed the emissions to be less than the values stated in the permit conditions governing this parameter.

Based on the test results, the boiler can burn fuel additives in compliance with the operating permit.

KEYSTONE
ENVIRONMENTAL RESOURCES, INC.

436 Seventh Avenue, Suite 1940, Pittsburgh, PA 15219

April 11, 1988

Mr. Ronald Gore, Chief
Engineering Services Branch
Air Division
Alabama Department of
Environmental Management
1751 Federal Drive
Montgomery, AL 36130

Re: Koppers Company, Inc.
Montgomery Facility
Boiler Compliance Test

Dear Mr. Gore:

Two copies of the report for the compliance test program conducted at the Koppers Company, Inc. Montgomery, Alabama wood treating plant during the week of March 14, 1988 are attached.

The results of the test program showed the boiler source to be emitting 0.084 grains per dry standard cubic foot (gr/scfd) of PM at 50% excess air while only wood and wood waste were fired. The results developed from the tests involving the fuel additive showed the source to be emitting .092 gr/scfd PM and less than 10 parts per million by volume (ppm_v) of total hydrocarbon (as methane). The particulate results determined for the hogged treated wood showed the source to be emitting an average of 0.065 gr/scfd. Chapter 4.8.2(d) of the Alabama Air Pollution Control Rules and Regulation state the limit for particulate emissions as 0.20 gr/scfd at 50% excess air.

This report presents particulate matter results only; information regarding destructive and removal efficiencies will be forwarded when the results are received and tabulated by Keystone Environmental Resources, Inc.

The results of the PM determinations performed for this program show the effect of the changes made in the operation of the steam production facility at the Montgomery plant. Repairs made to the boiler equipment and improvement made in the wood waste fuel quality have reduced the emissions to less than one third of the value determined by the November 1987 program.

Sincerely,

Robert J. Anderson / JTK

Robert J. Anderson
Staff Program Manager

DIRECT DIAL #
412-227-2683

RJA/da
Enclosures

cc: J. Kane
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KOPPERS COMPANY, INC.
MONTGOMERY ALABAMA

FUEL ADDITIVE PROGRAM
ANNUAL COMPLIANCE TESTING
PROGRAM

Prepared for:

KOPPERS COMPANY, INC.
MONTGOMERY ALABAMA

Prepared by:

KEYSTONE ENVIRONMENTAL RESOURCES, INC.
440 COLLEGE PARK DRIVE
MONROEVILLE, PENNSYLVANIA

PROJECT NO. 187100-01

APRIL 1988

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INTRODUCTION

During the week of March 14, 1988 a compliance test program was conducted to determine emissions from the boiler at Koppers Co, Inc., Montgomery Alabama Plant. The test program was required following a similar program conducted in November 1987. The intent of the March test program was to demonstrate compliance with proviso 14 of the draft permit following improvements and corrections made to the steam production facility to better control particulate generation and emissions control. The test program determined particulate matter (PM) emissions from the boiler stack while the unit was fired with the primary fuel, wood and wood waste. Also, PM and total hydrocarbon tests were performed while the primary fuel and fuel additive material were burned in combination. An additional condition was added to the program which involved tests performed while the boiler was fired on chipped treated wood only. The material was generated for the test by hogging poles treated with preservative.

Testing was conducted according to a test plan submitted to Alabama Department of Environmental Management (ADEM) for the November program. The tests were observed by Mr. Glen Golson and Mr. Fermon Lindsey of ADEM. The test team was comprised of Mark Grunebach, Vincent Bouma, and John Kane, of Keystone Environmental Resources, Inc., Air Quality Engineering (AQE).

The results of the test program showed the boiler source to be emitting 0.094 grains per dry standard cubic foot (gr/scfd) of PM at 50% excess air while only wood and wood waste were fired. The results developed from the tests involving the fuel additive showed the source to be emitting 0.092 gr/scfd PM and less than 10 parts per million by volume (ppm_v) of total hydrocarbon (as methane). The particulate results determined for the hogged treated wood showed the source to be emitting an average of 0.065 gr/scfd. Chapter 4.8.2(d) of the Alabama Air Pollution Control Rules and Regulation state the limit for particulate emissions as 0.20 gr/scfd at 50% excess air.

TEST PROGRAM

The test program, as described in correspondence to Ronald Gore of ADEM from John Kane dated September 25,1987, utilized Federal EPA methods 1 through 5 and 25 A for the required determinations. Testing was conducted when the boiler was operating under a steam loading of 24,000 lbs/hr or greater. Figure 1 illustrates the location of the sampling points on the stack diameter as well as the location of the ports on the stack.

The actual testing began on March 15th with the testing of the wood waste only. Three tests were conducted to calculate the average. The boiler was fired at a minimum rate equivalent to the production of 24,000 lb\hr steam.

On March 16th three more particulate determinations were performed to determine the PM emissions while the hogged treated wood was being used as fuel. Two sources exist for this potential fuel supply. One source is generated from expended or unusable materials treated with creosote. The second source is again expendable wood products treated with penta-chlorophenol in oil. Due to the development state of this portion of the program, three feed scenarios were utilized which involved burning hogged penta material for the first test, blended hogged creosote and penta material for the second test, and hogged creosote material for the third test.

The third day of testing included the determination of PM emissions while the boiler was fired on wood and wood waste with fuel additive mixed. Total Hydrocarbons were also monitored during this period. The tests were performed when the boiler was at steady state operation generating 22,500 lb/hr of steam. Sample for the total hydrocarbon was pulled from the stack through a heated teflon sample line with the temperature controlled at 300°F

Addition of the fuel additive material began at 11:40 AM and was controlled by the interlock system. The time of operation (on time) of the additive feed system, as displayed on the elapsed time indicator, was recorded at approximately 10 minute intervals where possible throughout the testing of this mixed feed. Temperature of the upper combustion zone, as indicated on the interlock, and oxygen and carbon monoxide were also recorded at these intervals along with the steam production rate. At the completion of testing, the additive feeder pump rate was measured. This value in pounds per minute is then applied to the on time of the feeder prorated to an hour to yield the addition rate of the fuel additive in pounds per hour. The pump rate test was performed by separating the screw auger trough to allow the material to fall into a drum. The drum, in turn, is positioned on a balance. Time was recorded for each 100 pound increase in drum weight. These field data are contained in the Appendix.

Clean up of the test train components for all was completed at the site. Analysis of particulate train catches were performed at Keystone' AQE laboratory in Monroeville PA. Calibration of the total hydrocarbon monitor was performed on site and recorded on the strip chart recording data for this unit. Stack test field data sheets as well as the continuous emissions monitor strip charts are contained in the Appendix.

TEST RESULTS

Table I represents the summation of the results derived by the portion of this program which involved the determination of PM emissions for wood waste only. Presented are the results as determined by the stack calculation program. Computer printouts of these calculations are found in the Appendix. In addition to the particulate results determined through this calculation, an additional value is provided which adjusts the particulate concentration to reflect 50% excess air. This value has been determined through the use of the following equation:

$$C50\% = \frac{C_{actual}}{1 - \left[\frac{1.5(\%O_2) - 0.133(\%N_2) - 0.75(\%CO)}{21} \right]}$$

Where $C_{50\%}$ = particulate concentration at 50% excess air
C_{actual} = measured particulate concentration
$\%O_2; \%N_2; \%CO$ = measured stack gas concentrations

The results for this portion of the program can be compared to the allowable PM emissions limit of 0.20 gr/scfd at 50% excess air.

Table II summarizes emissions tests results for the study involving the hogged treated wood as the primary fuel. Again the PM emissions are presented along with pertinent stack and sampling conditions encountered during the test program. The PM results show the individual tests, which represent three different feed conditions, as well as the average of the three tests to have concentrations of 0.070 gr/scfd or lower.

Table III lists the results determined by the procedures utilized for the third firing conditions which consisted of the primary fuel mixed with the fuel additive. Again these results establish the PM emissions rate to be 0.092 gr/scfd. Also included are the results dètermined by the total hydrocarbon continuous monitor.

CONCLUSION

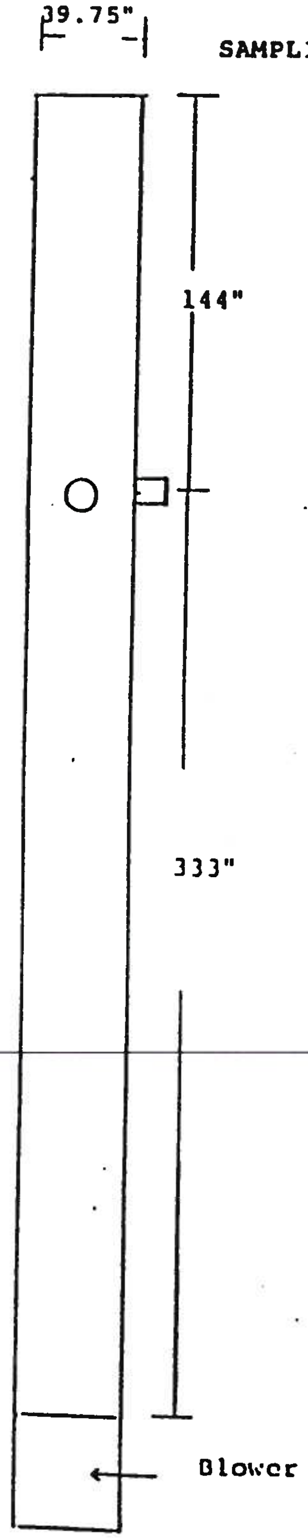
The results of the PM determinations performed for this program show the effect of the changes made in the operation of the steam production facility at the Montgomery plant. Repairs made to the boiler equipment and improvement made in the wood waste fuel quality have reduced the emissions to less than one third of the value determined by the November 1987 program.

KEYSTONE
ENVIRONMENTAL RESOURCES, INC.

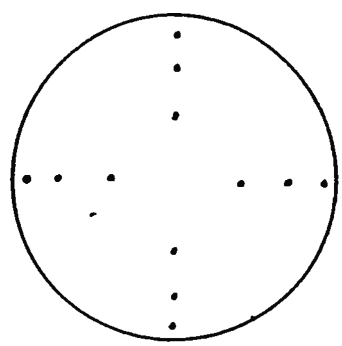
440 College Park Drive
Monroeville, Pa. 15146

	NAME	DATE
DRAWN		
CHECKED		

SAMPLING POINTS & STACK BREECHING DIAGRAM



Sample Point	Inches from Wall
1	1.7
2	5.9
3	11.8
4	28.2
5	34.1
6	38.3



ACTIVITY No.

REVISION

Koppers Company, Inc.
Montgomery Wood Treating Plant

Figure 1

-187 REV. 2 #17-0482 PHOENIX TRACING CLOTH 8-78

KOPPERS COMPANY, INC
MONTGOMERY, ALABAMA

TABLE I

SUMMARY OF PARTICULATE TEST RESULTS
BACKGROUND TEST WITH WOODWASTE FUEL

3/15/88		Run 1	Run 2	Run 3	Average
Test No.		MO-BS-31	MO-BS-32	MO-BS-33	
<u>**Emissions**</u>					
Particulate	(lb/hr)	9.251	12.45	10.51	10.74
	(gr/SCFD)	0.076	0.098	0.082	0.085
(gr/scfd@50% excess air)		0.089	0.106	0.087	0.094
Allowable Particulate (gr/scfd@50% excess air)					0.20
<u>**Stack Conditions**</u>					
Flow	(ACFM)	25271	26695	27014	26327
	(SCFM)	17069	17982	18065	17705
Temperature (^{o}F)		332.3	334.4	340.3	335.7
Moisture (%)		17.24	17.53	16.99	17.25
<u>**Sampling Conditions**</u>					
Sampling Time (min.)		60.0	60.0	60.0	
Sample Volume (SCFD)		29.23	29.83	30.16	
Isokinetics (%)		99.06	96.32	97.94	

KOPPERS COMPANY, INC
MONTGOMERY, ALABAMA

TABLE II

SUMMARY OF PARTICULATE TEST RESULTS
HOGGED TREATED WOODWASTE

3/16/88		Run 1	Run 2	Run 3	Average
Test No.		MO-BS-34	MO-BS-35	MO-BS-36	
Emissions					
Particulate	(lb/hr)	8.316	7.501	6.170	7.329
	(gr/SCFD)	0.057	0.060	0.049	0.055
(gr/scfd@50% excess air)		0.070	0.069	0.055	0.065
		Penta	Mixed	Creo	
Allowable Particulate (gr/scfd@50% excess air)					0.20
Stack Conditions					
Flow	(ACFM)	29504	24109	24265	25959
	(SCFM)	19218	16269	16333	17273
Temperature (^{o}F)		361.6	335.7	337.7	345.0
Moisture (%)		11.07	9.60	9.98	10.22
Sampling Conditions					
Sampling Time (min.)		60.0	60.0	60.0	
Sample Volume (SCFD)		34.59	30.80	30.32	
Isokinetics (%)		95.42	98.73	97.13	

KOPPERS COMPANY, INC
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TABLE III

SUMMARY OF PARTICULATE TEST RESULTS
WOODWASTE WITH FUEL ADDITIVE

3/17/88		Run 1	Run 2	Run 3	Average
Test No.		MO-BS-39	MO-BS-41	MO-BS-43	
Emissions					
Particulate	(lb/hr)	10.67	9.00	9.31	9.66
	(gr/SCFD)	0.084	0.073	0.071	0.076
(gr/scfd@50% excess air)		0.099	0.091	0.087	0.092
Total Hydrocarbon (PPM_v)		<10.0	<10.0	<10.0	<10.0
Allowable Particulate (gr/scfd@50% excess air)					0.20
Stack Conditions					
Flow	(ACFM)	26347	25851	27129	26442
	(SCFM)	17360	17102	17945	17469
Temperature (^{O}F)		357.5	354.3	354.3	355.4
Moisture (%)		14.68	15.72	14.61	15.00
Sampling Conditions					
Sampling Time (min.)		60.0	60.0	60.0	
Sample Volume (SCFD)		38.31	39.17	40.24	
Isokinetics (%)		102.0	102.7	103.6	
Operating Conditions					
Additive Feed Rate (lb/hr)		394	357	421	

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JULY 1988

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INTRODUCTION

During the week of March 14, 1988 a compliance test program was conducted by Keystone Environmental Resources, Inc., to determine emissions from the Koppers Company Inc., steam production facility at the Montgomery, Alabama Plant. The intent of the March test program was to demonstrate compliance with the draft permit provisos. Testing was performed to demonstrate that the boiler can effectively destroy constituents of concern while using wood treating process wastes as a fuel additive. The results of this testing can be used to establish permit stipulations allowing the use of process materials and treated wood as fuel supplements. Testing would also illustrate the effects of improvements and corrections recently adopted to better control particulate matter emissions and evaluate the performance of the boiler in the destruction and removal of constituents contained in the fuel additive material and the hogged treated wood.

The test program results determining particulate matter (PM) emissions from the boiler stack have been submitted in the Fuel Additive Program/Annual Compliance Testing Program report dated April 11, 1988. The results of hydrocarbon and pentachlorophenol (PCP) emissions test program were not available for inclusion in the April 11th report and are summarized in the following report. Analysis of the stack gas was performed on samples taken when the boiler was operating using a fuel additive in combination with the wood waste feedstock and when chipped treated wood was fired. The chipped material was generated by hogging poles treated with wood preservative.

Testing was conducted according to the test plan submitted to the Alabama Department of Environmental Management (ADEM) for the November test program. The tests were observed by Mr. Glen Golson and Mr. Fermon Lindsey of ADEM. The test team was comprised of Mark Grunebach, Vincent Bouma, and John Kane, Manager of Keystone's Air Quality Engineering Group (AQE).

When burning hogged wood treated with creosote or fuel additive material analysis was conducted to determine polynuclear aromatic hydrocarbon (PAH) emissions. The results of modified method 5 testing show average total PAH emissions of 0.0138 lb/hr when burning the hogged material, and 0.00641 lb/hr when burning wood waste with the fuel additive. When burning hogged wood treated with pentachlorophenol in oil preservative (penta) analysis was performed for pentachlorophenol emissions (PCP) and an average emission rate of 0.00045 lb/hr PCP was calculated.

The results of testing can be analyzed by reviewing the destruction and removal efficiency values (DRE) for the different test conditions. The hogged treated wood tests yielded DRE values of 99.99% or greater for all principal organic hazardous components (POHC) except for acenaphthylene and naphthalene destruction which averaged 99.93% on one run only (run 2). The results of the fuel additive program illustrate an average DRE for all components of 99.99% or greater, except for carbazole which had a DRE of 99.97%. Of the 53 DRE values determined only 3 were below 99.99%, and none were below 99.92%. These results show that the boiler efficiently destroys the POHC associated with treated wood and wood treating wastes.

TEST PROGRAM

The test program, as described in correspondence to Ronald Gore of ADEM from John Kane dated September 25,1987, utilized Federal EPA methods 1 through 5, MM5 and 25 A for the required determinations. Testing was conducted when the boiler was operating under a steam loading of 24,000 lbs/hr or greater.

Actual testing began on March 15th with initial testing of boiler operations using a wood waste feedstock. Three EPA method 5 tests were conducted to calculate an average particulate emission value when burning only wood waste.

On March 16th three particulate determinations and three modified method five tests were performed to determine PM and POHC emissions while the hogged treated wood was being used as fuel. Two sources exist for this potential fuel supply. One source is generated from expended or unusable materials treated with creosote. The second source is expendable wood products treated with penta-chlorophenol in oil (penta). Due to developmental nature of this portion of the program, three feed scenarios were utilized: burning hogged material treated with penta for the first test, blended hogged creosote and penta material for the second test, and hogged creosote material for the third test. For analysis of this process, destruction and removal efficiency calculations were performed. The POHC evaluated were PAH when creosote was the treating agent and PCP when wood waste treated with penta was used for fuel.

The third day of testing included the determination of PM and POHC emissions while the boiler was fired on wood and wood waste mixed with a fuel additive. The fuel additive used was work by-product associated with the preservation of wood with creosote and pentachlorophenol. The tests were performed when the boiler was operating at steady state conditions generating 22,500 lb/hr of steam.

Addition of the fuel additive material began at 11:40 AM and was controlled by the interlock system on the feed system. The time of operation (on time) of the additive feed system, as displayed on the elapsed time indicator, was recorded at approximately 10 minute intervals where possible throughout the testing of this mixed feed. Temperature of the upper combustion zone, as indicated on the interlock, oxygen, and carbon monoxide were also recorded at these intervals in addition to the steam production rate. At the completion of testing, the additive feed pump rate was measured. This value in pounds per minute is then applied to the on time of the feeder prorated to an hour to yield the addition rate of the fuel additive in pounds per hour for that test period. The pump rate test was performed by separating the screw auger trough to allow the material to fall into a drum. The drum, in turn, is positioned on a balance. Time was recorded for each 100 pound increase in drum weight. The boiler operating temperature was monitored during testing. An average value of 1955 ^{O}F was recorded during the test burns conducted using hogged materials and a value of 1840 ^{O}F was recorded when wood waste with fuel additive material was burned. Field data associated with these determinations is contained in the Appendix.

The permit conditions of an operating temperature of 1600^{O}F, carbon monoxide concentration less than 500 ppm and an oxygen concentration greater than 9% were maintained throughout the test program.

Clean up of the test train components was completed at the site. Analyses of the method 5 and modified method 5 train catches were performed at Keystone's laboratories in Monroeville, Pennsylvania.

TEST RESULTS

Tables I-VII represent the summation of results derived by the portion of this program which involved the determination of POHC emissions. Presented are the results of analysis determined by Keystone's Analytical Division and evaluation of the analytical data by the Keystone's Air Quality Engineering Group. The raw analytical data, raw field data sheets, and computer printouts of the stack gas calculations are found in the Appendix.

KOPPERS COMPANY, INC
MONTGOMERY, ALABAMA

TABLE I

WOOD FIRED BOILER TEST BURN
TEST SEQUENCING

Run # (MO-BS-)	Date	Time	Description
31	3/15/88	14:00-15:03	This series of tests was conducted with the boiler using a woodwaste feedstock.
32		15:15-16:19	
33		16:45-18:18	
34	3/16/88	15:29-16:58	This series of tests was conducted with the boiler using a hogged treated wood feedstock.
35		17:45-19:12	
36		19:30-20:57	
36S		19:30-20:57	
37	3/17/88	11:38-12:58	This series of tests was conducted with the boiler using woodwaste fuel and a fuel additive.
39		15:00-16:03	
40		15:49-17:16	
41		16:56-17:59	
42		17:45-19:12	
42S		17:45-19:12	
43		18:52-19:55	

KOPPERS COMPANY, INC
MONTGOMERY, ALABAMA

TABLE II

HOGGED TREATED WOODWASTE TEST BURN BOILER OPERATION

Date	Test	Time	Temperature (^oF)	O_2 (%)	CO (ppm_v)
3/16/88	MO-BS-34	15:20	1930	9.0	0
		15:40	1910	9.0	0
		15:50	1925	9.5	0
		16:00	1970	8.0	0
		16:20	1975	9.5	10
		16:30	1995	9.0	10
		16:40	1995	8.5	0
	MO-BS-35	17:30	1920	9.0	5
		17:45	2015	7.5	0
		18:00	1980	8.0	0
		18:15	1970	7.5	0
		18:30	1950	8.5	10
		18:45	1935	9.0	0
		19:00	1920	9.5	10
	MO-BS-36	19:30	1915	9.5	5
		19:45	1925	8.5	5
		20:00	1940	9.0	10
		20:15	1950	8.0	5
		20:30	1975	8.8	15

KOPPERS COMPANY, INC
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TABLE II
(continued)

WOODWASTE AND FUEL ADDITIVE TEST BURN
BOILER OPERATION

Date	Test	Time	Temperature (^oF)	O_2 (%)	CO (ppm_v)
3/17/88	MO-BS-37	11:40	1863	10.0	25
		11:50	1826	10.5	75
		12:00	1841	10.0	50
		12:10	1824	10.2	50
		12:22	1781	10.5	50
		12:33	1807	10.5	45
		12:43	1725	11.0	30
	MO-BS-39	15:00	1852	9.0	80
		15:10	1894	9.0	50
		15:20	1875	9.0	55
		15:40	1818	10.0	45
	MO-BS-40	15:50	1883	9.0	35
		16:00	1889	9.0	50
		16:20	1901	9.1	60
		16:33	1855	9.5	45
	MO-BS-41	16:45	1877	9.5	60
		17:10	1855	8.5	75
	MO-BS-42	17:30	1834	9.5	65
	MO-BS-42s	18:35	1775	10.5	75
	MO-BS-43	19:20	1813	10.0	50

Hydrocarbons and PCP emissions in the stack gas can be compared to the levels in the feedstock to evaluate boiler performance. This comparison is used to calculate the Destruction and Removal Efficiency (DRE). The formula used in this calculation is as follows:

$$DRE = \frac{M(IN) - M(OUT)}{M(IN)}$$

Where M(IN) is the mass per unit time of POHC fed to the boiler in the feedstock

and M(OUT) is the mass per unit time of POHC in the stack gas

The DRE values are reported for the hogged treated wood tests in Table VI and in Table VII for the fuel additive tests. The stack conditions encountered during testing are summarized in Table VIII.

The results of tests performed while using hogged treated wood as fuel are summarized in Table VI. When hogged wood waste treated with pentachlorophenol in oil was used as fuel (test MO-BS-34) a DRE of 99.999% for PCP was calculated. Using a mixture of hogged wood waste treated with creosote and penta DRE results were above 99.99% for PAH and PCP except for acenaphthylene and naphthalene, which had DRE values above 99.92%. The final test run, which used hogged wood waste treated with creosote as fuel, showed all DRE values were above 99.99%.

Testing conducted when a fuel additive was used in conjunction with the wood waste fuel is summarized in Table VII. The DRE values calculated were 99.99% or greater for all components except carbazole which had a value of 99.97%.

The lower DRE value for carbazole may be explained by its low concentration in the boiler feedstock and stack off-gas streams. Where the concentration of the measured constituent was below the detection limits of the analytical instruments the value of the detection limit was used to calculate the DRE value. For carbazole the amount of the component present in the feedstock and stack gas was below the analytical detection limit.

KOPPERS COMPANY, INC
MONTGOMERY, ALABAMA

TABLE III

ANALYTICAL RESULTS

Woodwaste Fuel:

3/15/88

Ultimate Analysis: (Wt. %)

Parameter	Results
Volatiles @ 105^{o}C	39.0
Ash @ 900^{o}C	1.2
Carbon	30.0
Hydrogen	7.6
Nitrogen	0.06
Sulfur	<0.1
Heat of Combustion: (BTU/lb)	4,905

Fuel Additive Material:

3/17/88

Ultimate Analysis: (Wt. %)

Parameter	Results
Volatiles @ 105^{o}C	29.0
Ash @ 900^{o}C	6.5
Carbon	57.0
Hydrogen	7.3
Nitrogen	0.5
Sulfur	0.41
Heat of Combustion: (BTU/lb)	11,986

KOPPERS COMPANY, INC
MONTGOMERY, ALABAMA

TABLE IV

HOGGED TREATED WOOD TEST BURN
ANALYTICAL RESULTS

SAMPLES COLLECTED 3/16/88
TEST MO-BS-34

Hogged Woodwaste (Treated with Pentachlorophenol in Oil):

Ultimate Analysis: (Wt. %)

Parameter	Results
Volatiles @ 105°C	24.0
Ash @ 900°C	0.4
Carbon	41.0
Hydrogen	7.5
Nitrogen	0.04
Sulfur	<0.1

Heat of Combustion: (BTU/lb) 6,988

Hydrocarbon Levels in Feedstock: (lb/hr)

Feedrate 8510 lb/hr

Acenaphthene	1.1657933
Acenapthylene	0.6169344
Anthracene	0.4492984
Benzo(a)anthracene	0.0201674
Benzo(a)pyrene	0.0047227
Benzo(b)fluoranthene	0.0131045
Benzo(g,h,i)perylene	0.0033272
Benzo(k)fluoranthene	0.0061608
Chrysene	0.2527304
Dibenz(ah)anthracene	0.0061608
Fluoranthene	0.2527304
Fluorene	0.2799606
Indeno(123-cd)pyrene	0.0027145
Phenanthrene	1.5402086
Pyrene	0.3037870
Carbazole	0.0298681
Naphthalene	2.8761907
Pentachlorophenol	48.847400

KOPPERS COMPANY, INC
MONTGOMERY, ALABAMA

TABLE IV
(continued)

HOGGED TREATED WOOD TEST BURN
ANALYTICAL RESULTS

SAMPLES COLLECTED 3/16/88
TEST MO-BS-35

Hogged Woodwaste (Treated with Penta and Creosote):

Ultimate Analysis: (Wt. %)

Parameter	Results
Volatiles @ 105°C	22.0
Ash @ 900°C	0.6
Carbon	46.0
Hydrogen	6.9
Nitrogen	0.12
Sulfur	0.12

Heat of Combustion: (BTU/lb) 8,155

Hydrocarbon Levels in Feedstock: (lb/hr)

Feedrate 6720 lb/hr

Acenaphthene	35.139894
Acenapthylene	2.4255261
Anthracene	14.580033
Benzo(a)anthracene	7.3907999
Benzo(a)pyrene	1.6125382
Benzo(b)fluoranthene	2.4792774
Benzo(g,h,i)perylene	0.8936149
Benzo(k)fluoranthene	0.9137716
Chrysene	6.7860981
Dibenz(ah)anthracene	1.4781600
Fluoranthene	22.642723
Fluorene	15.722247
Indeno(123-cd)pyrene	0.5334814
Phenanthrene	45.755770
Pyrene	20.828618
Carbazole	7.1892326
Naphthalene	23.448992
Pentachlorophenol	31.785600

KOPPERS COMPANY, INC
MONTGOMERY, ALABAMA

TABLE IV
(continued)

HOGGED TREATED WOOD TEST BURN
ANALYTICAL RESULTS

SAMPLES COLLECTED 3/16/88
TEST MO-BS-36

Hogged Woodwaste (Treated with Creosote):

Ultimate Analysis: (Wt. %)

Parameter	Results
Volatiles @ 105°C	24.0
Ash @ 900°C	0.6
Carbon	48.0
Hydrogen	6.7
Nitrogen	0.20
Sulfur	0.14

Heat of Combustion: (BTU/lb) 8,523

Hydrocarbon Levels in Feedstock: (lb/hr)

Feedrate 6670 lb/hr

Acenaphthene	50.333333
Acenapthylene	3.0933333
Anthracene	17.000000
Benzo(a)anthracene	11.066667
Benzo(a)pyrene	2.7133333
Benzo(b)fluoranthene	4.5933333
Benzo(g,h,i)perylene	1.4066667
Benzo(k)fluoranthene	1.6666667
Chrysene	10.600000
Dibenz(ah)anthracene	1.9533333
Fluoranthene	32.866667
Fluorene	17.133333
Indeno(123-cd)pyrene	0.8200000
Phenanthrene	51.733333
Pyrene	28.066667
Carbazole	11.333333
Naphthalene	10.800000
Pentachlorophenol	13.273300

KOPPERS COMPANY, INC
MONTGOMERY, ALABAMA

TABLE V

HYDROCARBON EMISSIONS SUMMARY
HOGGED TREATED WOODWASTE TEST BURN

	Run 1	Run 2	Run 3
3/16/88	MO-BS-34	MO-BS-35	MO-BS-36
Start Time	15:29	17:45	19:30
Finish Time	16:58	19:12	20:57
<u>Hydrocarbon Emissions:</u> (lb/hr)			
Acenaphthene	0.0007631	0.0008888	0.0004876
Acenapthylene	0.0003268	0.0015100	0.0000641
Anthracene	0.0000373	0.0000569	0.0000330
Benzo(a)anthracene	0.0000148	0.0000196	0.0000110
Benzo(a)pyrene	0.0000013	0.0000013	0.0000018
Benzo(b)fluoranthene	0.0000066	0.0000061	0.0000036
Benzo(g,h,i)perylene	0.0000165	0.0000210	0.0000074
Benzo(k)fluoranthene	0.0000047	0.0000042	0.0000026
Chrysene	0.0000393	0.0000478	0.0000253
Dibenz(ah)anthracene	0.0000020	0.0000019	0.0000019
Fluoranthene	0.0001637	0.0002074	0.0000807
Fluorene	0.0001148	0.0005699	0.0001583
Indeno(123-cd)pyrene	0.0000080	0.0000077	0.0000032
Phenanthrene	0.0005550	0.0007501	0.0003684
Pyrene	0.0001259	0.0001658	0.0000775
Carbazole	0.0000652	0.0000630	0.0000641
Naphthalene	0.0110200	0.0178400	0.0047300
TOTAL PAH	0.0132650	0.0221615	0.0061205
Pentachlorophenol	0.0005342	0.0004829	0.0003402
	Penta-in-oil treated wood	Mixed penta creo treated wood	Creosote treated wood

KOPPERS COMPANY, INC
MONTGOMERY, ALABAMA

TABLE VI

HYDROCARBON EMISSIONS SUMMARY
HOGGED TREATED WOODWASTE TEST BURN

<u>Hydrocarbon Emissions:</u> Destruction and Removal Efficiency (%)

	Run 1	Run 2	Run 3
3/16/88	MO-BS-34	MO-BS-35	MO-BS-36
Acenaphthene		99.998	99.999
Acenapthylene		99.938	99.998
Anthracene		99.9996	99.9998
Benzo(a)anthracene		99.9997	99.9999
Benzo(a)pyrene		99.9999	99.9999
Benzo(b)fluoranthene		99.9998	99.9999
Benzo(g,h,i)perylene		99.998	99.9995
Benzo(k)fluoranthene		99.9995	99.9998
Chrysene		99.995	99.9998
Dibenz(ah)anthracene		99.9999	99.9999
Fluoranthene		99.999	99.9998
Fluorene		99.996	99.999
Indeno(123-cd)pyrene		99.999	99.9996
Phenanthrene		99.998	99.999
Pyrene		99.999	99.9997
Carbazole		99.999	99.999
Naphthalene		99.924	99.999
PCP	99.999	99.999	

KOPPERS COMPANY, INC
MONTGOMERY, ALABAMA

TABLE VIII

HYDROCARBON EMISSIONS SUMMARY

Hogged Treated Woodwaste Stack Conditions

3/16/88	Run 1 MO-BS-34	Run 2 MO-BS-35	Run 3 MO-BS-36
Flow (ACFM)	29504	24109	24265
(SCFM)	19218	16269	16333
Temperature (^{O}F)	361.6	335.7	337.7
Moisture (%)	11.07	9.60	9.88

Sampling Conditions

Sampling Time (min)	84.0	84.0	84.0
Sample Volume (SCFD)	34.59	30.80	30.32
Isokinetics (%)	95.42	98.73	97.13

Fuel Additive Test Burn Stack Conditions

3/17/88	Run 1 MO-BS-37	Run 2 MO-BS-40	Run 3 MO-BS-42
Flow (ACFM)	22680	27582	26866
(SCFM)	15434	18069	17701
Temperature (^{O}F)	331.5	362.3	357.6
Moisture (%)	12.76	15.45	14.63

Sampling Conditions

Sampling Time (min)	77.0	84.0	84.0
Sample Volume (SCFD)	26.16	33.59	32.86
Isokinetics (%)	99.94	103.7	102.5

CONCLUSION

The results of particulate matter, hydrocarbon, and PCP determinations performed for this program show the effect of the changes made in the operation of the steam production facility at the Montgomery plant. Repairs made to the boiler equipment and improvement made in the wood waste fuel quality have reduced mass emissions to less than one third of the value determined by the November 1987 program. Destruction and removal efficiency values were maintained above 99.99% for 50 of the 53 components evaluated.

These results show that in addition to being well below the compliance limitations for particulate matter emissions, the boiler at Koppers Montgomery, Alabama Plant is capable of destroying the POHC (PAH and PCP) associated with fuel additive material consisting of process wastes generated by the wood treating operations. Constituents found in treated wood were also effectively destroyed by the boiler. The results of stack testing show that wood treating process wastes are a good fuel additive material, and that treated wood is an efficient boiler fuel, and can be beneficially used accordingly.

CALIFORNIA FORESTRY ASSOCIATION

OCCUPATIONAL HEALTH
& PRODUCT SAFETY

AUG 15 1991

August 8, 1919
File No. 8113.1

1311 I STREET
SUITE 100
SACRAMENTO
CALIFORNIA
95814
PHONE 916 444 6592
FAX 916 444 0170

TO: CFA Wood-Fired Boiler Pool Members

FR: Steven Petrin Steve

RE: Project Wrap-Up and Final Report

We are finally wrapping-up active involvement in the wood-fired boiler testing pool. This memo will take care of a few final items and let you know where things stand.

Final Report

We have enclosed a copy of the Final Report for the project. This is based upon a paper Chuck Sassenrath did for a recent TAPPI conference, but with some editing and suggested changes by myself. Since it provides an overview of the legislation and the pooled testing project, you may know much of this already. However, the tables in the back summarize the data for all the facilities tested, some of it in different forms than reported to the districts (see the expanded table on dioxins and furans, for instance). The discussion of the project also contains background on some behind-the-scenes issues that you all may not have been aware of.

This is a summary and does not include the complete set of data results. Due to the time, expense, and the probable lack of need, we have not included the complete results. However, we have put together a packet comprised of the data tables from all the site reports. This packet is available for those who request it -- just call the CFA office. But please, this is 50-60 pages long so only call if you really want it.

Addition of Chrysene to Testing List

It has come to my intention that there has been a slight change in reporting requirements after all. This is small enough that most of the districts probably won't even notice it. However, to stay legal some of you may have to update your emissions report. Fortunately, it will be very easy.

The ARB has added chrysene to the list of PAHs that must be reported. The PAH test that we ran includes chrysene, so we have the data but just hadn't included it in the prior round. Thus, there will be no need for further testing, just a simple addition to your report of emissions. I had asked Chuck to write-up a sheet on how to make this addition and the enclosed letter (date July 30) is the result. Note that only some facilities (those using boilers 2,4,5,10, and 11) will need to add the chrysene emissions, the others having detected none. The numbers are still quite low.

Input Needed on Risk Prioritization and Assessment Results

From our perspective, we would like to get some idea of how things worked out for everyone on the risk prioritization and assessments. Not only do we need this for our own final project assessment, but we will be presenting a paper to the NCASI conference in October. I had done a paper two years ago at the initiation of the project, so this will be a follow-up for them. PLEASE answer the questionnaire on the next page and send it in so that we can gather this information. As indicated below, I will be at a new address and would like the questionnaires sent there – once I have gathered the information for the NCASI conference, the questionnaires will be sent on to the CFA office. Please note that the NCASI paper will only address facilities in the aggregate – no specific facilities will be referred to by name.

CFA Environmental Director Leaving

Those of you who are not members of CFA may not be aware that I will be leaving the Association to take a position with Georgia-Pacific. I will be their new Senior Environmental Engineer, based out of the Portland office. As I will have oversight of the California mills, I'll still be involved and around, but will no longer be coordinating any future efforts related to the testing project.

You may feel free to contact me if you need to follow-up on any aspects of the project. My new address and phone number will be:

STEVEN A. PETRIN
Georgia-Pacific Corporation
900 SW Fifth Avenue
Portland, Oregon 97204

(503) 248-7341

Please send the risk assessment questionnaires to this address. Also note that I will not be starting there until September 3, but I will still be checking in to the CFA office periodically prior to then, so you may leave messages there if you need to contact me.

Thanks to all of you who have been involved in the project. It has at least been interesting and I hope to be able to work with you again in the future.

Enclosures

Charles P. Sassenrath, P.E.
Consulting Chemical Engineer (707) 442-2389
2202 E Street, Eureka, CA 95501

July 30, 1991

Mr. Steve Petrin, Director
Environmental Affairs
California Forestry Assn.
1311 I Street
Sacramento, CA 95812

RE:CHRYSENE ADDITION TO PAH LIST

Dear Steve,

In September 1990, ARB added chrysene to the listing of PAH substances that are designated by them as carcinogens. Chrysene was only detected at five of the eleven TAC wood fired boiler test sites in very low concentrations. The item indicated as ARB (A-I) PAH'S 1050 on the air toxic emission summary sent out to all boiler pool participants should be increased for each of these five test prototype sites as follows:

			PAH FACTOR (lb/1000lb steam)	
BOILER #	TYPE	LOCATION	OLD FACTOR	NEW FACTOR
2	FUEL CELL W/MULTICLN	BEIBER	4.1E-7	5.5E-7
4	DUTCH OVEN W/SCRUBBER	ANDERSON	3.0E-7	4.3E-7
5	STOKER W/SCRUBBER	ANDERSON	9.8E-8	1.1E-7
10	AIR SUSPENSION	ROCKLIN	7.0E-7	8.7E-7
11	FLUIDIZED BED	NORTH FORK	1.2E-8	6.0E-8

All these PAH factors are so low it is very doubtful that they will cause a change in the priority rating of any of the wood fired boilers.

Sincerely,

Chuck

Charles Sassenrath, P.E.

AIR TOXIC EMISSIONS FROM WOOD FIRED BOILERS

Charles P. Sassenrath, P.E.
Consulting Chemical Engineer
Eureka, California, 95501

INTRODUCTION

In 1987 the California State Legislature passed legislation directing prescribed emission sources to inventory and report their emissions of designated air toxics. The inventory reporting procedure was based upon actual source tests or verified emission factor data. Facilities were required to prepare and submit AIR TOXIC EMISSION INVENTORY PLANS to the individual air pollution control districts prior to August 1, 1989. These INVENTORY PLANS were to consider a listing of 326 toxic substances and were needed for facilities identified as emitting in excess of 25 tons per year of any of the criteria pollutants: particulate matter, sulfur oxides, nitrogen oxides, or hydrocarbons. Smaller facilities were brought into the inventory program one year later. The AIR TOXIC EMISSION INVENTORY PLANS were reviewed by the air districts and were approved or revised prior to the start of testing. Emission source testing was to be completed and final AIR TOXIC EMISSION INVENTORY REPORTS were to be filed with the air districts within six months of Plan approval (June 1, 1990). Based upon data contained in these Reports, the individual facilities were prioritized by the air districts using a screening process to predict potential health risks. Facilities classified as "High Priority" were required to prepare air emission risk assessments which will be available for public disclosure.

The Air Toxic Emission Inventory Program was designed to evaluate all possible air toxic emission release points, but the major focus of the inventory was placed upon combustion processes, as they represent the greatest potential for release of large volumes of air emissions at oil refineries, chemical plants, utility boilers, lime kilns, smelters, kraft pulp mills and a vast array of fuel burning operations.

EMISSION INVENTORY PROGRAM

The California State Legislature had established an optimistic time schedule to accomplish the Air Toxic Program, considering the large number of industrial facilities operating in California.

August 1, 1989 ---------- File Inventory Plans
June 1, 1990 (est.) ----- File Inventory Reports
December 1,1990 --------- Prioritize Facilities
May 1, 1991 ---------- File Risk Assessments

The time schedule for this enormous air toxic inventory effort placed financial and manpower resource demands upon industry to test thousands of air emission release points throughout California. Manpower demands imposed upon testing firms capable of performing the needed source tests were further strained. There were too few testing firms to perform the source tests and many of these firms were not familiar with the specific testing procedures required to measure a vast array of substances by new source testing methods still being developed by the California Air Resources Board (CARB). This resource squeeze was extended to the few laboratory firms in the state qualified to perform the test analyses. Needless to say, the cost of source testing and laboratory analyses succumbed to the law of supply and demand. Source testing and laboratory charges began to escalate to where a complete air toxic emission test project for a single stack could cost as much as 60,000 dollars.

Fortunately, one safety valve was built into this inventory during the drafting of the regulations. CARB allowed groups of similar process operations to "pool" their resources, test representative prototype air emission processes, develop air toxic emission factors and apply these prototype factors to similar facilities participating in the test pool. Although this procedure reduced the source testing costs and manpower demands, it imposed another layer of governmental review upon the process. The test approval process was extended from the individual air districts to the California Air Resources Board, adding another layer of bureaucratic oversight to the inventory process. Hundreds of individual air toxic test plans had to be submitted to CARB for review prior to final air district approval. This new layer of inventory plan review caused a six month delay in starting the testing programs. Many test activities scheduled for Fall 1989 were postponed until June 1990.

WOOD FIRED BOILER TEST POOL SELECTION

The forest products industry in California uses an array of boiler types, ranging from small Dutch Oven boilers built in the 1940's to modern spreader stoker or fluidized bed boilers used for generating electric power for sale to utility companies. The California Forestry Association (formerly the Timber Association of California), under the direction of its Environmental Director, Mr. Steven Petrin, sponsored a pooled wood fired boiler test program representing over 90 wood fueled boilers located at 66 sawmill or wood fueled power generation plants. An industry committee was appointed to evaluate the boiler characteristics and operating variables to be studied in the pooled test program. The air toxic substances requiring evaluation by CARB were determined to include toxic metals, silica, benzene, aldehydes, phenolics, polycyclic aromatic hydrocarbons (PAH's), dioxins and dibenzofurans.

The main boiler system variables that could affect air toxic emissions were chosen by the industry committee to include:

- o BOILER TYPE
- o WOOD FUEL SPECIES
- o BOILER LOCATION
- o AIR EMISSION CONTROLS

Five major boiler type categories were selected for air toxic emission testing.

- o DUTCH OVENS (19)
- o FUEL CELLS (26)
- o SPREADER STOKERS (40)
- o FLUIDIZED BEDS (4)
- o AIR INJECTION BURNERS (4)

The industry committee decided early in the pooled test program to limit the emission studies to boilers fueled exclusively with wood to minimize complications arising from burning fuel oils, petroleum coke, municipal waste and thereby, introducing a variety of other complicating comparison factors. However, fuel species variations within the timber industry were evaluated, such as:

- o DIRTY BARK
- o CLEAN SAWDUST AND SHAVINGS
- o WOOD SPECIES
- o LOCATION VARIATIONS

Wood fired boilers in California use three main types of particulate control systems. All, but the oldest, have primary cyclones or multiple cyclone type particulate collectors. The larger, more modern or retrofitted boilers, also use wet scrubbers or electrostatic precipitators (ESP) as the final particulate collection device. Three specific control systems were selected for emission testing and analyses.

- o CYCLONIC TYPE COLLECTORS (36)
- o MULTICLONES AND WET SCRUBBERS (21)
- o MULTICLONES AND ESP (31)

This control system field presented almost a 1,000 fold range of particulate collection efficiencies to be evaluated, with stack emission rates ranging from 0.001 grains to 1.0 grain per dry standard cubic foot of exhaust gas.

FIGURE 1
WOOD FIRED BOILER KILN DRYING SYSTEM

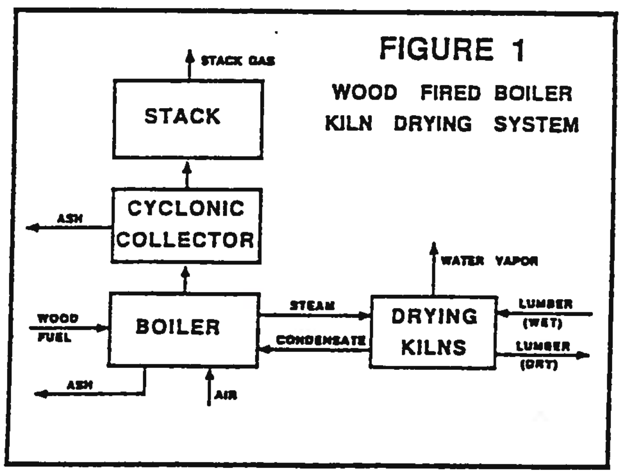
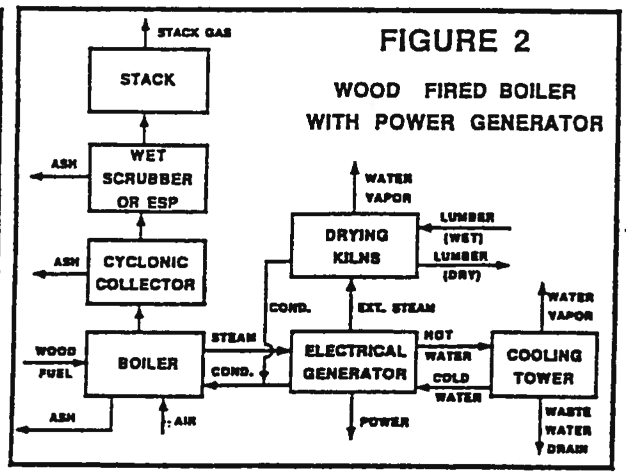


FIGURE 2
WOOD FIRED BOILER WITH POWER GENERATOR



The final eleven prototype wood wired boilers chosen as representative of these variables are described on Table 1.

AIR TOXIC TESTING

The source test methods and procedures used for the pooled test program were specified by CARB in their Air Toxics Testing Methods Manual. An extensive source test protocol was prepared and a detailed Request For Proposal (RFP) was sent out for bid to six testing firms. After evaluation of the bid prices and qualifications of the RFP respondents, the California Forestry Association Committee selected Galson Technical Services, Berkeley, California, as the project testing contractor. Following test pool approval delays by the air districts and CARB, air toxic testing finally began in June 1990, about six months behind the originally anticipated schedule. Testing of the eleven wood fueled boilers was completed in October 1990.

Emission data generated from the Pooled Test Program were developed to relate emissions against boiler steam rates, stack gas flow rates, fuel types, combustion efficiencies, and particulate collection control device variations. From these test data emission factors were derived and presented in a standardized format for use by each of the participants in the pooled test program.

An early unsuspected challenge of the test program data evaluation procedure was selection of a presentation format for emission factors. There was no readily applicable consistent format for expressing an array of particulate metal and volatile gaseous organic emissions for these wide ranging test results on a single simple reference base. Literature searches showed comparison values being expressed as pounds per ton of wood burned, micrograms per dry standard cubic meter of exhaust gas, pounds per million BTU heat input, and picograms per Joule, just to mention a few references bases that were investigated and found to present a mathematical manipulation nightmare. Each person who had previously worked in this study arena seemed to have developed his or her own special emission relationship factors. This dilemma proved more serious in our study than in many of the prior works, because of the range of values encountered. We finally decided to base the emission factors on relationships that were easily derived from the sampling and laboratory analyses calculation methods. Particulate metals are largely detected on the collection filter, so we related most metal factors on the basis of parts per million by weight of the particulate catch. This also equates as micrograms per gram of EPA Method 5 particulate. Except for mercury, which is partially volatile at stack conditions, this proved to be a satisfactory procedure. Very distinct distribution patterns were found for the several control systems studied, with trace metals becoming more concentrated as the large fly ash particles were removed by the more efficient collectors as indicated in Table 2.

Mercury, benzene, aldehydes and other volatile organic emission factors were based upon stack exhaust gas flow rates that had been normalized to a combustion reference of 12 percent carbon dioxide. Emission concentrations of these substances were expressed as parts per billion by volume in the stack exhaust gas and showed no significant variation with differing exhaust stack gas temperatures ranging from 140 to 500 degrees Fahrenheit as displayed on Table 3. An attempt was made to develop a relationship between organic volatiles and exhaust stack carbon monoxide or hydrocarbon concentrations. A trend of this type was recognized at several of the prototype test units, but no correlation of these parameters between boiler units could be developed.

PAH's, dioxins and dibenzofurans tend to be distributed between the particulate and gaseous states at normal boiler stack gas temperatures. Since their concentrations were small in this boiler study, we used the generally accepted EPA reporting relationship of micrograms or nanograms per dry standard cubic meter at 12 percent carbon dioxide. As in all prior wood fueled boiler PAH studies, naphthalene was the predominant compound found. Our test values have been converted into micrograms per kilogram of wood burned and are presented in Table 4 for comparison with the PAH study conducted by the National Council for Air and Stream Improvement on seven wood fired boilers in North Carolina (4). Considering the extremely low concentrations of these many PAH compounds, good agreement is shown between the two studies.

The emission factors used for dioxins and dibenzofurans in this AIR TOXIC EMISSION INVENTORY PROGRAM were derived from source tests conducted by the California Air Resources Board in 1988 on four types of wood fired boilers. These CARB emission factors are presented in Table 5, with dioxin and dibenzofuran values listed separately and expressed as the 2,3,7,8 TCDD equivalent, based on the California Department of Public Health conversion factors and the EPA conversion factors. In all cases the EPA values are less than the California values.

Due to cost factors and the general feeling that CARB derived dioxin and furan values were appropriately low, it was decided that using CARB derived emission factors would be acceptable, However, one boiler site chose to have tests for dioxins and furans conducted. The results were nondetectible throughout the range of species, showing that CARB's numbers and resultant emission factors used for the boilers may be high.

The treatment of nondetectable levels of air toxics in this emission study program presented a major difficulty, because of the high detection limits that occur when dust collection efficiencies are extremely high. After lengthy review the CFA committee decided to report emission concentrations as zero if a substance was undetected in all three stack samples. If positive detection of a substance occurred in one of the three stack samples, the remaining nondetectable measurements were counted as one-half the detection limit. This is a commonly accepted practice in toxicological evaluations.

TEST PROGRAM DILEMMAS

Because of the developmental status of the new air toxic test methods that we were required to use in the pooled test program and the extremely tight testing time frame, there was no possibility to examine test results and make mid-course adjustments. When a testing, laboratory or procedural error was detected we were about five source tests downstream. Further early project delays were encountered by uncertainty in the multiple metals test methodology and air district variations in required tests for phenolics and crystalline silica, both of which proved to yield insignificant emissions.

The major dilemma throughout the entire test program was the loss of detection sensitivity for metals at test sites which had high efficiency particulate collectors. Test runs as long as four hours would only give a detection limit of 1000 parts per million, which was obviously far above the expected metal value. A new high volume sampling technique needs to be developed to solve this difficulty.

We did not expect to find hexavalent (hex) chromium in the metal samples, but it occasionally appeared at borderline detection limit levels. The first such hex chrome occurrence was at a particleboard plant which burned only clean sanderdust, containing traces of phenolic resin, in an air suspension burner. At three other boiler test sites we found hex chrome in only one of the three stack exhaust gas samples at almost the same concentration level as the total chrome. The sporatic nature of detection and the unusual relationship between hex chrome and total chrome suggests that these may be false positive values. Bulk samples of ash and stack particulate at several alternate facilities were tested and yielded no indication of hexavalent chrome. Some boiler chromium, and possibly hex chrome derivatives may be created from the use of a specific chromium trioxide, sodium silicate cement placed under the boiler grates.

CONCLUSIONS

Air toxic metal emissions from the new generation of wood fired boilers equipped with electrostatic precipitators are minimal because of the high efficiency of these collectors. It would be interesting to explore the origin of these metals, as some are coming from the wood, while others come from the dirt that is brought into the boiler with the bark. At the one site where we found selenium, was it contained in the wood or did it enter with occluded soil?.

Aldehydes and benzene are the predominant volatile organic hydrocarbons created by wood combustion, with levels up to one part per million sometimes occurring. Volatile organic emissions are slightly lower for fuel cell and Dutch oven boilers, probably because of the large area of hot refractive surface relative to the furnace combustion zone. The cooler boiler tubes in the fireboxes of the large spreader stokers may be partially quenching the combustion process for some organics.

Volatile organic concentrations in the stack gas rose with an increase in carbon monoxide concentration in some individual boilers, but no similar combustion efficiency relationship could be established between boiler types.

PAH emissions from properly operated wood fired boilers are very low and probably not worthy of the high degree of concern that they have received in past studies. The highly toxic benzo(a)pryene was only detected in one sample of the entire test series. This observation may not apply to wood stove combustion, which is far less efficient.

ACKNOWLEDGEMENTS

I would like to express my appreciation to the California Forestry Association for choosing me to serve as Project Manager of this Wood Fired Boiler Air Toxics Test Program and to its Environmental Director, Mr. Steven Petrin for reviewing and helping to edit this report. Special thanks are extended to the boiler owners and operators at the eleven test sites for the courtesy and consideration shown to Galson's source test crews that moved in on them for the prolonged periods while testing their boilers.

The technical staff of the California Air Resources Board and the nineteen local Air Districts involved with this program have been most cooperative in helping us to get this test program up and running.

LITERATURE CITED

1. California Air Resources Board, Technical Guidance Document to the Criteria and Guidelines Regulation for AB-2588: pages 266-276 (August 1989)

2. Timber Association of California, Pooled Air Toxics Source Test Program for Wood Fired Boilers: (March 1990)

3. U.S. Environmental Protection Agency, Locating and Estimating Air Emissions From Stationary Sources of Polycyclic Organic Materials (POM): EPA-450/4-84-007p

4. National Council of the Paper Industry for Air and Stream Improvement, A Polycyclic Organic Materials Emissions Study for Industrial Wood Fired Boilers: NCASI Technical Bulletin No.400, New York, NY (May 1983)

5. Lindner, Gloria and Jenkins, Alfred, Emissions of Criteria Pollutants and Non-Criteria Pollutants from Wood-Fired Incinerators: California Air Resources Board, Air Toxics Conference, Sacramento, CA. October 29, 1990

TABLE 1

PROTOTYPE WOOD FIRED BOILERS TESTED FOR AIR TOXIC EMISSIONS BY THE CALIFORNIA FORESTRY ASSOCIATION

SITE NUMBER	LOCATION	BOILER TYPE	PARTICULATE CONTROL(a)	STEAM RATE lb/hour	GAS FLOW dscfm(b)	PARTICULATE RATE (c) gr/dscf	PARTICULATE RATE (c) lb/hour
1	COASTAL	FUEL CELL	CYCLONES(d)	6,000	3,000	0.78	20
2	MOUNTAIN	FUEL CELL	MULTICLONE	68,000	30,000	0.06	16
3	MOUNTAIN	DUTCH OVEN	MULTICLONE	50,000	23,000	0.31	60
4	VALLEY	DUTCH OVEN	WET SCRUBBER	37,000	22,000	0.04	8
5	VALLEY	STOKER	WET SCRUBBER	90,000	37,000	0.013	4
6	COASTAL	STOKER	WET SCRUBBER	118,000	56,000	0.03	10
7	COASTAL	STOKER	ESP	136,000	62,000	0.0008	0.4
8	MOUNTAIN	STOKER	ESP	164,000	76,000	0.002	1.3
9	VALLEY	STOKER	ESP	167,000	75,000	0.0008	0.5
10	VALLEY	AIR INJ.	MULTICLONE	43,000	16,000	0.10	14
11	MOUNTAIN	FLUID BED	ESP	92,000	45,000	0.004	1.5

NOTES:
(a) All Boilers Tested Used Multiclone Collectors in Addition to the Units Indicated
(b) Dry Standard Cubic Feet per Minute at 12 percent carbon dioxide
(c) Expressed as Front Half Particulate Catch Only
(d) Prototype Boiler # 1 also used a Rotary Fuel Pre-Drier

TABLE 2

EMISSIONS OF AIR TOXIC METALS FROM WOOD FIRED BOILERS

BOILER NUMBER	1	2	3	10	4	5	6	7	8	9	11
BOILER TYPE	FUEL CELL	FUEL CELL	DUTCH OVEN	AIR INJ	DUTCH OVEN	STOKER	STOKER	STOKER	STOKER	STOKER	FLUID BED
STEAM RATE (Mlb/hr)	6	68	50	43	37	90	118	136	164	167	92
PARTICULATE CONTROL	CYCLONE	MC	MC	MC	WS	WS	WS	ESP	ESP	ESP	ESP
SUBSTANCE	**EMISSION FACTORS (e) parts per million by weight (ug/g particulate)**										
ARSENIC	8	5	29	4	72	230	565	0	92	0	0
BERYLLIUM	0	0	0	0	0	0	0	<240> 0	0	<240> 0	<45> 0
CADMIUM	1	28	8	8	19	36	8	172	190	0	29
CHROMIUM	26	33	14	25	38	518	74	383	206	<240> 238	173
HEX CHROME	0	25	7	29	0	0	0	0	0	0	0
COPPER	<187> 70	257	182	133	<120> 380	<140> 514	<150> 558	<3840> 1756	<755> 928	<3160> 903	<513> 550
LEAD	187	24	114	63	780	1270	302	890	617	981	260
MANGANESE	745	12077	7690	6550	4260	3530	1990	53900	12795	13150	7360
NICKEL	5	62	33	38	290	130	55	1770	1423	0	470
SELENIUM	0	0	0	0	0	0	0	0	0	<1920> 0	430
ZINC	180	2043	1430	1250	7120	8910	6200	25900	10200	6290	3230
MERCURY (ug/dscm) (f)	0	0.3	2.4	0	0.5	0.5	0.9	0	0.4	0.3	0

NOTES
(e) Expressed as Front Half Particulate Catch Only
(f) Mercury is expressed as micrograms per dry standard cubic meter
< > Indicates Detection Limit for this Metal

TABLE 3

EMISSIONS OF AIR TOXIC ORGANICS FROM WOOD FIRED BOILERS

BOILER NUMBER	1	2	3	4	5	6	7	8	9	10	11
BOILER TYPE	FUEL CELL	FUEL CELL	DUTCH OVEN	DUTCH OVEN	STOKER	STOKER	STOKER	STOKER	STOKER	AIR INJ	FLUID BED
STACK TEMP: ^{o}F	156	272	516	158	138	158	369	304	350	369	324
CARBON DIOXIDE:VOL %	2.8	14.8	7.6	9.0	15.4	11.4	12.6	12.4	14.5	9.7	13.1
CARBON MONOXIDE:ppm	20	2500	220	600	220	1200	1000	500	300	2100	250
HYDROCARBONS:ppm	25	12	20	NM	9	40	25	35	6	35	NM
ORGANIC SUBSTANCE EMISSIONS: parts per billion by volume at 12 percent carbon dioxide											
FORMALDEHYDE	724	760	530	72	490	417	310	1010	260	139	21
ACETALDEHYDE	384	140	130	21	90	132	33	160	42	0	13
BENZENE	0	10	25	315	87	1270	212	490	79	930	8
PHENOLS	NT	<1	NT	9	11	NT	NT	6	<1	NT	NT
POLYCYCLIC AROMATIC HYDROCARBON EMISSIONS: micrograms per dry standard cubic meter at 12% CO^2											
NAPHTHALENE	611	BP	125	120	312	179	BP	286	120	BP	330
ACENAPHTHYLENE	0	0.28	3.90	1.59	0.31	23.7	7.27	0.49	0	5.19	0.07
ACENAPHTHENE	0	0.01	0.12	0	0.10	1.90	0.01	0	0	0.50	0
FLUORENE	1.24	0.03	0.70	0.07	0.06	5.55	0.19	0	0	0.13	0.02
PHENANTHRENE	3.70	0.42	2.18	2.69	0.23	29.5	6.66	0.18	0	6.21	0.48
ANTHRACENE	0.16	0.01	0.14	0.14	0.02	1.77	0.19	0	0	0.27	0
FLUORANTHENE	0.75	0.39	0.98	2.47	0.08	10.6	1.39	0.03	0.01	5.07	0.21
PYRENE	0.40	0.24	1.29	3.61	0.10	6.83	1.15	0.04	0	6.53	0.05
*BENZO(A)ANTHRACENE	0	0	0	0.04	0	0.75	0	0	0	0.04	0.01
*CHRYSENE	0	0.05	0	0.06	0.01	0	0	0	0	0.13	0.02
*BENZO(B&K)FLUORANTHENE	0	0.12	0.15	0.04	0.06	0.86	0	0	0	0	0
*BENZO(A)PYRENE	0	0.01	0	0	0	0	0	0	0	0	0
*BENZO(GHI)PERYLENE	0	0.01	0.06	0.06	0	0	0	0	0	0.41	0
*DIBENZ(AH) ANTHRACENE	0	0	0	0	0	0	0	0	0	0	0
*INDENO(123CD)PYRENE	0	0.01	0	0	0	0	0	0	0	0.07	0
TOTAL (*) PAH'S	0	0.20	0.21	0.20	0.07	1.61	0	0	0	0.65	0.03

NOTES NT--Not Tested NM--Instrument Inoperative BP--Blank Problems
* Classified as a Carcinogen by CARB

TABLE 4

POLYCYCLIC AROMATIC HYDROCARBON EMISSIONS FROM WOOD FIRED BOILERS

(micrograms per kilogram wood burned)

	CFA STUDY	NCASI (4)
	MEAN OF 11	MEAN OF 7
NAPHTHALENE	2343	1314
ACENAPHTHYLENE	36	NM
ACENAPHTHENE	<1	NM
FLUORENE	6	51
PHENANTHRENE	43	108
ANTHRACENE	2	64
FLUORANTHENE	18	7
PYRENE	17	25
*BENZO(A) ANTHRACENE	<1	26
*CHRYSENE	<1	8
*BENZO(B&K) FLUORANTHENE	1	10
*BENZO(A) PYRENE	0.01	7
*BENZO(GHI) PERYLENE	<1	6
*DIBENZ(AH) ANTHRACENE	0	2
*INDENO(123CD) PYRENE	<1	2

NM - NOT MEASURED
* - CLASSIFIED AS A CARCINOGEN BY CARB
(4) - NCASI BULLETIN 400 STUDY OF PAH EMISSIONS FROM 7 WOOD FIRED BOILERS IN NORTH CAROLINA

TABLE 5

DIOXIN AND DIBENZOFURAN EMISSIONS FROM WOOD FIRED BOILERS

CALIFORNIA AIR RESOURCES BOARD STUDY - 1988

BOILER ID	A	B	C	D(REG)	D(BLND)
BOILER TYPE	FUEL CELL	FUEL CELL	FLUID BED	STOKER	STOKER
PARTICULATE CONTROL	MULTICLONE	MC & ESP	MC & ESP	MULTICLONE & ESP	

DIOXIN AND DIBENZOFURAN CONGENERS

DIOXINS: nanograms/dscm at 12 percent carbon dioxide in exhaust gas					
2378-TCDD	0.006	0.000	0.000	0.000	0.000
12378-PeCDD	0.019	0.000	0.016	0.005	0.003
123478-HXCDD	0.005	0.000	0.026	0.011	0.000
123678-HxCDD	0.007	0.000	0.048	0.015	0.000
123789-HxCDD	0.005	0.000	0.068	0.034	0.000
1234678-HpCDD	0.392	0.141	0.054	0.200	0.089
OCDD	3.427	0.613	0.447	0.490	0.261
FURANS: nanograms/dscm at 12 percent carbon dioxide in exhaust gas					
2378-TCDF	0.151	0.023	0.082	0.453	0.037
12378-PeCDF	0.255	0.062	0.204	0.102	0.077
23478-PeCDF	0.120	0.088	0.227	0.199	0.056
123478-HxCDF	0.051	0.132	0.193	0.358	0.042
123678-HxCDF	0.063	0.193	0.311	0.212	0.068
234678-HxCDF	0.052	0.204	0.163	0.236	0.071
123789-HxCDF	0.002	0.019	0.008	0.003	0.000
1234678-HpCDF	0.152	0.898	0.845	0.383	0.144
1234789-HpCDF	0.032	0.128	0.093	0.003	0.000
OCDF	0.362	0.301	0.422	0.031	0.040

TOTAL 2378 TCDD EQUIVALENT
(using DHS Factors/EPA Factors)

TCDD EQUIVALENTS: nanograms/dscm at 12 percent carbon dioxide in exhaust gas					
DIOXINS	0.037/0.023	0.004/0.002	0.022/0.023	0.013/0.011	0.006/0.003
FURANS	0.538/0.231	0.221/0.135	0.561/0.209	0.789/0.643	0.179/0.088

APPLICATION FOR

TITLE 5
OPERATING PERMIT

AND

REVISED PERMIT TO CONSTRUCT

KOPPERS INDUSTRIES, INC.
TIE PLANT, MS.

FOR OFFICIAL USE ONLY

APPLICATION RECEIPT DATE: ____

APPLICATION NO.: ____

FOR MODIFICATION
MINOR ____
SIGNIFICANT ____

RECEIVED
JUN 24 1996

STATE OF MISSISSIPPI
DEPARTMENT OF ENVIRONMENTAL QUALITY
OFFICE OF POLLUTION CONTROL
AIR DIVISION

P.O. BOX 10385
JACKSON, MS. 39289-0385
PHONE NO.: (601) 961 - 5171

APPLICATION FOR TITLE V AIR POLLUTION CONTROL PERMIT TO OPERATE AIR EMISSIONS EQUIPMENT

PERMITTING ACTIVITY:

__X__ INITIAL APPLICATION
____ MODIFICATION
____ RENEWAL OF OPERATING PERMIT

NAME: Koppers Industries Inc

CITY: Tie Plant

COUNTY: Grenada

FACILITY No. (if known): 0960-00012

APPLICATION FOR TITLE V PERMIT TO OPERATE AIR EMISSIONS EQUIPMENT

CONTENTS

Owners Information — Section B

1. Name, Address & Contact for the Owner/Applicant

A. Company Name: Koppers Industries Inc

B. Mailing Address:

1. Street Address or P.O. Box: 436 Seventh Ave
2. City: Pittsburgh 3. State: PA
4. Zip Code: 15219
5. Telephone No.: (412) 227-2677

C. Contact:

1. Name: Stephen Smith
2. Title: Environmental Mgr.

2. Name, Address, Location and Contact for the Facility:

A. Name: Koppers Industries Inc.

B. Mailing Address:
1. Street Address or P.O. Box: PO Box 160
2. City: Tie Plant 3. State: MS
4. Zip Code: 38960
5. Telephone No.: (601) 226-4584

C. Site Location:
1. Street: Tie Plant Road
2. City: Tie Plant 3. State: MS
4. County: Grenada 5. Zip Code: 38960
6. Telephone No.: ( ) Same

Note: If the facility is located outside of the City limits, please attach a sketch or description to this application showing the approximate location of the site.

D. Contact:

1. Name: Thomas L. Henderson
2. Title: Plant Mgr.

3. SIC Code(s)(including any associated with alternate operating scenarios):
2491

4. Number of Employees: 56

5. Principal Product(s): Utility Poles & Rail Road Ties

6 Principal Raw Materials: Wood Poles, Lumber, Creosote, Pentachlorophenol & Oil

7. Principal Process(es): Wood Preserving

8. Maximum amount of principal product produced or raw material consumed per day: ~~16,000 CF~~ 20,000 CF

9. Facility Operating Schedule:

A. Specify maximum hours per day the operation will occur: 24

B. Specify maximum days per week the operation will occur: 7

C. Specify maximum weeks per year the operation will occur: 52

D. Specify the months the operation will occur: All

10. Is this facility a small business as defined by the Small Business Act? No

11. **EACH APPLICATION MUST BE SIGNED BY THE APPLICANT.**

The application must be signed by a responsible official as defined in Regulation APC-S-6, Section I.A.26.

I certify that to the best of my knowledge and belief formed after reasonable inquiry, the statements and information in this application are true, complete, and accurate, and that, as a responsible official, my signature shall constitute an agreement that the applicant assumes the responsibility for any alteration, additions, or changes in operation that may be necessary to achieve and maintain compliance with all applicable Rules and Regulations.

Randall D. Collins
Printed Name of Responsible Official

V. P. & Secretary
Title

June 21, 1996
Date Application Signed

Signature of Applicants Responsible Official

EMISSIONS SUMMARY for the ENTIRE FACILITY

List below the total emissions for each pollutant from the entire facility. For stack emissions, use the maximum annual allowable (potential) emissions. For fugitive emissions, use the annual emissions calculated using the maximum operating conditions.

POLLUTANT Footnote 1	ANNUAL EMISSION RATE	
	lb/hr	tons/yr
See attached "Emission		
Inventory Calculation for		
Synthetic Minor Emission		
(High Creo Volume)"		

1. All regulated air pollutants,including hazardous air pollutants emitted from the entire facility should be listed. A list of regulated air pollutants has been provided in Section A.

With the exception of the emissions resulting from insignificant activities and emissions as defined in Regulation APC-S-6, Section VII, the pollutants listed above are all regulated air pollutants reasonably expected to be emitted from the facility.

SIGNATURE (must match signature on page 17)

For the sections listed below indicate the number that have been completed for each section as part of this application.

Section B 1	Section L1 ____	Section M1 ____
Section C 1	Section L2 2	Section M2 ____
Section D ~~3~~ 5	Section L3 ____	Section M3 ____
Section E 6	Section L4 ____	Section M4 ____
Section F 1	Section L5 ____	Section M5 ____
Section G ____	Section L6 ____	Section M6 ____
Section H 1	Section L7 ____	Section M7 ____
Section I ____		Section M8 ____
Section J ____		Section N 1
Section K ____		Section O 2

As a minimum, sections B, C, M, N and O must be completed for the application to be considered complete.

Please list below all insignificant activities required by APC-S-6, Section VII.B that apply to your facility

- Natural gas fired space heaters.

- Gasoline & diesel fuel tanks used to store fuel for yard equipment. Constructed approx. 1980.
  Tank 25 Diesel #2 - 20,000 gal
  Tank 26 Gasoline - 1,000 gal.

6/17/96

RISK MANAGEMENT PLANS

If the source is required to develop and register a risk management plan pursuant to Section 112(r) of the Title III of the Clean Air Act, the permittee need only specify that it will comply with the requirement to register such a plan. The content of the risk management plan need not itself be incorporated as a permit term.

Please answer the following questions:

I. Are you required to develop and register a risk management plan pursuant to Section 112(r)?

_____ Yes __X__ No

Only if "yes", answer questions II., III., and/or IV.

II. Have you submitted the risk management plan to the appropriate agency (i.e. Mississippi Emergency Management Agency (MEMA), Federal Emergency Management Agency (FEMA), etc.)?

_____ Yes _____ No

III. If yes, give agency name and date submitted. ____________________

IV. If no, provide a schedule for developing and submitting the risk management plan to the appropriate agency and providing our agency with certification that this submittal was made.

FUEL BURNING EQUIPMENT (page 1 of 2) SECTION D

1. Emission Point No. / Name: 01-Wood Fired Boiler

2. Equipment Description: Wellons 2 Cell Combustion System, Boiler, and Cogeneration Power Unit.

3. Was this unit constructed or modified after August 7, 1977? ____ Yes __X__ No
If yes please give date and explain. ____

4. Rated Capacity: ~~37.5~~ 60.0 MMBTU/hr 5. Type of burner: Fuel Cell

6. Usage Type (i.e. Space Heat, Process, etc.) : Process

7. Complete the following table, identifying each type of fuel and the amount used. Specify the units for heat content, hourly usage, and yearly usage.

FUEL TYPE	HEAT CONTENT	% SULFUR	% ASH	MAXIMUM HOURLY USAGE	ACTUAL YEARLY USAGE
Wood Waste	4,000 - 6,000 BTU/lb	~~0.11~~ 0.25	5.0	8760 hr/yr	8424 Approx

8. Please list any fuel components that are hazardous air pollutants and the percentage in the fuel.
Pentachlorophenol - ~1%, Creosote ~15% Naphthalene ~2%

9. Operating Schedule: 24 hours/day 7 days/week 52 weeks/year

10. Stack Data:
A. Height: 80 FT
B. Inside diameter: 3 FT
C. Exit gas velocity: ~~58~~ 60 F/s
D. Exit gas temperature: 350 °F

11. UTM Coordinates:
A. Zone ____ B. North ____ C. East ____

FUEL BURNING EQUIPMENT (page 2 of 2) SECTION D

12. POLLUTANT EMISSIONS:

Emission rate calculations, monitoring data, or stack test data must be attached!

EMISSION POINT NO.	POLLUTANT (note 1)	CONTROL EQUIPMENT		ACTUAL EMISSION RATE			PROPOSED ALLOWABLE EMISSION RATE		
		yes/no*	effic.	note 2	lb/hr	tn/yr	note 2	lb/hr	tn/yr
01	Particulate	Y					0.3 grain/dscf	9.70	38.9
	PM 10	Y					"	9.70	38.9
	SO2							13.14	52.6
	NOX							15.47	62.0
	CO							38.91	156.0
	VOC							4.27	17.1

1. All regulated air pollutants including hazardous air pollutants emitted from this source should be listed. A list of regulated air pollutants has been provided in Section A.

2. Provide emission rate in units of applicable emission standard, e.g. lb/MMbtu, gr/dscf, etc. This may not apply to every emission point or every pollutant from an emission point.

* If yes, attach appropriate Air Pollution Control Data Sheet from Section I, or manufacturers specifications if other

FUEL BURNING EQUIPMENT (page 1 of 2) SECTION D

1. Emission Point No. / Name: 26- Oil Fired Boiler

2. Equipment Description: Backup service boiler.

3. Was this unit constructed or modified after August 7, 1977? ____ Yes X No
If yes please give date and explain. ____

4. Rated Capacity: 28.5 MMBTU/hr 5. Type of burner: Atomizing Oil

6. Usage Type (i.e. Space Heat, Process, etc.) : Process

7. Complete the following table, identifying each type of fuel and the amount used. Specify the units for heat content, hourly usage, and yearly usage.

FUEL TYPE	HEAT CONTENT	% SULFUR	% ASH	MAXIMUM HOURLY USAGE	ACTUAL YEARLY USAGE
~~#2 Oil~~	~~18,000 BTU/lb~~	~~0.30~~ ~~0.50~~	~~0~~	~~2000~~	~~336~~
#2 Oil	140,000 BTU/gal	0.50	1.6	204 gal/hr	100,000 gal

8. Please list any fuel components that are hazardous air pollutants and the percentage in the fuel.
None

9. Operating Schedule: 24 hours/day 7 days/week 2 weeks/year

10. Stack Data:
A. Height: 36 Ft
B. Inside diameter: 2.5 Ft
C. Exit gas velocity: 32 Ft/sec
D. Exit gas temperature: 570 °F

11. UTM Coordinates:
A. Zone ____ B. North ____ C. East ____

FUEL BURNING EQUIPMENT (page 2 of 2) SECTION D

12. POLLUTANT EMISSIONS:

Emission rate calculations, monitoring data, or stack test data must be attached!

EMISSION POINT NO.	POLLUTANT (note 1)	CONTROL EQUIPMENT		ACTUAL EMISSION RATE			PROPOSED ALLOWABLE EMISSION RATE		
		yes/no*	effic.	note 2	lb/hr	tn/yr	note 2	lb/hr	tn/yr
26	Particulate Matter							.43	1.88
	PM 10							.43	1.88
	SO2							15.40	67.45
	NOX							4.34	19.01
	CO							1.08	4.73
	VOC							0.04	0.18
Note - This boiler will not operate at same									
time as source 01. This is for									
backup service only.									

1. All regulated air pollutants including hazardous air pollutants emitted from this source should be listed. A list of regulated air pollutants has been provided in Section A.

2. Provide emission rate in units of applicable emission standard, e.g. lb/MMbtu, gr/dscf, etc. This may not apply to every emission point or every pollutant from an emission point.

* If yes, attach appropriate Air Pollution Control Data Sheet from Section I. or manufacturers specifications if other

FUEL BURNING EQUIPMENT (page 1 of 2) — SECTION D

1. Emission Point No. / Name: 33 - Natural Gas Space Heaters

2. Equipment Description: Space heaters used in plant buildings, gas fired.

3. Was this unit constructed or modified after August 7, 1977? ____ Yes __X__ No
If yes please give date and explain. ____

4. Rated Capacity: 0.3 MMBTU/hr 5. Type of burner: Gas

6. Usage Type (i.e. Space Heat, Process, etc.) : Space Heat

7. Complete the following table, identifying each type of fuel and the amount used. Specify the units for heat content, hourly usage, and yearly usage.

FUEL TYPE	HEAT CONTENT	% SULFUR	% ASH	MAXIMUM HOURLY USAGE	ACTUAL YEARLY USAGE
Natural Gas	1000 BTU/CF	—	—	~~300~~ CF/hr	~~605 MCF~~
				320 CF/hr	645 MCF

8. Please list any fuel components that are hazardous air pollutants and the percentage in the fuel.
None

9. Operating Schedule: 24 hours/day 7 days/week 12 weeks/year

10. Stack Data: N.A.
A. Height: ____ C. Exit gas velocity: ____
B. Inside diameter: ____ D. Exit gas temperature: ____

11. UTM Coordinates:
A. Zone ____ B. North ____ C. East ____

FUEL BURNING EQUIPMENT (page 2 of 2) — SECTION D

12. POLLUTANT EMISSIONS:

Emission rate calculations, monitoring data, or stack test data must be attached!

EMISSION POINT NO.	POLLUTANT (note 1)	CONTROL EQUIPMENT		ACTUAL EMISSION RATE			PROPOSED ALLOWABLE EMISSION RATE		
		yes/no*	effic.	note 2	lb/hr	tn/yr	note 2	lb/hr	tn/yr
33	No significant emissions.								
	All less than 0.0 Tons/yr								

1. All regulated air pollutants including hazardous air pollutants emitted from this source should be listed. A list of regulated air pollutants has been provided in Section A.

2. Provide emission rate in units of applicable emission standard, e.g. lb/MMbtu, gr/dscf, etc. This may not apply to every emission point or every pollutant from an emission point.

* If yes, attach appropriate Air Pollution Control Data Sheet from Section I. or manufacturers specifications if other

FUEL BURNING EQUIPMENT (page 1 of 2) SECTION D

1. Emission Point No. / Name: 35 - Natural Gas Fired Steam Cleaner

2. Equipment Description: Water heater for steam cleaner used for equipment cleaning.

3. Was this unit constructed or modified after August 7, 1977? ✓ Yes ____ No
   If yes please give date and explain. ~ 1992

4. Rated Capacity: 0.44 MMBTU/hr 5. Type of burner: Nat. Gas

6. Usage Type (i.e. Space Heat, Process, etc.) : Process

7. Complete the following table, identifying each type of fuel and the amount used. Specify the units for heat content, hourly usage, and yearly usage.

FUEL TYPE	HEAT CONTENT	% SULFUR	% ASH	MAXIMUM HOURLY USAGE	ACTUAL YEARLY USAGE
Natural Gas	1000 BTU/CF	0	0	8760 hr/yr	2000 hr/yr

8. Please list any fuel components that are hazardous air pollutants and the percentage in the fuel.
   None

9. Operating Schedule: 8 hours/day 5 days/week 50 weeks/year

10. Stack Data:
    A. Height: ____ C. Exit gas velocity: ____
    B. Inside diameter: ____ D. Exit gas temperature: ____

11. UTM Coordinates:
    A. Zone ____ B. North ____ C. East ____

FUEL BURNING EQUIPMENT (page 2 of 2)

SECTION D

12. POLLUTANT EMISSIONS:

Emission rate calculations, monitoring data, or stack test data must be attached!

EMISSION POINT NO.	POLLUTANT (note 1)	CONTROL EQUIPMENT		ACTUAL EMISSION RATE			PROPOSED ALLOWABLE EMISSION RATE		
		yes/no*	effic.	note 2	lb/hr	tn/yr	note 2	lb/hr	tn/yr
35	No significant Emissions								

1. All regulated air pollutants including hazardous air pollutants emitted from this source should be listed. A list of regulated air pollutants has been provided in Section A.

2. Provide emission rate in units of applicable emission standard, e.g. lb/MMbtu, gr/dscf, etc. This may not apply to every emission point or every pollutant from an emission point.

* If yes, attach appropriate Air Pollution Control Data Sheet from Section I. or manufacturers specifications if other

FUEL BURNING EQUIPMENT (page 1 of 2) SECTION D

1. Emission Point No. / Name: 36- Wood Stove Shop Heater

2. Equipment Description: Space heater wood stove used in maintenance shop.

3. Was this unit constructed or modified after August 7, 1977? ✓ Yes ____ No
   If yes please give date and explain. Installed 1985.

4. Rated Capacity: 0.10 MMBTU/hr 5. Type of burner: ____

6. Usage Type (i.e. Space Heat, Process, etc.) : Space Heat

7. Complete the following table, identifying each type of fuel and the amount used. Specify the units for heat content, hourly usage, and yearly usage.

FUEL TYPE	HEAT CONTENT	% SULFUR	% ASH	MAXIMUM HOURLY USAGE	ACTUAL YEARLY USAGE
Wood	5000 BTU/lb			8760 hr/yr	720 hr/yr

8. Please list any fuel components that are hazardous air pollutants and the percentage in the fuel.
   None

9. Operating Schedule: 10 hours/day 6 days/week 12 weeks/year

10. Stack Data:
    A. Height: ____ C. Exit gas velocity: ____
    B. Inside diameter: ____ D. Exit gas temperature: ____

11. UTM Coordinates:
    A. Zone ____ B. North ____ C. East ____

prc - AAA

FUEL BURNING EQUIPMENT (page 2 of 2) — SECTION D

12. POLLUTANT EMISSIONS:

Emission rate calculations, monitoring data, or stack test data must be attached!

EMISSION POINT NO.	POLLUTANT (note 1)	CONTROL EQUIPMENT		ACTUAL EMISSION RATE			PROPOSED ALLOWABLE EMISSION RATE		
		yes/no*	effic.	note 2	lb/hr	tn/yr	note 2	lb/hr	tn/yr
36	PM	N					30.6 lb/TPY	0.31	1.34
	CO	N					2308 lb/TPY	2.31	10.11
	VOC	N					43.8 lb/TPY	0.44	1.92

1. All regulated air pollutants including hazardous air pollutants emitted from this source should be listed. A list of regulated air pollutants has been provided in Section A.

2. Provide emission rate in units of applicable emission standard, e.g. lb/MMbtu, gr/dscf, etc. This may not apply to every emission point or every pollutant from an emission point.

* If yes, attach appropriate Air Pollution Control Data Sheet from Section I. or manufacturers specifications if other

MANUFACTURING PROCESSES (page 1 of 2) SECTION E

1. Emission Point No./ Name: 05-Wood Preserving Process

2. Process Description: Presure treatment of utility poles with pentachlorophenol or creosote and rail road ties with creosote.

3. Was this unit constructed or modified after August 7, 1977? ____ yes X no
If yes please give date and explain.

4. Rated Capacity (tons/hr): ~~NA~~ 7,000,000 CF/YR

5. Raw Material Input:

MATERIAL	QUANTITY/HR AVERAGE	QUANTITY/HR MAXIMUM	QUANTITY/YEAR
Wood	342 CF	~~570~~ CF	Upto ~~5,000,000~~ CF
		800 CF	7,000,000 CF

6. Product Output:

PRODUCT or BY-PRODUCT	QUANTITY/HR AVERAGE	QUANTITY/HR MAXIMUM	QUANTITY/YEAR
Treated Wood	342 CF	~~570~~ CF	Upto ~~5,000,000 CF~~
		800 CF	7,000,000 CF

7. Stack Data: NA
A. Height: ____
B. Inside diameter: ____
C. Exit gas velocity: ____
D. Exit gas temperature: ____

8. UTM Coordinates:
A. Zone ____ B. North ____ C. East ____

13. POLLUTANT EMISSIONS:

Emission rate calculations, monitoring data, or stack test data must be attached!

EMISSION POINT NO.	POLLUTANT (note 1)	CONTROL EQUIPMENT		ACTUAL EMISSION RATE			PROPOSED ALLOWABLE EMISSION RATE		
		yes/no *	effic.	note 2	lb/hr	tn/yr	note 2	lb/hr	tn/yr
05	See Emission	Inventory		Calculation		Tables.			
	VOC	N						~~6.0~~	~~26.25~~
	Naphthalene	N						~~1.0~~	~~4.5~~
	VOC	N						10.0	43.8
	Naphthalene	N						1.02	4.5

1. All regulated air pollutants including hazardous air pollutants emitted from this source should be listed. A list of regulated air pollutants has been provided in Section A.

2. Provide emission rate in units of applicable emission standard, e.g. lb/MMbtu, gr/dscf, etc. This may not apply to every emission point or every pollutant from an emission point.

* If yes, attach appropriate Air Pollution Control Data Sheet from Section L or manufacturers specifications if other.

MANUFACTURING PROCESSES (page 1 of 2) SECTION E

1. Emission Point No./ Name: 08 · Treated Wood Storage

2. Process Description: Storage and handling of treated wood product following treatment and prior to shipment.

3. Was this unit constructed or modified after August 7, 1977? ____ yes X no
If yes please give date and explain.

4. Rated Capacity (tons/hr): NA

5. Raw Material Input:

MATERIAL	QUANTITY/HR AVERAGE	QUANTITY/HR MAXIMUM	QUANTITY/YEAR

6. Product Output:

PRODUCT or BY-PRODUCT	QUANTITY/HR AVERAGE	QUANTITY/HR MAXIMUM	QUANTITY/YEAR
Treated Poles			up to 5,000,000 ~~3,500,000~~ CF *
Treated Ties			2,000,000 CF *
* Total Wood			less than ~~5,000,000~~ 7,000,000 CF

7. Stack Data: NA
A. Height: ____ C. Exit gas velocity: ____
B. Inside diameter: ____ D. Exit gas temperature: ____

8. UTM Coordinates:
A. Zone ____ B. North ____ C. East ____

MANUFACTURING PROCESSES (page 2 of 2) SECTION E

13. POLLUTANT EMISSIONS:

Emission rate calculations, monitoring data, or stack test data must be attached!

EMISSION POINT NO.	POLLUTANT (note 1)	CONTROL EQUIPMENT		ACTUAL EMISSION RATE			PROPOSED ALLOWABLE EMISSION RATE		
		yes/no*	effic.	note 2	lb/hr	tn/yr	note 2	lb/hr	tn/yr
08	See Emission Inventory Calculation tables.								
	VOC (fugitive)*								
	Naphthalene							0.88	3.88

*VOC not applicable to major category when a fugitive.

1. All regulated air pollutants including hazardous air pollutants emitted from this source should be listed. A list of regulated air pollutants has been provided in Section A.

2. Provide emission rate in units of applicable emission standard, e.g. lb/MMbtu, gr/dscf, etc. This may not apply to every emission point or every pollutant from an emission point.

* If yes, attach appropriate Air Pollution Control Data Sheet from Section L or manufacturers specifications if other.

CYCLONES

1. Emission Point No. / Name: 01 Multiclone
2. Manufacturers Name and Model No.: Wellons Multiclone Collector
3. Date of construction for existing sources or date of anticipated start-up for new sources: 1972
4. Cyclone Data:
   a) Cyclone type (if more than 1, put total number):
      - ____ Simple
      - ____ High Efficiency
      - ____ Potbellied
      - X Multiclone
   b) Efficiency: 90 %
   c) Pollutant viscosity: ____ poise
   d) Flow Rate: ____ acfm
   e) Pollutant size entering cyclone: ____ microns
   f) Pressure drop: ____ inches H_2O
   g) Baffles or Louvers (specify): ____
   h) Cyclone dimensions:
      - Inlet: ____ ft
      - Outlet: ____ ft
      - Body diameter: ____ ft
      - Body height: ____ ft
      - Cone height: ____ ft
   i) Wet spray: ____ Yes X No
      1. No. of Nozzles: ____
      2. ~~Type of liquid used:~~ ____
      3. Flow rate: ____ gpm
      4. Make-up rate: ____ gpm
      5. % recycled: ____ %
   j) Fan location:
      1. Downstream: ____ Direct emission; ____ Auxiliary Stack
      2. Upstream: X No cap (vertical emissions); ____ Fixed cap (diffuse emissions); ____ Wind respondent cap (horizontal emissions)
5. Which process(es) does the cyclone(s) control emissions from? Wood Fired Boiler Source 01.
6. Attach a diagram of the cyclone(s) used.

CYCLONES

SECTION L2

1. Emission Point No. / Name: 27 - Tie Mill Cyclone

2. Manufacturers Name and Model No.: Unk.

3. Date of construction for existing sources or date of anticipated start-up for new sources: Unk.

4. Cyclone Data:

a) Cyclone type (if more than 1, put total number) :

X	Simple	____	Potbellied
____	High Efficiency	____	Multiclone

b) Efficiency: ____ %

c) Pollutant viscosity: ____ poise

d) Flow Rate: ____ acfm

e) Pollutant size entering cyclone: ____ microns

f) Pressure drop: ____ inches H_2O

g) Baffles or Louvers (specify): ____

h) Cyclone dimensions:

- Inlet: 0.83 ft
- Outlet: 0.83 ft
- Body diameter: 4.0 ft
- Body height: 3.0 ft
- Cone height: 4.5 ft

i) Wet spray: ____ Yes X No

1. No. of Nozzles: ____
2. Type of liquid used: ____
3. Flow rate: ____ gpm
4. Make-up rate: ____ gpm
5. % recycled: ____ %

j) Fan location:

1. Downstream: ____ Direct emission; ____ Auxiliary Stack
2. Upstream: ____ No cap (vertical emissions); ____ Fixed cap (diffuse emissions); ____ Wind respondent cap (horizontal emissions)

5. Which process(es) does the cyclone(s) control emissions from? Sawdust and cuttings from adzing and boring of cross ties.

6. Attach a diagram of the cyclone(s) used.

Current Applicable Requirements and Status (page 1 of 2)

List applicable state and federal regulations and applicable test methods for determining compliance with each applicable requirement. Clearly identify federal regulations from state requirements. Provide the compliance status as of the day the application is signed.

Emission Point No.	Applicable Requirement	Pollutant	Test Method	Limits	Compliance Status IN / OUT
01	APC-S-1, Sec 3.4(b)	PM	Method 5	0.3 grain/DSCF	In
01	APC-S-1, Sec 3.1	Opacity	CEM	40 %	In
01	APC-S-1, Sec 4.1(c)	SO2	Stack Test & Engr. Calc.	2.4 lb/mmBTU	In
26	APC-S-1, Sec 3.4 (a)	PM	AP-42	$E = 0.8808\, I^{-0.1667}$ = 14.36 lb/hr	In
26	APC-S-1, Sec 3.1	Opacity		40%	In
26	APC-S-1, Sec 4.1(c)	SO2	AP-42	2.4 lb/mmBTU	In
27	APC-S-1, Sec. 6	PM	AP-42	$E = 4.1\, p^{0.67}$ 27 lb/hr	In *
32	"	PM	AP-42	4.78 lb/hr	In *
34	"	PM	AP-42	4.84 lb/hr	In *
Plant Wide	APC-S-1, Sec. 6	PM	Various	28.4 lb/hr	In *
	* See Compliance Evaluation following this form.				

Future Applicable Requirements and Status (page 2 of 2) — SECTION N

List applicable state and federal regulations and applicable test methods for determining compliance with each applicable requirement. Clearly identify federal regulations from state requirements. Provide the compliance status as of the day the application is signed.

Emission Point No.	Applicable Requirement	Pollutant	Test Method	Limits	Compliance Status IN / OUT
	None				

APC-S-1, Section 6. Manufacturing Processes

Compliance Evaluation

05- Wood Preserving - No PM emission
08- Storage Yard Fugitives from Treated Wood - No PM Emission.
31 - Dry Kilns - No PM Emission

27 Tie Mill Cyclone

$$\text{Process} - \frac{(2,000,000 \text{ CF Ties/yr})(50 \text{ lb/CF})}{(300 \text{ day/yr})(10 \text{ hr/day})(2000 \text{ lb/TN})} = 16.67 \text{ Ton/hr}$$

$E_{allow} = 4.1 P^{0.67} = 27.0$ lb/hr
$E_{act} = 2$ lb/hr → OK

32 Pole Peeler

Process = 9.9 Tn/hr
$E_{allow} = 4.1 P^{0.67} = 19.05$ lb/hr $> E_{act} = 3.46$ OK

34 Wood Fuel Preparation + Handling

Process = 12 Tn/hr
$E_{allow} = 4.1 P^{0.67} = 21.67 > E_{act} = 3.0$ lb/hr OK

Plant Overall -

Product = Total amount of treated wood product

$$= \frac{(7,000,000 \text{ CF/yr})(45 \text{ lb/CF})}{(8760 \text{ hr/yr})(2000 \text{ lb/TN})} = 17.98$$

$E_{allow} = 4.1 P^{0.67} = 28.41$ lb/hr $> E_{\cancel{act}\,max} = 15.89$ lb/hr OK

COMPLIANCE CERTIFICATION SECTION O

1. Emission Point No./Name: 01 / Wood Fired Boiler

2. Indicate the source compliance status:

A. ✓ Where this source is currently in compliance, we will continue to operate and maintain this source to assure compliance for the duration of the permit.

B. ______ The Current Emissions Requirements and Status form (previous page) includes new requirements that apply or will apply to this source during the term of the permit. We will meet such requirements on a timely basis.

C. ✓ This source is not in compliance. The following statement of corrective action is submitted to describe action which we will take to achieve compliance.

1. ✓ Attached is a brief description of the problem and the proposed solution.

2. ______ We will achieve compliance according to the following schedule.

Progress reports will be submitted:
Starting date: ______________ and every six (6) months thereafter

Problem	Action	Deadline

Emission Point: 01 Wood Fired Boiler

EXPLANATION OF NON-COMPLIANCE

Permit to Construct No. 0960-00012 was issued for the wood fired boiler on November 9, 1994 to allow use of used treated wood as fuel. The permit included emission limitations for which the demonstration of compliance required a stack test. The stack test was conducted on February 20-21, 1996.

The stack test indicated that the limit for NOX would be exceeded when treated wood fuel was burned, that the limit for CO would be exceeded when untreated wood is burned under lower fire conditions, and that HCl would be emitted at major source levels due to the pentachlorophenol treated wood fuel. As a result of the stack test, KII has applied for a permit modification that will allow continued operation within permit limits.

The permit modification is expected before the end of 1996.

June 21, 1996

COMPLIANCE CERTIFICATION SECTION O

1. Emission Point No./Name : KII Plant, All Points except 01.

2. Indicate the source compliance status:

A. ✓ Where this source is currently in compliance, we will continue to operate and maintain this source to assure compliance for the duration of the permit.

B. _______ The Current Emissions Requirements and Status form (previous page) includes new requirements that apply or will apply to this source during the term of the permit. We will meet such requirements on a timely basis.

C. _______ This source is not in compliance. The following statement of corrective action is submitted to describe action which we will take to achieve compliance.

1. _______ Attached is a brief description of the problem and the proposed solution.

2. _______ We will achieve compliance according to the following schedule.

Progress reports will be submitted:
Starting date: ____________ and every six (6) months thereafter

Problem	Action	Deadline

EMISSION INVENTORY CALCULATION
KOPPERS INDUSTRIES, INC. - GRENADA, MS
MAXIMUM POTENTIAL EMISSIONS

01-BOILER, WOOD FIRED	tn/yr	Sulfur	Chlorine	(lb/hr):
Total Wood Burned:	37,580	0.23%	0.12%	9375
Creo Wood Burned:	20,000	0.25%	0.04%	
Penta Wood Burned:	15,000	0.25%	0.25%	
Untreated Wood Burned:	2,580	0.01%	0.04%	
Removal Efficiency (1):		70.00%	45.00%	

Pollutant	Emission Factor	Units	Basis	Estimated (tn/yr)	Emissions (lb/hr)
Particulate	2.07	lb/tn	2/96 Test	38.90	9.70
SO2	2.80	lb/tn	Mass Calc	52.65	13.14
NOX (3)	3.3	lb/tn	2/96 test	62.01	15.47
CO (2)	8.3	lb/tn	CEM	155.96	38.91
VOC	0.91	lb/tn	FR Test	17.10	4.27
HCl	1.970	lb/tn	2/96 Test	37.02	9.23
Arsenic	8.8E-05	lb/tn	AP-42	0.0017	0.000
Cadmium	1.7E-05	lb/tn	AP-42	0.0003	0.000
Chromium	1.3E-04	lb/tn	AP-42	0.0024	0.001
Lead	3.1E-04	lb/tn	AP-42	0.0058	0.001
Manganese	8.9E-03	lb/tn	AP-42	0.1672	0.042
Nickel	5.6E-04	lb/tn	AP-42	0.0105	0.003
Selenium	1.8E-05	lb/tn	AP-42	0.0003	0.000
Mercury	6.5E-06	lb/tn	AP-42	0.0001	0.000
Total HAP Metals				0.19	0.047

(1) Removal efficiencies based on 2/96 stack test.
(2) CO factor is 8.3 for 600 ppm fired on untreated fuel, 2.1 for 150 ppm fired on treated fuel.
(3) NOX factor is 3.3 for high fire, treated wood. Use 1.6 for untreated wood.

26-BOILER, FUEL OIL		Fuel Use Rate(MGal/hr):	0.204	
Oil Burned(MGal/yr):	1787	Sulfur Content:	0.500	%

Pollutant	Emission Factor	Units	Basis	Estimated (tn/yr)	Emissions (lb/hr)
Particulate	2	lb/MGal	AP-42	1.79	0.41
SO2	71	lb/MGal	AP-42	63.44	14.48
NOX	20	lb/MGal	AP-42	17.87	4.08
CO	5	lb/MGal	AP-42	4.47	1.02
VOC	0.2	lb/MGal	AP-42	0.18	0.04

Number of days boiler assumed to operate is 365

05-WOOD PRESERVING PROCESSES

Creosote Ties	2,000,000	C. F.
Creosote Poles	1,500,000	C. F.
Total Creosote Wood	3,500,000	C. F.
Oil/Penta Poles	3,500,000	C. F.

Pollutant	Emission Factor	Units	Basis	Estimated (tn/yr)	Emissions (lb/hr)
Creosote (VOC)	0.015	lb/cf	Form R	26.25	5.99
HAPs contained in creosote:					
Benzene	22	% in vapor	Calculation	5.78	1.32
Biphenol	0.16	% in vapor	Calculation	0.04	0.01
Cresols	0.46	% in vapor	Calculation	0.12	0.03
Dibenzofurans	0.61	% in vapor	Calculation	0.16	0.04
Naphthalene	17	% in vapor	Calculation	4.46	1.02
P-Xylenes	4.5	% in vapor	Calculation	1.18	0.27
Phenol	1.4	% in vapor	Calculation	0.37	0.08
Quinoline	1.5	% in vapor	Calculation	0.39	0.09
Toluene	26	% in vapor	Calculation	6.83	1.56
TOTAL CREO. HAP	73.63	% in vapor		19.33	4.41
Pentachlorophenol (VOC)	2.54E-05	lb/cf	Form R	0.04	0.01
#6 Oil (VOC)	1.0E-02	lb/cf	Engr. Est.	17.50	3.99
TOTAL VOC				43.79	9.99

08-PRESERVATIVE TREATED WOOD STORAGE FUGITIVES

Pollutant	Emission Factor	Units	Basis	Estimated (tn/yr)	Emissions (lb/hr)
Creosote Ties					
Creosote (VOC)	4.25E-03	lb/cf	FR Test	4.25	0.97
Naphthalene	1.37E-03	lb/cf	FR Test	1.37	0.31
Benzene	1.74E-06	lb/cf	FR Test	0.00	0.00
Toluene	3.54E-05	lb/cf	FR Test	0.04	0.01
Creosote Poles					
Creosote (VOC)	1.15E-02	lb/cf	FR Test	8.63	1.97
Naphthalene	3.34E-03	lb/cf	FR Test	2.505	0.571
Benzene	4.23E-06	lb/cf	FR Test	0.003	0.001
Toluene	1.52E-04	lb/cf	FR Test	0.114	0.026
Penta Poles					
Oil (VOC, est. as creo)	1.15E-02	lb/cf	FR Test	20.13	4.59
Pentachlorophenol	1.9E-06	lb/cf	Engr. Est.	0.003	0.001
Totals					
VOC				33.00	7.52
Naphthalene				3.88	0.88
Benzene				0.005	0.001
Toluene				0.149	0.034
Pentachlorophenol				0.003	0.001
HAP Organics (Total)				4.03	0.92

31-DRY KILNS

Poles Dried	1,600,000	C. F.	Batch size (cf):		13000
			Batch time (hrs):		72

Pollutant	Emission Factor	Units	Basis	Estimated (tn/yr)	Emissions (lb/hr)
VOC	0.05	lb/cf	Alabama	40.00	9.03

27-CYCLONES FOR WOOD MILLING

Number of Cyclones:	1
Ave. Hours/Day:	8
Ave Days/Yr Each:	300
Total Hours:	2400

Pollutant	Emission Factor	Units	Basis	Estimated (tn/yr)	Emissions (lb/hr)
Particulate	2	lb/hr	AP-42	2.40	2

28-YARD ROADS FUGITIVE PARTICULATES

E=k(5.9)(s/12)(S/30)(W/3)^0.7(w/4)^0.5(365-p)/365 lb/VMT

k=particle size factor=	1.00		6	=No. vehicles driving
s=silt content (%) of road=	10	%	15	=Typ. miles/hr driving
S=mean vehicle speed=	15	mph	2.5	=Typ. hrs driving/day
W=mean vehicle weight=	15	tons	6	=Typ. d/wk driving
w=mean no. of wheels=	4	wheels	1.5	=Trtng volume factor
p=no. wet days/year=	110	days	105,300	=Ann veh mi. traveled
VMT=Veh. Mi. Traveled=	105,300	VMT		

Pollutant	Emission Factor	Units	Basis	Estimated (tn/yr)	Emissions (lb/hr)
Particulate	5.30	lb/VMT	AP-42	278.99	191

(1) Hourly based on 365 days, 8 hours per day

32-POLE PEELER

Poles Peeled=	1,000,000	CF/yr	440	CF/hr
Pole Density=	45	lb/CF		
Pole Amount Peeled=	22,500	tn/yr	9.9	tn/hr

Pollutant	Emission Factor	Units	Basis	Estimated (tn/yr)	Emissions (lb/hr)
Particulate	0.350	lb/ton	AP-42	3.94	3.465

33-SPACE HEATERS, NATURAL GAS

Location	BTU/Hr	BTU/CF	CF/Hr	Hr/Yr	MMCF/Yr
Boiler House	200000	1000	200	2016.00	0.4032
Standby Boiler Room	100000	1000	100	2016.00	0.2016
Fire Pump Building	20000	1000	20	2016.00	0.04032
TOTAL	320000		320		0.64512

Pollutant	Emission Factor	Units	Basis	Estimated (tn/yr)	Emissions (lb/hr)
Particulate	0.18	lb/MMCF	AP-42	0.00	0.00
SO2	0.6	lb/MMCF	AP-42	0.00	0.00
NOX	94	lb/MMCF	AP-42	0.00	0.00
CO	40	lb/MMCF	AP-42	0.00	0.00
VOC	11	lb/MMCF	AP-42	0.00	0.00

34-WOOD FUEL PREPARATION & HANDLING (Fugitive)

Wood Fuel Processed: 37,580 Tn/Yr; 12 tn/hr

Pollutant	Emission Factor	Units	Basis	Estimated (tn/yr)	Emissions (lb/hr)
Particulate	0.25	lb/tn	Engr. Est.	4.70	3.00

35-STEAM CLEANER, NATURAL GAS FIRED

Annual Usage: 8760 hours/yr; Fuel Use Rate: 440 CF/hr

Pollutant	Emission Factor	Units	Basis	Estimated (tn/yr)	Emissions (lb/hr)
Particulate	12	lb/MMCF	AP-42	0.02	0.01
SO2	0.6	lb/MMCF	AP-42	0.00	0.00
NOX	100	lb/MMCF	AP-42	0.19	0.04
CO	21	lb/MMCF	AP-42	0.04	0.01
VOC	5.8	lb/MMCF	AP-42	0.01	0.00

36-WOOD STOVE HEATER, SHOP

Annual Usage: 87.6 tn/yr; Fuel Use Rate: 0.01 tn/hr

Pollutant	Emission Factor	Units	Basis	Estimated (tn/yr)	Emissions (lb/hr)
Particulate	30.6	lb/tn	AP-42	1.34	0.31
SO2	0.4	lb/tn	AP-42	0.02	0.00
NOX	2.8	lb/tn	AP-42	0.12	0.03
CO	230.8	lb/tn	AP-42	10.11	2.31
VOC	43.8	lb/tn	AP-42	1.92	0.44

37-PARTS CLEANERS, DEGREASERS

Number of units operating: 2

Pollutant	Emission Factor	Units	Basis	Estimated (tn/yr)	Emissions (lb/hr)
VOC	0.33	tn/unit/yr	AP-42	0.66	0.00

TOTAL PLANT EMISSIONS

Pollutant		Estimated (tn/yr)	Emissions (lb/hr)
Particulate (less fugitive)	....	48.38	15.89
SO2 (2)	....	116.11	27.62
NOX	....	80.19	19.62
CO	....	170.57	42.24
VOC(less fugitive)	....	103.66	23.76
HAPs(Organics/VOC)	....	23.40	5.34
Naphthalene	....	8.34	1.90
HAP Metals	....	0.19	0.05
HCl	....	37.02	9.23
Total HAPs	....	60.61	14.62

(2) Assumes backup boiler operating at same time as primary for number of days shown.

In the Emission Inventory Calculation spreadsheets, emissions are calculated using emission factors. To the right of the emission factors and factor units is a column titled "Basis." In most cases, the basis of the emission factor is the EPA document, AP-42. For factors with a basis other than AP-42, the basis is further explained below.

BOILER, WOOD FIRED

2/96 Test for Particulate

Factor is based on the average test result of stack tests conducted using treated wood fuel on February 20-21, 1996. Average value increased by 25% to allow for variability.

Mass Calculation for SO2

SO2 is calculated on a mass balance basis assuming all sulfur is converted to SO2. The removal efficiency, ie. fraction not emitted as SO2, is based on the 2/96 stack test. The fraction emitted during the stack test was 25%. The fraction emitted used for this inventory is 30%, which is 20% higher than the test to be conservative. Additionally, the fraction of sulfur in the wood fuel is conservatively estimated at 0.25%. The calculation is based on the amount of wood burned and sulfur content of the wood, less removal efficiency.

2/96 Test for NOX

The NOX emission factor was calculated for average conditions during the high fire conditions for the 2/96 stack test. The factor was increased by 20% to allow for variability.

CEM for CO

A continuous emissions monitor (CEM) has been installed on the boiler stack. The factor is calculated based on approximately 600 ppm CO, corrected, measured by the CEM when untreated wood fuel is used and the turbine is not running and using stack gas flow data from the 2/96 stack test.

FR Test for VOC

Emission factor based on the Feather River test, but increased by 20% for variability and unknown factors. This factor is higher than calculated using the 2/96 Grenada stack test. The FR result is used because it may be more accurate for untreated wood fuel.

2/96 Test for HCl

HCl is calculated on a mass balance basis assuming all chlorine is converted to HCl. The removal efficiency, ie. fraction not emitted as HCl is based on the 2/96 stack test. The fraction emitted during the stack test was 48%. The fraction emitted used for this inventory is 55%, which is 15% higher than the test to be conservative. Additionally, the fraction of chlorine in the pentachlorophenol treated wood fuel is conservatively estimated at 0.25%, compared to 0.15% in the test burn. The calculation is based on the amount of wood burned and chlorine content of the wood, less removal efficiency.

WOOD PRESERVING PROCESSES

Form R for Creosote and Pentachlorophenol

Emissions of creosote and pentachlorophenol are calculated and reported on the Form R annually. The calculation addresses point source emissions from tanks and vacuum pump vents, and fugitive emissions from treating cylinder doors and leaks from pumps, flanges, and valves. Tank and leak emissions are based on AP-42 type calculations, vacuum pump emissions are based on test results for similar equipment, and cylinder door emissions are based on assumed air displacement volume and vapor saturation. The total Form R reported emission is divided by the cubic feet of wood treated for the preservative to determine an emission factor. Emissions are assumed to vary proportionately with treatment volume. The amount of creosote emission is assumed to be equal to the amount of VOC emission from the creosote process.

Calculation for Organic HAPs from creosote

Results of a detailed chemical analysis of creosote and pure component vapor pressures of constituents have been used to estimate the vapor concentration of individual HAPs in the saturated creosote vapor. The amount of each HAP emitted is estimated as the calculated fraction of creosote vapor emitted.

Engr. Est. for Oil (VOC)

The fuel oil used as the carrier for pentachlorophenol is generally of about the same vapor pressure as creosote. For this calculation, the emission factor for oil is assumed to be about equal to the one determined for creosote.

PRESERVATIVE TREATED WOOD FUGITIVES

FR Test for VOC and HAPs

In a test, different from the boiler test, at the Feather River plant in California, HAP emissions were measured from creosote treated wood at various times after treatment from a ventilated enclosure. VOC was not measured directly, so is assumed to be equal to the sum of all measured organic constituents. Emission factors have been derived based on this data and incorporating typical product holding times and stacking geometry.

Engr. Est. for Pentachlorophenol

The factor was derived using a spread sheet program developed by the American Wood Preservers Institute designed to estimate emissions from treated pole storage. The amount so calculated was divided by the amount treated to develop the factor.

DRY KILNS

Alabama for VOC

There is very little data available which can be used to estimate emissions from drying wood in kilns. Alabama Department of Environmental Management has reviewed several reports related to dry kiln emissions. They have reviewed test results from lumber dry kilns and have determined that they will accept factors of 4.2 to 6.2 pounds per 1000 board feet (0.050 to 0.074 lb/cf) per Jim Wilson of ADEM. The factor used, 0.05, is at the low end of this range because emissions from poles are expected to be less than from lumber due to the lower ratio of surface area to volume.

POLE PEELER

AP-42

The AP-42 factor used is for plywood veneer log debarking.

WOOD FUEL PREPARATION AND HANDLING

Engr. Est.

Wood fuel preparation includes secondary grinding used tie and pole fuel for use in the boiler and the handling includes transporting and unloading fuel to the conveyor, conveying into the silos, and conveying into the boiler. The factor in AP-42, Table 10.3-1, for Plywood Veneer and Layout Operations, Sawdust Handling, is most appropriate. However, since most of the wood fuel is in chip form, rather than dust, that factor is reduced 75% from 1lb/ton to 0.25 lb/ton based on engineering judgement. Note that a separate permit has been issued to a third party for the primary grinding of ties and poles.

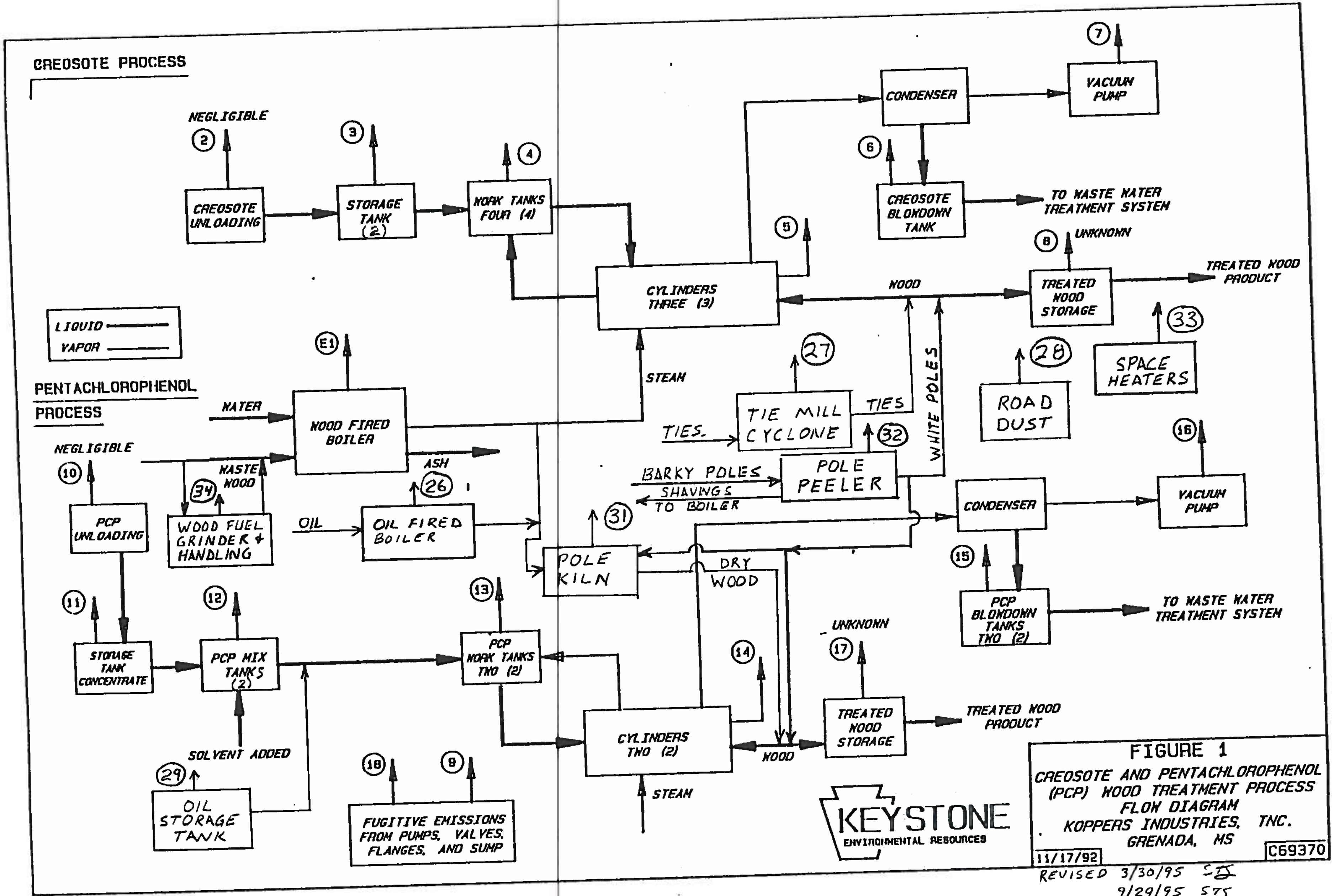
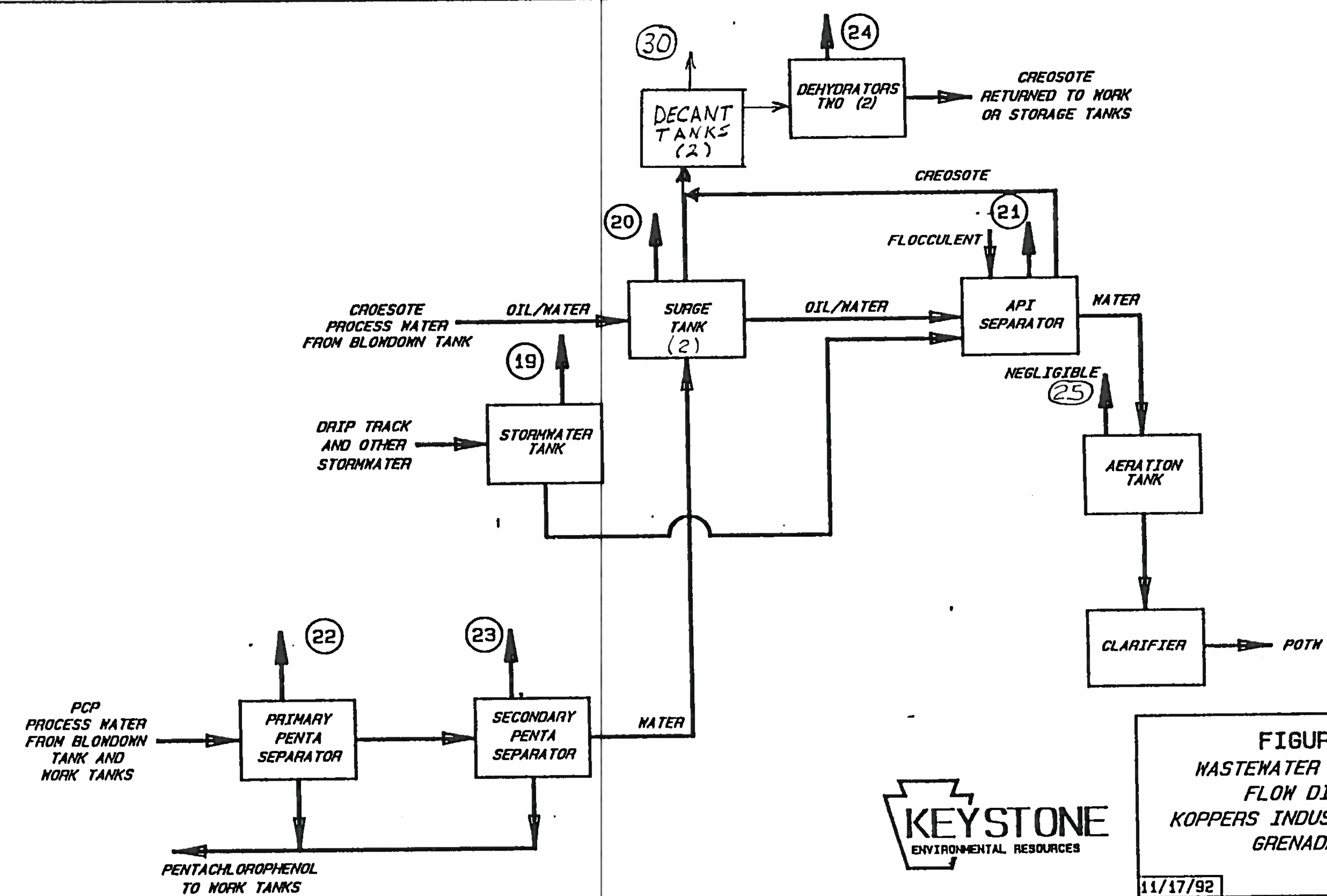


FIGURE 1
CREOSOTE AND PENTACHLOROPHENOL (PCP) WOOD TREATMENT PROCESS FLOW DIAGRAM
KOPPERS INDUSTRIES, INC.
GRENADA, MS

11/17/92

REVISED 3/30/95 SJ
9/29/95 SJ

C69370



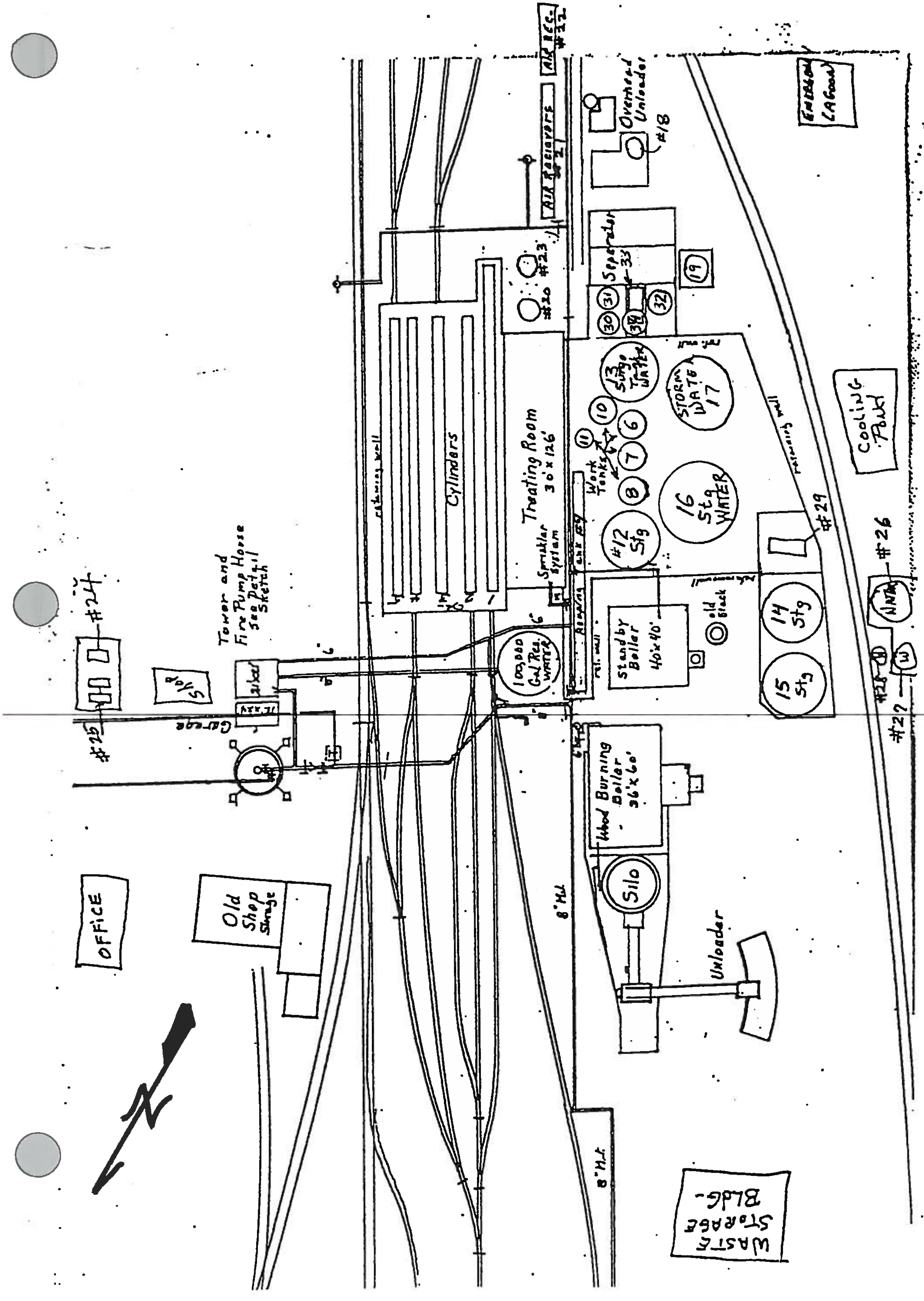
KEYSTONE
ENVIRONMENTAL RESOURCES

FIGURE 2
WASTEWATER TREATMENT
FLOW DIAGRAM
KOPPERS INDUSTRIES, INC.
GRENADA, MS

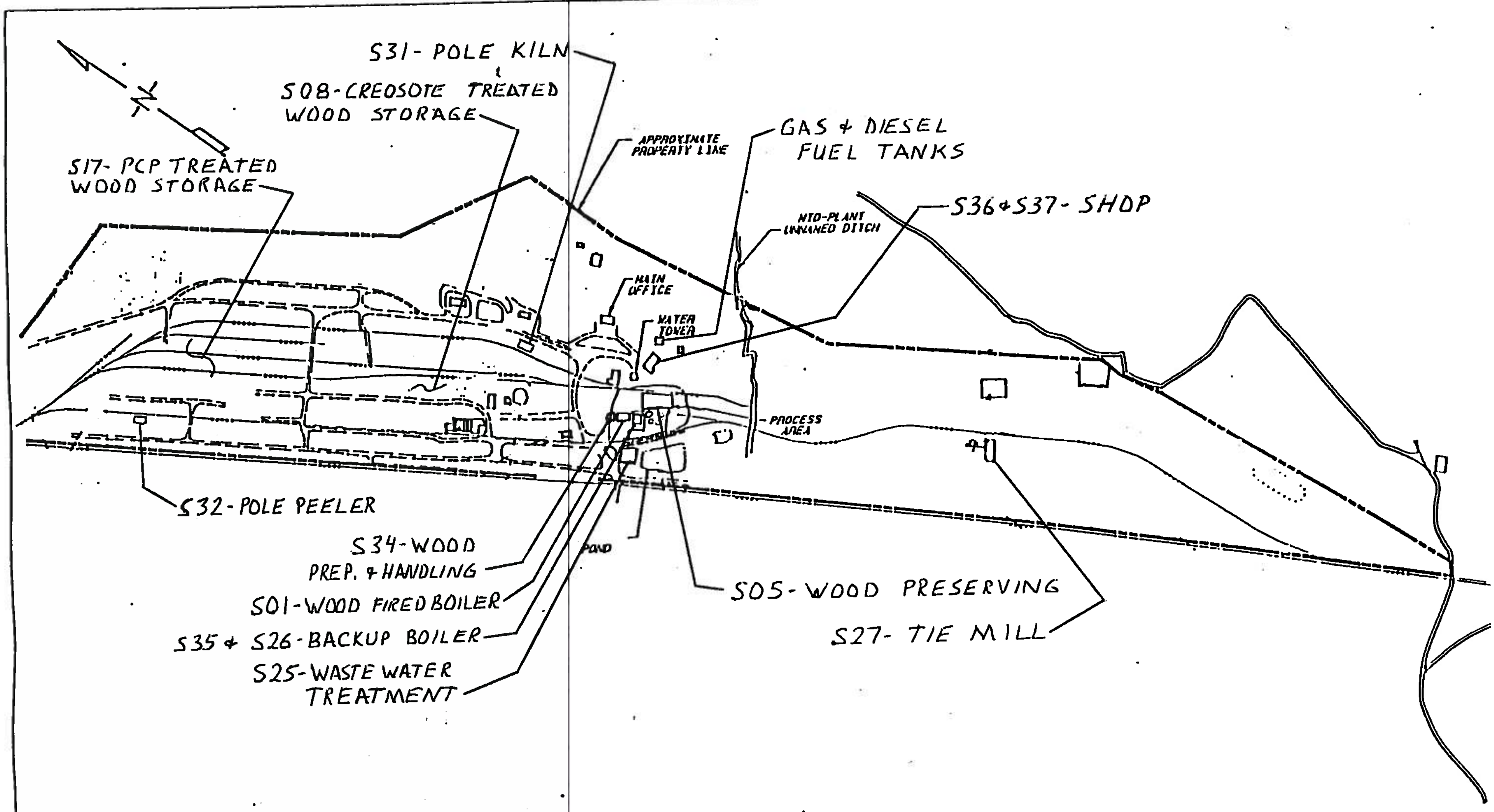
11/17/92 C69371

REVISED 3/30/95 STS

CONTINGENCY, SPCC, AND POLLUTION PREVENTION PLAN,
GRENADA PLANT, KOPPERS INDUSTRIES



SITE PLAN
FIGURE 1
Revised 9/27/95



SITE PLAN

FIGURE 2

9/29/95 STS

Revised 6/17/96 STS

KOPPERS INDUSTRIES

TABLE 3.1 - TANK LISTINGS
Koppers Industries, Grenada Plant

Reference No.	Name	Contents	Capacity
1.	#1 Cylinder	Creosote	35,000
2.	#2 Cylinder	Creosote 60/40	28,000
3.	#3 Cylinder	Steam Conditioning	28,000
4.	#4 Cylinder	Creosote #1	28,000
5.	#5 Cylinder	Oil Borne Treatment	28,000
6.	#5 Work Tank	Penta in Oil	30,000
7.	#2 Work Tank	Creosote 60/40	30,000
8.	#3 Work Tank	Creosote	30,000
9.	#4 Work Tank	Creosote #1	22,420
10.	2nd Decant Tank	Creosote/Water	30,000
11.	Measuring Tank	Creosote #1	4,200
12.	Creo Storage Tank	Creosote #1	100,000
13.	Water Surge Tank	Process Water	100,000
14.	Oil Storage Tank	Fuel Oil	100,000
15.	Creo Storage Tank	Creosote 60/40	105,000
16.	Process Water Surge Tank	Process Water	300,000
17.	Storm Water Surge	Storm Water	250,000
18.	Coagulant	Dearfloc 4301	2,700
19.	Decant Tank	Creo/Oil/Water	4,500
20.	Creo Blowdown Tank	Water/Creosote	8,000
21.	Air Receivers	Compressed Air	
22.	Air Receivers	Compressed Air	
23.	Penta Blowdown Tank	Water/Penta/Oil	8,000
24.	Gas Tank	Gasoline	1,000
25.	Diesel Fuel	#2 Diesel Fuel Oil	20,000
26.	Aeration Tank	Waste Water	150,000
27.	Clarifier Tank	Waste Water	25,000
28.	Discharge Tank	Waste Water	15,000
29.	Creosote Dehydrator	Not in Use	4,000
30.	N. Penta Equilization	Water/Oil/Penta	14,000
31.	S. Penta Equilization	Water/Oil/Penta	14,000
32.	Penta Mix Tank	Oil/Penta	11,500
33.	Penta Mix Tank	Oil/Penta	5,000
34.	Penta Concentrate Storage	Penta Concentrate	10,500

TANK SUMMARY TABLE (Section H)

1. Emission Point Number		13	4	4	4	30	4	3
Reference No.(Table 3.1)		Tank 6	Tank 7	Tank 8	Tank 9	Tank 10	Tank 11	Tank 12
Name		Wk Tk 5	Wk Tk 2	Wk Tk 3	WT 4 H	Decant	Measuring	Storage
2. Construction Date		1903	1903	1979	1966	1903	1966	1903
3. Material Stored		Oil/Penta	P2Creosote	P2Creosote	P1Creosote	Water/Creo	P1Creosote	P1Creosote
4A.True Vapor Pressure a T.	psia							
4B. Reid Vapor Pres. at T.	psia							
Storage Temperature T	Deg. F	200	200	200	200	150	200	200
4C. Density at T	lb/gal	9.25	9.25	9.25	8.95	7.51	8.95	8.95
4D. Mol. Wt. at T	lb/lbmole							
4E. Throughput	Gal/yr	10000000	8200000	8200000	6500000	11445000	740000	740000
4F. Tank Capacity	Gal.	29786	29786	29786	22419	29786	4230	110544
4G. Tank Diameter	Feet	13	13	13	6	13	6	28
4H. Tank Height/Length	Feet	30	30	30	106	30	20	24
4I.Ave. Vapor Space Height	Feet	1	1	1		1	1	10
4J. Tank Orientation (H or V)		V	v	v	h	v	v	v
4K. Type of Roof (D or C)		d	d	d		d	d	c
4L.Vapor Recovery Sys.?	Y or N	N	n	n	n	n	n	n
4M. Type of Tank? Fixed=F		F	f	f	f	f	f	f
4N. Closest City ?	Memphis							
4O. Tank Paint Color?		Black	black	black	Alum	Black	Black	Black
4P. Paint Condition (G or P)		P	p	p	p	p	p	p
4Q. Type Tank Loading (SpD or	SpVB)	Bot.	Bot.	Bot.	Bot.	Bot.	Bot.	Bot.
4R. Not Applicable to any tanks								
4S. Not Applicable to any tanks								
5.1. Breathing Loss	lb/hr							
	TPY							
5.2. Working Loss	lb/hr							
	TPY							
5.3. Total Emissions	lb/hr							
	TPY							

TANK SUMMARY TABLE (Section H)

1. Emission Point Number		20	29	3	20	19	Insignif.	24
Reference No.(Table 3.1)		Tank 13	Tank 14	Tank 15	Tank 16	Tank 17	Tank 18	Tank 19
Name		WW Surge	Storage	Storage	Storage	Surge	Coagulant	Decant
2. Construction Date		1903	1903	1903	1903	1989	1989	1989
3. Material Stored		W Water	#2Diesel	P2Creosote	Proc.Water	StormWat.	Dearfloc	Water/Creo
4A.True Vapor Pressure a T.	psia							
4B. Reid Vapor Pres. at T.	psia							
Storage Temperature T	Deg. F	Amb.	60	120	60	60	60	150
4C. Density at T	lb/gal	8.34	7.1	9.25	9.25	8.34	8.67	8.34
4D. Mol. Wt. at T	lb/lbmole							
4E. Throughput	Gal/yr	1600000	127500	660000	1400000	2272000		230000
4F. Tank Capacity	Gal.	110544	110544	105750	300800	266490	2763	4512
4G. Tank Diameter	Feet	28	28	30	40	36	7.83	8
4H. Tank Height/Length	Feet	24	24	20	32	35	7.67	12
4I.Ave. Vapor Space Height	Feet	1	10	12	15	10	3	2
4J. Tank Orientation (H or V)		v	v	v	v	v	v	v
4K. Type of Roof (D or C)		c	c	c	c	none	d	d
4L.Vapor Recovery Sys.?	Y or N	n	n	n	n		n	n
4M. Type of Tank? Fixed=F		f	f	f	f	open	f	f
4N. Closest City ?	Memphis							
4O. Tank Paint Color?		Black	Black	Black	Black	Blue	Alum.	Black
4P. Paint Condition (G or P)		p	p	p	p	g	g	p
4Q. Type Tank Loading (SpD or	SpVB)	Bot.	Bot.	Bot.	Bot.	SpD	SpD	SpD
4R. Not Applicable to any tanks								
4S. Not Applicable to any tanks								
5.1. Breathing Loss	lb/hr							
	TPY							
5.2. Working Loss	lb/hr							
	TPY							
5.3. Total Emissions	lb/hr							
	TPY							

TANK SUMMARY TABLE (Section H)

1. Emission Point Number		6	15	Insignif.	Insignif.	Insignif.	Insignif.	Insignif.
Reference No.(Table 3.1)		Tank 20	Tank 23	Tank 24	Tank 25	Tank 26	Tank 27	Tank 28
Name		Creo BD	Penta BD	Gas	Diesel	Aeration	Clarifier	Discharge
2. Construction Date		1980	1980	1986	1930	1988	1988	1988
3. Material Stored		Water/Creo	Water/Oil	Gasoline	#2 Diesel	W Water	W Water	W Water
4A.True Vapor Pressure a T.	psia							
4B. Reid Vapor Pres. at T.	psia							
Storage Temperature T	Deg. F	150	100	60	60	80	80	80
4C. Density at T	lb/gal	8.34	8.34	6.5	7	8.34	8.34	8.34
4D. Mol. Wt. at T	lb/lbmole							
4E. Throughput	Gal/yr	532000	493000					
4F. Tank Capacity	Gal.	8225	8225	991	20381	169670	30456	17132
4G. Tank Diameter	Feet	10	10	3.75	7.25	38	18	18
4H. Tank Height/Length	Feet	14	14	12	66	20	16	9
4I.Ave. Vapor Space Height	Feet	12	12	1.5	3			
4J. Tank Orientation (H or V)		v	v	h	h	v	v	v
4K. Type of Roof (D or C)		d	d			none	none	none
4L.Vapor Recovery Sys.?	Y or N	n	n	n	n	n	n	n
4M. Type of Tank? Fixed=F		f	f	f	f	open	open	open
4N. Closest City ?	Memphis							
4O. Tank Paint Color?		Black	Black	Alum	Alum	White	White	White
4P. Paint Condition (G or P)		p	p	g	g	g	g	g
4Q. Type Tank Loading (SpD or	SpVB)	SpD	SpD	Bottom	Bottom	SpD	SpD	SpD
4R. Not Applicable to any tanks								
4S. Not Applicable to any tanks								
5.1. Breathing Loss	lb/hr							
	TPY							
5.2. Working Loss	lb/hr							
	TPY							
5.3. Total Emissions	lb/hr							
	TPY							

TANK SUMMARY TABLE (Section H)

1. Emission Point Number		22	23	12	12	11
Reference No.(Table 3.1)		Tank 30	Tank 31	Tank 32	Tank 33	Tank 34
Name		N.Pen.Eq.	S.Pen.Eq.	Penta Mix	Penta Mix	Penta Conc
2. Construction Date		1980	1980	1981	1981	1981
3. Material Stored		Oil/Water	Oil/Water	Oil/Penta	Oil/Penta	PentaConc.
4A.True Vapor Pressure a T.	psia					
4B. Reid Vapor Pres. at T.	psia					
Storage Temperature T	Deg. F	100	100	160	160	60
4C. Density at T	lb/gal	9	9	7.5	7.5	9.55
4D. Mol. Wt. at T	lb/lbmole					
4E. Throughput	Gal/yr			850000	850000	120000
4F. Tank Capacity	Gal.	10281	10281	9400	5001	10575
4G. Tank Diameter	Feet	10	10	10	8	10
4H. Tank Height/Length	Feet	17.5	17.5	16	13.3	18
4I.Ave. Vapor Space Height	Feet	5	5	1	1	5
4J. Tank Orientation (H or V)		v	v	v	h	v
4K. Type of Roof (D or C)		c	c		c	Flat
4L.Vapor Recovery Sys.?	Y or N	n	n	n	n	n
4M. Type of Tank? Fixed=F		f	f	f	f	f
4N. Closest City ?	Memphis					
4O. Tank Paint Color?		Black	Black	Black	Black	Aluminum
4P. Paint Condition (G or P)		p	p	p	p	g
4Q. Type Tank Loading (SpD or	SpVB)	SpD	SpD	Bot.	SpD	Bot.
4R. Not Applicable to any tanks						
4S. Not Applicable to any tanks						
5.1. Breathing Loss	lb/hr					
	TPY					
5.2. Working Loss	lb/hr					
	TPY					
5.3. Total Emissions	lb/hr					
	TPY					

Thomas L. Henderson
Plant Manager

KOPPERS

DATA CODED

Koppers Inc.
Utility Poles and Piling
P. O. Box 160
Tie Plant. MS 38960
Tel 662 226 4584 ext. 11
Fax 662 226 4588
HendersonTL@koppers.com
www.koppers.com

January 26, 2004

RECEIVED
JAN 29 2004
ECED

CERTIFIED MAIL 7002 0460 0003 7596 0973

Mr. David Lee
MS Dept. of Environmental Quality
Air Facilities Branch
P.O. Box 10385
Jackson, MS 39289-0385

Subject: Title V Operating Permit - # 0960-00012
Semi-Annual Air Report July – December, 2003
Koppers, Inc. – Grenada, Mississippi

Dear Mr. Lee,

Enclosed you will find the Continuous Emissions Monitoring (CEM) report for the subject period containing information concerning opacity emissions. Information provided in this report is for emission point AA-001, which is the Wellons wood-fired boiler. A second (backup) boiler at the site, emission point AA-002 which is an oil-fired boiler, was not operated during the subject reporting period.

The attached information reflects episodes of excess opacity emissions at AA-001. These episodes were primarily a result of start up attempts and preventive maintenance. Notification was not provided to your office because permitted start up and PM operations may produce emissions exceeding 40% opacity for up to 15 minutes in any one (1) hour period with three (3) start up attempts per 24 hour period.

You were notified by telephone on October 27, 2003 at 2:37 PM and informed that the opacity monitor was not operating and that visual readings would be obtained periodically and recorded until the unit was repaired. A letter dated October 30, 2003 was sent to you indicating that the system had been repaired and was operating.

On November 3, 2003 the opacity monitoring system had failed, and you were notified by telephone of this incident at 3:49 PM. A letter dated November 4, 2003 was sent to you advising of this incident. At that time our service provider mobilized to the site to repair the monitoring system. Following their inspection of the equipment, it was determined that repairs would be difficult to perform due to the age and (lack of) availability of replacement parts. It was also determined that replacement of the system would be a cost effective alternative, as opposed to making necessary repairs. At that time, we decided to purchase a new opacity monitoring system to replace the existing equipment. You were notified of this decision by telephone on November 5, 2003 and advised that until the new equipment was installed, we would obtain and record visual opacity readings in lieu of the readings from opacity monitoring system.

Visual opacity readings have been made and recorded throughout the period that the opacity monitoring system was not operating. Attached are visual emissions monitoring records for the wood fired boiler (AA-001) during this period. We will continue to obtain visual readings until the system is installed and operating.

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

Sincerely,

Thomas L. Henderson

Thomas L. Henderson
Plant Manager

Cc: Tim Basilone, CSG – Pittsburgh, PA
Enclosures

Enertec NTDahs®
Episode List Report
Koppers Industries
Tie Plant Road
Tie Plant, Miss. 38960
from 07/01/03 00:00 to 09/30/03 23:59
Generated: 01/09/2004
Types: OVER

POLLUTANT: Opac   EPISODE: Excess_Opacity

Incident Start	Incident End	Type	Value /	Limit	(%dev)	Reason	Action
07/10/03 10:12	07/10/03 10:17	1: OV	41.750 /	40.000	(4.38%)	Preventive Maintenance	Blowing soot
07/10/03 11:54	07/10/03 11:59	1: OV	57.683 /	40.000	(44.21%)	Preventive Maintenance	Blowing soot
07/10/03 12:00	07/10/03 12:05	1: OV	63.033 /	40.000	(57.58%)	Preventive Maintenance	Blowing soot
07/18/03 15:36	07/18/03 15:41	1: OV	42.483 /	40.000	(6.21%)	Preventive Maintenance	Blowing soot
08/18/03 08:48	08/18/03 08:53	1: OV	44.217 /	40.000	(10.54%)	Startup	No Action Needed
08/22/03 07:54	08/22/03 07:59	1: OV	45.783 /	40.000	(14.46%)	Preventive Maintenance	Blowing soot
08/25/03 10:24	08/25/03 10:29	1: OV	42.117 /	40.000	(5.29%)	Startup	known cause
08/28/03 17:12	08/28/03 17:17	1: OV	50.067 /	40.000	(25.17%)	Known Excess Cause	Startup

Total Reported Time: 2208.0 hours

TOTAL DURATION = 0.80 hours

1: Over limit = 0.80 hours
- 3: Startup = 0.20 hours
- 9: Known Excess Cause = 0.10 hours
- 15: Preventive Maintenance = 0.50 hours

Enertec NTDahs®
Episode List Report
Koppers Industries
Tie Plant Road
Tie Plant, Miss. 38960
from 10/01/03 00:00 to 12/31/03 23:59
Generated: 01/09/2004
Types: OVER

POLLUTANT: Opac EPISODE: Excess_Opacity

Incident Start		Incident End	Type	Value /	Limit	(%dev)	Reason	Action
10/13/03 09:30	-	10/13/03 09:35	1: OV	58.417 /	40.000	(46.04%)	Startup	No Action Needed

Total Reported Time: 2208.0 hours

TOTAL DURATION = 0.10 hours

1: Over limit = 0.10 hours
3: Startup = 0.10 hours

KOPPERS

Visual Opacity Recording Form

DATE	TIME	DIRECTION (Of Observer)	DISTANCE (From Stack)	SKY CONDITIONS	WIND MPH	OPACITY READING
10-27	7:10A	N to S	150'	clear	0-5	10%
	3:13p	N to S	150'	clear	0-5	5%
10/28	9:55A	↓	↓	p cloudy	5-10	5%
	2:20p	↓	↓	↓	0-5	10%
EVENT 2						
11-3-04	10:15A	N to S	150'	clear	5-10	5%
11-4	9:10A	N to S	150'	clear	0-5	10%
	2:25p	↓	↓	↓	↓	10%
11-5	11:15A	N to S	150'	p cloudy	5-10	15%
	3:15p	↓	↓	↓	0-5	5%
11-6	12:00p	N to S	150'	clear	5-10	10%
	3:49p	↓	↓	↓	↓	5%
11-7	11:40A	N to S	150'	clear	0-5	10%
11-10	3:19p	N to S	150'	p/c	0-5	5%
	4:40p	↓	↓	↓	5-10	10%
11-11	1:20p	N to S	150'	clear	0-5	5%
11-12	7:19A	N to S	150	clear	0-5	0% startup
	1:00p	↓	↓	↓	↓	10%
11-13	8:55A	N to S	150	p/c	5-10	10%
	3:15p	↓	↓	↓	0-5	10%
11-14	7:10A	N to S	150'	clear	5-10	5%
	1:00p	↓	↓	clear	↓	10%
11-17	12:00	N to S	150'	clear	5-10	5%
11-18	9:40A	N to S	150'	clear	5-10	5%
11-19	8:10A	N to S	150'	clear	0-5	10%
	3:47p	↓	↓	↓	5-10	10%
11-20	9:44A	N to S	150'	cloudy	5-10	15%
	2:59p	↓	↓	p cloudy	0-5	10%
11-21	7:47A	N to S	150'	clear	0-5	20%
	2:00p	↓	↓	↓	5-10	15%
11-24	8:50A	N to S	150'	clear	10-15	10%
	1:30p	↓	↓	↓	5-10	5%
11-25	7:50A	N to S	150'	cloudy	0-5	10%

Observation conducted by: Mark Sykes

Signature [signature]

SH&E Form

KOPPERS

Visual Opacity Recording Form

DATE	TIME	DIRECTION (Of Observer)	DISTANCE (From Stack)	SKY CONDITIONS	WIND MPH	OPACITY READING
11-25	12:00p	N to S	150'	Clear	5-10	15%
11-26	8:10A	↓		Clear	0-5	10%
	1:00p	↓		↓	0-5	10%
12-1	9:40A	N to S		Clear	5-10	0%
	2:20p	↓		↓	0-5	10%
12-2	8:20A	N to S		P cloudy	0-5	10%
12-3	9:10A	N to S		Cloudy	5-10	20% (5
	3:35p	↓		↓	10-15	10%
12-4	11:40A	N to S		Clear		10%
	2:00p	↓		↓		15%
12-5	8:10A	N to S		Clear		5%
	1:10p	↓		↓		10%
12-8	8:45A	N to S		Clear		10%
	3:20p	↓		↓		10%
12-9	7:50A	N to S		Cloudy		10%
	4:08p	↓		Cloudy		15%
12-10	9:11A	N to S		Cloudy		10%
	1:30p	↓		Cloudy		5%
12-11	9:55A	N to S		Clear		5%
	1:42p	↓		↓		10%
12/12	7:40A	N to S		Clear/P/C		10%
	1:40p	↓	↓	↓		5%
12/15	8:10A	—	—	—	—	0%
	3:05p	N to S	150'	Cloudy		5%
12/16	11:40A	N to S		Clear		10%
12/17	8:45A	N to S		Clear		5%
	2:45p	↓		Clear		10%
12-18	9:30A	N to S		Clear		10%
	1:10p	↓		Cloudy		10%
12-19	11:00A	N to S		~~Cloudy~~ P/C		5%
	3:10p	↓		Clear		10%
12/22	8:45A	N to S		Clear		5%
	1:25p	↓	↓	Clear		5%

Observation conducted by: Mark Sykes

Signature [signature]

SH&E Form

KOPPERS

Visual Opacity Recording Form

DATE	TIME	DIRECTION (Of Observer)	DISTANCE (From Stack)	SKY CONDITIONS	WIND MPH	OPACITY READING
12-23	7:10A	N&S	150'	Clear	5-10	5%
12-29	11:45A	N&S	150'	RAIN	5-10	15%
12-30	8:10A	N&S	150'	Cloudy	0-5	10%
	4:08 p	↓	↓	↓	↓	5%
12-31	7:19A	N&S	150'	p/cloudy	10-15	20% (Start up
	2:40p	↓	150'	↓	↓	10%

Observation conducted by: Mark Sykes

Signature

SH&E Form

Add 1-5-04 did NOT start up until after 4:00 p.m.

KOPPERS

Visual Opacity Recording Form

DATE	TIME	DIRECTION (Of Observer)	DISTANCE (From Stack)	SKY CONDITIONS	WIND MPH	OPACITY READING	
1-6-04	7:40A	N to S	175'	Clear	0-5	10%	
	2:10p	〃	〃	〃	〃	5%	
1-7-04	8:15A	N to S	150'	p cloudy	5-10	0%	
	3:05p	↓	↓	↓	0-5	5%	
1-8-04	10:21A	E to W	125'	clear	0-5	5%	
	12:55p	N to S	150'	clear	0-5	10%	
1-9-04	7:10A	N to S	150'	p cloudy	5-10	10%	
	3:05p	↓	↓	↓	5-10	5%	
1/12/04	11:19A	N to S	150'	Clear	0-5	5%	
1/13/04	7:45A	N to S	150'	Clear	5-10	0%	
1/14/04	10:25A	N to S	150'	p cloudy	0-5	10%	
1/15/04	6:50A	N to S	150'	clear	0-5	0%	down
1/16/04	11:10A	N to S	150'	clear	0-5	10%	
1/19/04	9:30A	N to S	150'	p cloudy	0-5	5%	
—	2:29p	N to S	150'	clear	0-5	5%	
1/20/04	7:40A	N to S	150'	clear	5-10	5%	
↓	1:29p	N to S	150'	clear	5-10	10%	
1/21/04	10:10A	N to S	150'	p cloudy	0-5	5%	
1/22/04	8:30A	N to S	150'	Clear	0-5	0-5%	
↓	3:55p	N to S	150'	Clear	0-5	5%	
1/23/04	9:07A	N to S	150'	clear	5-10	10%	
↓	1:20p	N to S	150'	clear	0-5	5%	
1-26-04	9:11A	N to S	150'	Clear	10-15	10%	
1-26-04	3:39p	N to S	150'	clear	0-5	0%	down
1-27-04	11:40A	N to S	150'	Clear	10-15	5%	
1-27-04	2:19p	N to S	150'	Clear	10-15	5%	
1-28-04	9:20A	N to S	150'	Clear	5-10	10%	
1-28-04	11:11A	N to S	150'	Clear	0-5	5%	

Observation conducted by: Mark Sykes

Signature ____________________

SH&E Form

Thomas L. Henderson
Plant Manager

APR - 5 2004

KOPPERS

Koppers Inc.
Utility Poles and Piling
P. O. Box 160
Tie Plant, MS 38960
Tel 662 226 4584 ext. 11
Fax 662 226 4588
HendersonTL@koppers.com
www.koppers.com

March 23, 2004

CERTIFIED MAIL 7002 0460 0003 7596 1277

Mr. Azzam Abu-Mirshid
Office of Pollution Control
Mississippi Dept. of Environmental Quality
P. O. Box 10385
Jackson, MS 39289-0385

Subject: 2003 Title V Air Permit Compliance Certification-REVISION
Title V Permit #0960-00012
Koppers, Inc Grenada, MS

Dear Mr. Abu-Mirshid

Enclosed is a revised copy of the 2003 Title V Certification of Compliance. A copy of the same was forwarded to Ms. Rosalyn D. Hughes at USEPA-Region IV (cover letter attached).

This Certification of Compliance was changed in response to suggestions you provided during our telephone discussion on March 17, 2004.

Please contact me at 662-226-4584 (Extension 11) if you have any questions or concerns.

Sincerely,

Thomas L. Henderson

Thomas L. Henderson
Plant Manager

Enclosure
cc: Tim Basilone – CSG, Koppers- Pittsburgh, PA

Thomas L. Henderson
Plant Manager

KOPPERS

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www.koppers.com

March 22, 2004

CERTIFIED MAIL 7002 0460 0003 7596 1260

Ms. Rosalyn D. Hughes
USEPA – Region 4
Atlanta Federal Center
61 Forsyth Street
Atlanta, GA 30303-8960

Subject: 2003 Title V Air Permit Compliance Certification-REVISED
Title V Permit #0960-00012
Koppers, Inc Grenada, MS

Dear Ms. Hughes,

Enclosed is a revised 2003 Title V Air Compliance Certification (Certification) for the Koppers Inc. facility in Grenada Mississippi. Revisions were made to an earlier transmittal of the 2003 Certification which was sent on January 28, 2004.

The attached version of the Certification contains the following revisions:

- SECTION 1. General Conditions - Subsection 1.1: The compliance type was changed to "Intermittent".
- SECTION 1. General Conditions - Subsection 1.3: The compliance status was changed to "Yes" and the compliance type was changed to "Intermittent".

These revisions were made based on suggestions made during a telephone conversation with Mississippi Department of Environmental Quality officials on March 17, 2004.

CERTIFICATION:
I certify based on information and belief formed after reasonable inquiry, the statements and information enclosed are true, accurate, and complete.

Thomas L. Henderson / **Thomas L. Henderson** **Date:** 4/2/04
Plant Manager

Please contact me at 662-226-4584 extension 11 if you have any questions or concerns.

Sincerely,

Thomas L. Henderson

Thomas L. Henderson
Plant Manager

Enclosure

cc: Tim Basilone – CSG, Koppers- Pittsburgh, PA
Azzam Abu-Mirshid – MS Department of Environmental Quality

ITEM	PERMIT CONDITION SECTION 1. GENERAL CONDITIONS	COMPLIANCE STATUS (YES/NO)	COMPLIANCE TYPE (CONTINUOUS/ INTERMITTENT)	METHOD OF DETERMINING COMPLIANCE
1.1	1.1 The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Federal Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application. (Ref.: APC-S-6, Section III.A.6.a.)	NO	INTERMITTENT	NOTIFICATION LETTER WAS SENT TO MSDEQ ON JULY 17, 2002, INFORMING THEM THAT THE CO MONITOR ON THE WOOD FIRED BOILER HAD MALFUNCTIONED. A REQUEST TO OMIT THE CO MONITORING REQUIREMENTS WAS MADE TO MDEQ ON AUGUST 19, 2002, MSDEQ ISSUED A DRAFT PERMIT ON SEPTEMBER 19, 2003, ACCEPTING THIS REQUEST. A LETTER WAS SUBMITTED TO MSDEQ ON NOVEMBER 3, 2003 NOTIFYING THEM THAT OUR OPACITY MONITOR WAS OUT OF SERVICE. IT WAS DETERMINED THAT THE MONITOR NEEDED TO BE REPLACED. MSDEQ WAS NOTIFIED BY PHONE OF THIS ACTION AND ADVISED UNTIL THE NEW MONITOR WAS INSTALLED THAT OPACITY WOULD BE OBTAINED VISUALLY AND RECORDED. THE BOILER WAS ORIGINALLY PERMITTED WHEN TREATED WOOD WAS BEING USED AS FUEL. TREATED WOOOD IS NO LONGER USED AS FUEL.

ITEM	PERMIT CONDITION SECTION 1. GENERAL CONDITIONS	COMPLIANCE STATUS (YES/NO)	COMPLIANCE TYPE (CONTINUOUS/ INTERMITTENT)	METHOD OF DETERMINING COMPLIANCE
1.2	1.2 It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. (Ref.: APC-S-6, Section III.A.6.b.)	YES	CONTINUOUS	ENFORCEMENT ACTIONS BY MSDEQ HAVE NOT OCCURRED.
1.3	1.3 This permit and/or any part thereof may be modified, revoked, reopened, and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or of a notification of planned changes or anticipated noncompliance does not stay any permit condition. (Ref.: APC-S-6, Section III.A.6.c.)	YES	INTERMITTENT	PERMIT RENEWAL APPLICATION WAS SENT TO MSDEQ ON SEPTEMBER 26, 2001. MODIFICATION TO THE PERMIT RENEWAL APPLICATION WAS SENT AUGUST 19, 2002. MODIFICATION TO THE PERMIT RENEWAL APPLICATION WAS SENT TO MSDEQ JULY 1, 2003 MSDEQ ISSUED A DRAFT PERMIT SEPTEMBER 19, 2003. COMMENTS WERE MADE TO MSDEQ OCTOBER 6, 2003. OPACITY READINGS ARE CURRENTLY NOT BEING OBTAINED WITH THE CEM SINCE CEM EQUIPMENT IS BEING REPLACED. HOWEVER OPACITY READINGS ARE BEING OBTAINED VISUALLY AND RECORDED (SEE ITEM 1.1 ABOVE)
1.4	1.4 This permit does not convey any property rights of any sort, or any exclusive privilege. (Ref.: APC-S-6, Section III.A.6.d.)	YES	CONTINUOUS	NO ACTIONS INVOLVING PROPERTY RIGHTS HAVE OCCURRED.
1.5	1.5 The permittee shall furnish to the DEQ within a reasonable time any information the DEQ may request in writing to determine whether cause exists for modifying, revoking and reissuing, or terminating the permit or to determine compliance with the permit. Upon request, the	YES	CONTINUOUS	PERMIT RENEWAL APPLICATION WAS SENT TO MSDEQ ON SEPTEMBER 26, 2001. MODIFICATION TO THE PERMIT RENEWAL APPLICATION WAS SENT AUGUST 19, 2002.

Thomas L. Henderson
Plant Manager

A2:52 am

KOPPERS

DATA CODED

Koppers Inc.
Utility Poles and Piling
P. O. Box 160
Tie Plant, MS 38960
Tel 662 226 4584 ext. 11
Fax 662 226 4588
HendersonTL@koppers.com
www.koppers.com

January 28, 2004

CERTIFIED MAIL 7002 0460 0003 7596 0928

Ms. Rosalyn D. Hughes
USEPA – Region 4
Atlanta Federal Center
61 Forsyth Street
Atlanta, GA 30303-8960

RECEIVED
JAN 28 2004
ECED

Grenada Co.

Subject: 2003 Title V Air Permit Compliance Certification
Title V Permit #0960-00012
Koppers, Inc Grenada, MS

Dear Ms. Hughes,

Enclosed please find the subject information submitted pursuant to Section 4.2 of the Title V Operation Permit for the Koppers, Inc. facility in Grenada, Mississippi.

CERTIFICATION:
I certify based on information and belief formed after reasonable inquiry, the statements and information enclosed are true, accurate, and complete.

Thomas L Henderson / **Thomas L. Henderson** **Date:** 1 / 28 / 04
Plant Manager

Please contact me at 662-226-4584 extension 11 if you have any questions or concerns.

Sincerely,

Thomas L. Henderson
Plant Manager

Enclosure Cc:
Tim Basilone – CSG, Koppers- Pittsburgh, PA
David Lee – MS Department of Environmental Quality

ITEM	PERMIT CONDITION SECTION 1. GENERAL CONDITIONS	COMPLIANCE STATUS (YES/NO)	COMPLIANCE TYPE (CONTINUOUS/ INTERMITTENT)	METHOD OF DETERMINING COMPLIANCE
1.1	1.1 The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Federal Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application. (Ref.: APC-S-6, Section III.A.6.a.)	NO	CONTINUOUS	NOTIFICATION LETTER WAS SENT TO MSDEQ ON JULY 17, 2002, INFORMING THEM THAT THE CO MONITOR ON THE WOOD FIRED BOILER HAD MALFUNCTIONED. A REQUEST TO OMIT THE CO MONITORING REQUIREMENTS WAS MADE TO MDEQ ON AUGUST 19, 2002, MSDEQ ISSUED A DRAFT PERMIT ON SEPTEMBER 19, 2003, ACCEPTING THIS REQUEST. A LETTER WAS SUBMITTED TO MSDEQ ON NOVEMBER 3, 2003 NOTIFYING THEM THAT OUR OPACITY MONITOR WAS OUT OF SERVICE. IT WAS DETERMINED THAT THE MONITOR NEEDED TO BE REPLACED. MSDEQ WAS NOTIFIED BY PHONE OF THIS ACTION AND ADVISED UNTIL THE NEW MONITOR WAS INSTALLED THAT OPACITY WOULD BE OBTAINED VISUALLY AND RECORDED. THE BOILER WAS ORIGINALLY PERMITTED WHEN TREATED WOOD WAS BEING USED AS FUEL. TREATED WOOOD IS NO LONGER USED AS FUEL.
1.2	1.2 It shall not be a defense for a permittee in an enforcement	YES	CONTINUOUS	ENFORCEMENT ACTIONS BY MSDEQ

ITEM	PERMIT CONDITION SECTION 1. GENERAL CONDITIONS	COMPLIANCE STATUS (YES/NO)	COMPLIANCE TYPE (CONTINUOUS/ INTERMITTENT)	METHOD OF DETERMINING COMPLIANCE
	action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. (Ref.: APC-S-6, Section III.A.6.b.)			HAVE NOT OCCURRED.
1.3	1.3 This permit and/or any part thereof may be modified, revoked, reopened, and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or of a notification of planned changes or anticipated noncompliance does not stay any permit condition. (Ref.: APC-S-6, Section III.A.6.c.)	NO	CONTINUOUS	PERMIT RENEWAL APPLICATION WAS SENT TO MSDEQ ON SEPTEMBER 26, 2001. MODIFICATION TO THE PERMIT RENEWAL APPLICATION WAS SENT AUGUST 19, 2002. MODIFICATION TO THE PERMIT RENEWAL APPLICATION WAS SENT TO MSDEQ JULY 1, 2003 MSDEQ ISSUED A DRAFT PERMIT SEPTEMBER 19, 2003. COMMENTS WERE MADE TO MSDEQ OCTOBER 6, 2003. OPACITY READINGS ARE CURRENTLY NOT BEING OBTAINED WITH THE CEM SINCE CEM EQUIPMENT IS BEING REPLACED. HOWEVER OPACITY READINGS ARE BEING OBTAINED VISUALLY AND RECORDED (SEE ITEM 1.1 ABOVE)
1.4	1.4 This permit does not convey any property rights of any sort, or any exclusive privilege. (Ref.: APC-S-6, Section III.A.6.d.)	YES	CONTINUOUS	NO ACTIONS INVOLVING PROPERTY RIGHTS HAVE OCCURRED.
1.5	1.5 The permittee shall furnish to the DEQ within a reasonable time any information the DEQ may request in writing to determine whether cause exists for modifying, revoking and reissuing, or terminating the permit or to determine compliance with the permit. Upon request, the	YES	CONTINUOUS	PERMIT RENEWAL APPLICATION WAS SENT TO MSDEQ ON SEPTEMBER 26, 2001. MODIFICATION TO THE PERMIT RENEWAL APPLICATION WAS SENT AUGUST 19, 2002.

ITEM	PERMIT CONDITION SECTION 1. GENERAL CONDITIONS	COMPLIANCE STATUS (YES/NO)	COMPLIANCE TYPE (CONTINUOUS/ INTERMITTENT)	METHOD OF DETERMINING COMPLIANCE
	permittee shall also furnish to the DEQ copies of records required to be kept by the permittee or, for information to be confidential, the permittee shall furnish such records to DEQ along with a claim of confidentiality. The permittee may furnish such records directly to the Administrator along with a claim of confidentiality. (Ref.: APC-S-6, Section III.A.6.e.)			MODIFICATION TO THE PERMIT RENEWAL APPLICATION WAS SENT TO MSDEQ JULY 1, 2003 MSDEQ ISSUED A DRAFT PERMIT SEPTEMBER 19, 2003. COMMENTS WERE MADE TO MSDEQ OCTOBER 6, 2003
1.6 1.6 (CON'T)	1.6 The provisions of this permit are severable. If any provision of this permit, or the application of any provision of this permit to any circumstances, is challenged or held invalid, the validity of the remaining permit provisions and/or portions thereof or their application to other persons or sets of circumstances, shall not be affected thereby. (Ref.: APC-S-6, Section III.A.5.)	YES	CONTINUOUS	NO ACTION BY KOPPERS IS NECESSARY.
1.7	1.7 The permittee shall pay to the DEQ an annual permit fee. The amount of fee shall be determined each year based on the provisions of regulated pollutants for fee purposes and the fee schedule specified in the Commission on Environmental Quality's order which shall be issued in accordance with the procedure outlined in Regulation APC-S-6. (a) For purposes of fee assessment and collection, the permittee shall elect for actual or allowable emissions to be used in determining the annual quantity of emissions unless the Commission determines by order that the method chosen by the applicant for calculating actual emissions fails to reasonably represent actual emissions. Actual emissions shall be calculated using emission monitoring data or direct emissions measurements for the pollutant(s); mass balance calculations such as the amounts of the pollutant(s) entering and leaving process equipment and where mass balance	YES	INTERMITTENT	MSDEQ REQUESTED EMISSION INFORMATION. KOPPERS PROVIDED EMISSIONS INFORMATION TO MSDEQ ON JUNE 24, 2003. EMISSION FEE REQUEST WAS PAID TO MSDEQ IN AUGUST 2003. ACTUAL EMISSIONS WERE USED AS THE BASIS FOR THE FEE.

ITEM	PERMIT CONDITION SECTION 1. GENERAL CONDITIONS	COMPLIANCE STATUS (YES/NO)	COMPLIANCE TYPE (CONTINUOUS/ INTERMITTENT)	METHOD OF DETERMINING COMPLIANCE
	calculations can be supported by direct measurement of process parameters, such direct measurement data shall be supplied; published emission factors such as those relating release quantities to throughput or equipment type (e.g., air emission factors); or other approaches such engineering calculations (e.g., estimating volatilization using published mathematical formulas) or best engineering judgements where such judgements are derived from process and/or emission data which supports the estimates of maximum actual emission. (Ref.: APC-S-6, Section VI.A.2.) (b) If the Commission determines that there is not sufficient information available on a facility's emissions, the determination of the fee shall be based upon the permitted allowable emissions until such time as an adequate determination of actual emissions is made. Such determination may be made anytime within one year of the submittal of actual emissions data by the permittee. (Ref.: APC-S-6, Section VI.A.2.) If at any time within the year the Commission determines that the information submitted by the permittee on actual emissions is insufficient or incorrect, the permittee will be notified of the deficiencies and the adjusted fee schedule. Past due fees from the adjusted fee schedule will be paid on the next scheduled quarterly payment time. (Ref.: APC-S-6, Section VI.D.2.) (c) The fee shall be due September 1 of each year. By July 1 of each year the permittee shall submit an inventory of emissions for the previous year on which the fee is to be assessed. The permittee may elect a quarterly payment method of four (4) equal payments; notification of the election			

ITEM	PERMIT CONDITION SECTION 1. GENERAL CONDITIONS	COMPLIANCE STATUS (YES/NO)	COMPLIANCE TYPE (CONTINUOUS/ INTERMITTENT)	METHOD OF DETERMINING COMPLIANCE
	of quarterly payments must be made to the DEQ by the first payment date of September 1. The permittee shall be liable for penalty as prescribed by State Law for failure to pay the fee or quarterly portion thereof by the date due. (Ref.: APC-S-6, Section VI.D.) (d) If in disagreement with the calculation or applicability of the Title V permit fee, the permittee may petition the Commission in writing for a hearing in accordance with State Law. Any disputed portion of the fee for which a hearing has been requested will not incur any penalty or interest from and after the receipt by the Commission of the hearing petition. (Ref.: APC-S-6, Section VI.C.)			
1.8	1.8 No permit revision shall be required under any approved economic incentives, marketable permits, emissions trading and other similar programs or processes for changes that are provided for in this permit. (Ref.: APC-S-6, Section III.A.8.)	YES	CONTINUOUS	NO PERMIT REVISIONS OF THIS NATURE HAVE BEEN REQUESTED BY PERMITTEE.
1.9	1.9 Any document required by this permit to be submitted to the DEQ shall contain a certification by a responsible official that states that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete. (Ref.: APC-S-6, Section II.E.)	YES	INTERMITTENT	ALL REQUIRED DOCUMENTS SUBMITTED HAVE BEEN CERTIFIED.
1.10	1.10 The permittee shall allow the DEQ, or an authorized representative, upon the presentation of credentials and other documents as may be required by law, to perform the following: (a) enter upon the permittee's premises where a Title V source is located or emissions-related activity is conducted, or	YES	INTERMITTENT	MSDEQ AIR QUALITY INSPECTORS WERE NOT ON-SITE IN 2003. THERE WERE NO REQUESTS FOR SAMPLING OR MONITORING.

ITEM	PERMIT CONDITION SECTION 1. GENERAL CONDITIONS	COMPLIANCE STATUS (YES/NO)	COMPLIANCE TYPE (CONTINUOUS/ INTERMITTENT)	METHOD OF DETERMINING COMPLIANCE
	where records must be kept under the conditions of this permit; (b) have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit; (c) inspect at reasonable times any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under the permit; and (d) as authorized by the Federal Act, sample or monitor, at reasonable times, substances or parameters for the purpose of assuring compliance with the permit or applicable requirements. (Ref.: APC-S-6, Section III.C.2.)			
1.11	1.11 Except as otherwise specified or limited herein, the permittee shall have necessary sampling ports and ease of accessibility for any new air pollution control equipment, obtained after May 8, 1970, and vented to the atmosphere. (Ref.: APC-S-1, Section 3.9 (a))	YES	CONTINUOUS	ALL NECESSARY SAMPLING PORTS ARE INSTALLED.
1.12	1.12 Except as otherwise specified or limited herein, the permittee shall provide the necessary sampling ports and ease of accessibility when deemed necessary by the Permit Board for air pollution control equipment that was in existence prior to May 8, 1970. (Ref.: APC-S-1, Section 3.9 (b))	YES	CONTINUOUS	ALL NECESSARY SAMPLING PORTS ARE INSTALLED.
1.13	1.13 Compliance with the conditions of this permit shall be deemed compliance with any applicable requirements as of the date of permit issuance where such applicable requirements are included and are specifically identified in the permit or where the permit contains a determination, or summary thereof, by the Permit Board that requirements specifically identified previously are not applicable to the source. (Ref.: APC-S-6, Section III.F.1.)	YES	CONTINUOUS	PLANT RECORDS.
1.14	1.14 Nothing in this permit shall alter or affect the following:	YES	CONTINUOUS	NO ACTION REQUIRED OF KOPPERS

ITEM	PERMIT CONDITION SECTION 1. GENERAL CONDITIONS	COMPLIANCE STATUS (YES/NO)	COMPLIANCE TYPE (CONTINUOUS/ INTERMITTENT)	METHOD OF DETERMINING COMPLIANCE
	(a) the provisions of Section 303 of the Federal Act (emergency orders), including the authority of the Administrator under that section; (b) the liability of an owner or operator of a source for any violation of applicable requirements prior to or at the time of permit issuance; (c) the applicable requirements of the acid rain program, consistent with Section 408(a) of the Federal Act. (d) the ability of EPA to obtain information from a source pursuant to Section 114 of the Federal Act. (Ref.: APC-S-6, Section III.F.2.)			DURING 2003.
1.15	1.15 The permittee shall comply with the requirement to register a Risk Management Plan if permittee's facility is required pursuant to Section 112(r) of the Act to register such a plan. (Ref.: APC-S-6, Section III.H.)	YES	CONTINUOUS	NOT AVAILABLE UNDER CAA SECTION 112 (r)(7)(B)(II).
1.16	1.16 Expiration of this permit terminates the permittee's right to operate unless a timely and complete renewal application has been submitted. A timely application is one which is submitted at least six (6) months prior to expiration of the Title V permit. If the permittee submits a timely and complete application, the failure to have a Title V permit is not a violation of regulations until the Permit Board takes final action on the permit application. This protection shall cease to apply if, subsequent to the completeness determination, the permittee fails to submit by the deadline specified in writing by the DEQ any additional information identified as being needed to process the application. (Ref.: APC-S-6, Section IV.C.2., Section IV.B., and Section II.A.1.c.)	YES	CONTINUOUS	THIS PERMIT EXPIRED IN 2002. RENEWAL APPLICATION SENT TO MSDEQ ON SEPTEMBER 26, 2001. MSDEQ ACKNOWLEDGED RECEIPT OF APPLICATION SENT ON SEPTEMBER 26, 2001 MSDEQ ACKNOWLEDGED ON NOVEMBER 27, 2001 THAT THE APPLICATION SUBMITTED ABOVE AS COMPLETE AS SUBMITTED.

ITEM	PERMIT CONDITION SECTION 1. GENERAL CONDITIONS	COMPLIANCE STATUS (YES/NO)	COMPLIANCE TYPE (CONTINUOUS/ INTERMITTENT)	METHOD OF DETERMINING COMPLIANCE
				A REVISED APPLICATION WAS SUBMITTED TO MSDEQ OCTOBER 28, 2002. MSDEQ ACKNOWLEDGED THE RECEIPT OF THE APPLICATION ON OCTOBER 30, 2002 MODIFICATION TO THE PERMIT RENEWAL APPLICATION WAS SENT TO MSDEQ JULY 1, 2003 MSDEQ ISSUED A DRAFT PERMIT SEPTEMBER 19, 2003. COMMENTS WERE MADE TO MSDEQ OCTOBER 6, 2003
1.17	1.17 The permittee is authorized to make changes within their facility without requiring a permit revision (ref: Section 502(b)(10) of the Act) if: (a) the changes are not modifications under any provision of Title I of the Act; (b) the changes do not exceed the emissions allowable under this permit; (c) the permittee provides the Administrator and the Department with written notification in advance of the proposed changes (at least seven (7) days, or such other time frame as	YES	CONTINUOUS	ALL PROPOSED CHANGES WERE IDENTIFIED IN MODIFICATIONS TO THE PERMIT RENEWAL APPLICATIONS SUBMITTED JULY 1, 2003. MSDEQ ACKNOWLEDGED THE CHANGES JULY 8, 2003

ITEM	PERMIT CONDITION SECTION 1. GENERAL CONDITIONS	COMPLIANCE STATUS (YES/NO)	COMPLIANCE TYPE (CONTINUOUS/ INTERMITTENT)	METHOD OF DETERMINING COMPLIANCE
	provided in other regulations for emergencies) and the notification includes: (1) a brief description of the change(s), (2) the date on which the change will occur, (3) any change in emissions, and (4) any permit term or condition that is no longer applicable as a result of the change; (d) the permit shield shall not apply to any Section 502(b)(10) change. (Ref.: APC-S-6, Section IV.F.)			
1.18	1.18 Should the Executive Director of the Mississippi Department of Environmental Quality declare an Air Pollution Emergency Episode, the permittee will be required to operate in accordance with the permittee's previously approved Emissions Reduction Schedule or, in the absence of an approved schedule, with the appropriate requirements specified in Regulation APC-S-3, "Regulations for the Prevention of Air Pollution Emergency Episodes" for the level of emergency declared. (Ref.: APC-S-3)	YES	CONTINUOUS	KOPPERS WAS NOT INFORMED OF ANY AIR POLLUTION EMERGENCY AFFECTING THE OPERATION OF THIS PLANT DURING 2003.
1.19	1.19 Except as otherwise provided by Regulations APC-S-2, "Permit Regulations for the Construction and/or Operation of Air Emissions Equipment", and Regulations APC-S-6, "Air Emissions Operating Permit Regulations for the Purposes of Title V of the Federal Clean Air Act", or otherwise provided herein, a modification of the facility requires a Permit to Construct and a modification of this permit. Modification is defined as "Any physical change in or change in the method of operation of a facility which increases the actual emissions or the potential uncontrolled emissions of any air pollutant subject to regulation under the Federal Act emitted into the atmosphere by that facility or which results in the emission of any air pollutant subject to regulation under the Federal Act	YES	CONTINUOUS	NO ACTION REQUIRED BY KOPPERS

ITEM	PERMIT CONDITION SECTION 1. GENERAL CONDITIONS	COMPLIANCE STATUS (YES/NO)	COMPLIANCE TYPE (CONTINUOUS/ INTERMITTENT)	METHOD OF DETERMINING COMPLIANCE
	into the atmosphere not previously emitted. A physical change or change in the method of operation shall not include: (a) routine maintenance, repair, and replacement; (b) use of an alternative fuel or raw material by reason of an order under Sections 2 (a) and (b) of the Federal Energy Supply and Environmental Coordination Act of 1974 (or any superseding legislation) or by reason of a natural gas curtailment plan pursuant to the Federal Power Act; (c) use of an alternative fuel by reason of an order or rule under Section 125 of the Federal Act; (d) use of an alternative fuel or raw material by a stationary source which: (1) the source was capable of accommodating before January 6, 1975, unless such change would be prohibited under any federally enforceable permit condition which was established after January 6, 1975, pursuant to 40 CFR 52.21 or under regulations approved pursuant to 40 CFR 51.166; or 2) the source is approved to use under any permit issued under 40 CFR 52.21 or under regulations approved pursuant to 40 CFR 51.166; (e) an increase in the hours of operation or in the production rate unless such change would be prohibited under any federally enforceable permit condition which was established after January 6, 1975, pursuant to 40 CFR 52.21 or under regulations approved pursuant to 40 CFR Subpart I or 40			

ITEM	PERMIT CONDITION SECTION 1. GENERAL CONDITIONS	COMPLIANCE STATUS (YES/NO)	COMPLIANCE TYPE (CONTINUOUS/ INTERMITTENT)	METHOD OF DETERMINING COMPLIANCE
	CFR 51.166; or (f) any change in ownership of the stationary source."			
1.20	1.20 Any change in ownership or operational control must be approved by the Permit Board. (Ref.: APC-S-6, Section IV.D.4.)	YES	CONTINUOUS	NO CHANGE OF OWNERSHIP HAS OCCURRED.
1.21	1.21 This permit is a Federally approved operating permit under Title V of the Federal Clean Air Act as amended in 1990. All terms and conditions, including any designed to limit the source's potential to emit, are enforceable by the Administrator and citizens under the Federal Act as well as the Commission. (Ref.: APC-S-6, Section III.B.I)	YES	CONTINUOUS	NO ACTION REQUIRED BY KOPPERS.
1.22	1.22 Except as otherwise specified or limited herein, the open burning of residential, commercial, institutional, or industrial solid waste, is prohibited. This prohibition does not apply to infrequent burning of agricultural wastes in the field, silvicultural wastes for forest management purposes, land-clearing debris, debris from emergency clean-up operations, and ordnance. Open burning of land-clearing debris must not use starter or auxiliary fuels which cause excessive smoke (rubber tires, plastics, etc.); must not be performed if prohibited by local ordinances; must not cause a traffic hazard; must not take place where there is a High Fire Danger Alert declared by the Mississippi Forestry Commission or Emergency Air Pollution Episode Alert imposed by the Executive Director and must meet the following buffer zones. (a) Open burning without a forced-draft air system must not occur within 500 yards of an occupied dwelling. (b) Open burning utilizing a forced-draft air system on all	YES	CONTINUOUS	PLANT RECORDS. NO OPEN BURNING HAS OCCURRED IN 2003.

ITEM	PERMIT CONDITION SECTION 1. GENERAL CONDITIONS	COMPLIANCE STATUS (YES/NO)	COMPLIANCE TYPE (CONTINUOUS/ INTERMITTENT)	METHOD OF DETERMINING COMPLIANCE
	fires to improve the combustion rate and reduce smoke may be done within 500 yards of but not within 50 yards of an occupied dwelling. (C) Burning must not occur within 500 yards of commercial airport property, private air fields, or marked off-runway aircraft approach corridors unless written approval to conduct burning is secured from the proper airport authority, owner or operator. (Ref.: APC-S-I, Section 3.7)			
1.23	1.23 Except as otherwise specified herein, the permittee shall be subject to the following provision with respect to emergencies. (a) Except as otherwise specified herein, an "emergency" means any situation arising from sudden and reasonably unforeseeable events beyond the control of the source, including acts of God, which situation requires immediate corrective action to restore normal operation, and that causes the source to exceed a technology-based emission limitation under the permit, due to unavoidable increases in emissions attributable to the emergency. An emergency shall not include noncompliance to the extent caused by improperly designed equipment, lack of preventative maintenance, careless or improper operation, or operator error. (b) An emergency constitutes an affirmative defense to an action brought for noncompliance with such technology-based emission limitations if the conditions specified in (c) following	YES	CONTINUOUS	NO EMERGENCY EVENTS ADDRESSED IN THIS REQUIREMENT OCCURRED IN 2003.

ITEM	PERMIT CONDITION SECTION 1. GENERAL CONDITIONS	COMPLIANCE STATUS (YES/NO)	COMPLIANCE TYPE (CONTINUOUS/ INTERMITTENT)	METHOD OF DETERMINING COMPLIANCE
	are met. (C) The affirmative defense of emergency shall be demonstrated through properly signed contemporaneous operating logs, or other relevant evidence that include information as follows: (1) an emergency occurred and that the permittee can identify the cause(s) of the emergency; (2) the permitted facility was at the time being properly operated; (3) during the period of the emergency the permittee took all reasonable steps to minimize levels of emissions that exceeded the emission standards, or other requirements in the permit; and (4) the permittee submitted notice of the emergency to the DEQ within 2 working days of the time when emission limitations were exceeded due to the emergency. This notice must contain a description of the emergency, any steps taken to mitigate emissions, and corrective actions taken. (c) In any enforcement proceeding, the permittee seeking to establish the occurrence of an emergency has the burden of proof. (d) This provision is in addition to any emergency or upset provision contained in any applicable requirement specified elsewhere herein. (Re.: APC-S-6, Section III.G.)			
1.24	1.24 Except as otherwise specified herein, the permittee shall	YES	INTERMITTENT	THE MSDEQ WAS NOTIFIED OF ALL

ITEM	PERMIT CONDITION SECTION 1. GENERAL CONDITIONS	COMPLIANCE STATUS (YES/NO)	COMPLIANCE TYPE (CONTINUOUS/ INTERMITTENT)	METHOD OF DETERMINING COMPLIANCE
	be subject to the following provisions with respect to upsets, startups, and shutdowns. (a) Upsets (as defined by APC-S-1, Section 2.34) (1) The occurrence of an upset constitutes an affirmative defense to an enforcement action brought for noncompliance with emission standards or other requirements of Applicable Rules and Regulations or any applicable permit if the permittee demonstrates through properly signed contemporaneous operating logs, or other relevant evidence that include information as follows: (a) an upset occurred and that the permittee can identify the cause(s) of the upset; (b) the source was at the time being properly operated; (c) during the upset the permittee took all reasonable steps to minimize levels of emissions that exceeded the emission standards, or other requirements of Applicable Rules and Regulations or any applicable permit; (d) the permittee submitted notice of the upset to the DEQ within 5 working days of the time the upset began; and (e) the notice of the upset shall contain a description of the upset, any steps taken to mitigate emissions, and corrective actions taken. 2) In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset has the burden of proof. (3) This provision is in addition to any upset provision			NON-COMPLIANCE EVENTS WHEN 40% OPACITY WAS EXCEEDED. NOTIFICATION WAS MADE IN REPORTS ISSUED ON JULY 25, 2003 COVERING THE TIME PERIOD OF JANUARY 03 – JUNE 03, AND ON JANUARY 27, 2003 COVERING THE TIME PERIOD OF JULY 03 – DECEMBER 03 (SEMI-ANNUAL REPORT).

ITEM	PERMIT CONDITION SECTION 1. GENERAL CONDITIONS	COMPLIANCE STATUS (YES/NO)	COMPLIANCE TYPE (CONTINUOUS/ INTERMITTENT)	METHOD OF DETERMINING COMPLIANCE
	contained in any applicable requirement. (b) Startups and Shutdowns (as defined by APC-S-1, Sections 2.31 & 2.26) (1) Startups and shutdowns are part of normal source operation. Emissions limitations applicable to normal operation apply during startups and shutdowns except as follows: (a) when sudden, unavoidable breakdowns occur during a startup or shutdown, the event may be classified as an upset subject to the requirements above; (b) when a startup or shutdown is infrequent, the duration of excess emissions is brief in each event, and the design of the source is such that the period of excess emissions cannot be avoided without causing damage to equipment or persons; or (c) when the emissions standards applicable during a startup or shutdown are defined by other requirements of Applicable Rules and Regulations or any applicable permit. (2) In any enforcement proceeding, the permittee seeking to establish the applicability of any exception during a startup or shutdown has the burden of proof. (3) In the event this startup and shutdown provision conflicts with another applicable requirement, the more stringent requirement shall apply. (C) Maintenance. (1) Maintenance should be performed during planned shutdown			

ITEM	PERMIT CONDITION SECTION 1. GENERAL CONDITIONS	COMPLIANCE STATUS (YES/NO)	COMPLIANCE TYPE (CONTINUOUS/ INTERMITTENT)	METHOD OF DETERMINING COMPLIANCE
	or repair of process equipment such that excess emissions are avoided. Unavoidable maintenance that results in brief periods of excess emissions and that is necessary to prevent or minimize emergency conditions or equipment malfunctions constitutes an affirmative defense to an enforcement action brought for noncompliance with emission standards, or other regulatory requirements if the permittee can demonstrate the following: (a) the permittee can identify the need for the maintenance; (b) the source was at the time being properly operated; (c) during the maintenance the permittee took all reasonable steps to minimize levels of emissions that exceeded the emission standards, or other requirements of Applicable Rules and Regulations or any applicable permit; (d) the permittee submitted notice of the maintenance to the DEQ within 5 working days of the time the maintenance began or such other times as allowed by DEQ; and (e) the notice shall contain a description of the maintenance, any steps taken to mitigate emissions, and corrective actions taken. (2) In any enforcement proceeding, the permittee seeking to establish the applicability of this section has the burden of proof. (3) In the event this maintenance provision conflicts with another applicable requirement, the more stringent			

ITEM	PERMIT CONDITION SECTION 1. GENERAL CONDITIONS	COMPLIANCE STATUS (YES/NO)	COMPLIANCE TYPE (CONTINUOUS/ INTERMITTENT)	METHOD OF DETERMINING COMPLIANCE
	requirement shall apply. (Ref.: APC-S-I, Section 10)			
1.25	1.25 The permittee shall comply with all applicable standards for demolition and renovation activities pursuant to the requirements of 40 CFR Part 61, Subpart M, as adopted by reference in Regulation APC-S-1, Section 8. The permittee shall not be required to obtain a modification of this permit in order to perform the referenced activities.	YES	CONTINUOUS	PLANT RECORDS. NO DEMOLITION OR RENOVATION ACTIVITIES ADDRESSED BY THIS REQUIREMENT OCCURRED IN 2003.

KOPPERS
INDUSTRIES

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

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

September 26, 2001

CERTIFIED MAIL
7000 0520 0021 7551 9576

RECEIVED
SEP 28 2001
Dept. of Environmental Quality
Office of Pollution Control

Ms. Melissa Collier
Mississippi Department of Environmental Quality
P.O. Box 10385
Jackson, MS 39289-0385

RE: Title V Operating Permit - #0960-00012
Koppers Industries, Inc. – Grenada, Mississippi
Renewal Application

Dear Ms. Collier,

Enclosed is the renewal application for our existing Title V Operating Permit No. 0960-00012. The enclosed document addresses all requirements of the renewal application.

If you have any questions or concerns, please call me at (662) 226-4584 extension 11.

Sincerely,

Thomas L. Henderson
Thomas L. Henderson
Koppers Industries, Inc. – Grenada, Mississippi

Cc: Steve Spengler – Environmental permits division MSDEQ – (without site map)
Cc: Tim Basilone, KII – Pittsburgh
Attachments

Renewal Application

Title V Operating Permit

No. 0960-00012

Koppers Industries, Inc.

Tie Plant, MS 38960

TABLE OF CONTENTS

1.0 Introduction.

On 11 March 1997, Koppers Industries, Inc. was issued the Title V Operating Permit No. 0960-00012 for its wood treating plant (the Plant) at Tie Plant MS. This application for renewal of the Title V permit is submitted 6 months in advance of that expiration date, in conformance with MDSEQ requirements.

During the 5 years that the Title V permit has been in effect, the Grenada Plant has operated in compliance with the requirements of the permit. In addition, several changes have taken place. Some sources have been retired from service and some new sources have been added. Some equipment, originally used for one purpose has been switched to a different type of service. For some equipment, the Reference Numbers have been changed to provide consistency with other site permit and programmatic requirements. Importantly, some operations need to be accomplished in a different way and are the basis for an Alternative Operating Scenario not included in the original permit. For both the baseline operations and the Alternative Operating Scenario, the Plant remains a Major Source for purposes of the Title V Operating Permit Program.

The basic operations at the Plant are unchanged. The Plant continues to produce treated wood products such as railroad ties, utility poles and other timber products. During the past 5 years some of these operations have become more streamlined. Others have been replaced or eliminated. Several operations have undergone change in response to KII's pollution prevention efforts. For example, the formulation of KII's creosote has changed since the original application. The reformulated creosote is both easier to use in treating operations and results in lower VOC emissions to the atmosphere during the treating operations.

The remaining sections of this permit application document include all of the changes relevant to the Plant. In addition, the various MSDEQ Forms required for this renewal application are included.

2.0 Changes in Plant Equipment and Operations

Since the original Title V Permit has been in effect, there have been several changes in equipment and operations at the Plant. Some of these changes have been discussed previously in detail with the MSDEQ. Others correspond to exempt and/or insignificant changes. All of these changes are summarized below.

2.1 Changes in Equipment Reference Numbers

Several of these Reference Numbers have been changed to incorporate the numbering system used in the SPCC Plan for the Plant. Other Reference Numbers have been changed because the 1997 Title V Permit had duplicate Reference Numbers. For example, in the 1997 Title V Permit, both Emission Points AA-003 and AA-0010 had a Reference No. 32. By revising the Reference Number system used in this renewal application, this and other duplicate reference numbers have been avoided.

Emission Point	Description (1997 Title V References)	Proposed Ref. No	Comments
AA-001	Title V, Ref. No. 1 - the 60.0 MMBTUH Wellons/Nebraska Woodwaste Boiler	40	See also Section 4, Alternative Operating Scenario
AA-002	Title V, Ref. No. 26 - the 28.5 MMBTUH fuel oil fired Murray Boiler	41	
AA-003	SPCC, Ref. No. 5 - the 34,000 gal treatment cylinder containing Penta in oil.	1	
	SPCC, Ref. No. 5 - the 27,000 gal treatment cylinder containing Creosote	2	
	SPCC, Ref. No. 5 - the 27,000 gal treatment cylinder containing Creosote	3	
	SPCC, Ref. No. 5 - the 27,000 gal treatment cylinder containing Creosote	4	
	SPCC, Ref. No. 5 - the 27,000 gal treatment cylinder containing Creosote	5	
	SPCC, Ref. No. 6 - the 29,7786 gal #1 Work Tank containing Penta in oil.	6	
	SPCC, Ref. No. 7 - the 29,786 gal #2 Work Tank containing Creosote	7	
	SPCC, Ref. No. 8 - the 29,786 gal #3 Work Tank containing Creosote	8	
	SPCC, Ref. No. 9 - the 22,419 gal #4 Work Tank containing Creosote	9	
	SPCC, Ref. No. 10 - the 29,786 gal #5 Work Tank containing Creosote/Water.	10	
	SPCC, Ref. No. 11 - the 4,200 gal Measuring Tank containing Creosote	11	
	SPCC, Ref. No. 12 - the 100,000 gal #1 Storage Tank containing Creosote	12	
	SPCC, Ref. No. 13 - the 100,000 gal #2 Surge Tank containing Process water	13	
	SPCC, Ref. No. 14 - the 100,000 gal #5 Storage Tank containing Diesel #2 fuel oil	14	
	SPCC, Ref. No. 15 - the 105,000 gal #6 Storage Tank containing creosote	15	
	SPCC, Ref. No. 16 - the 300,000 gal #10 Surge Tank containing process water	16	
	SPCC, Ref. No. 17 - the 250,000 gal Storm Water surge tank containing Storm Water	17	

Emission Point	Description (1996 Title V References)	Proposed Ref. No	Comments
	SPCC, Ref. No. 18 - the 1,500 gal Coagulant Tank containing water treatment system polymer additive	18	
	SPCC, Ref. No. 19 - the 2,500 gal Decant Tank containing Creo/Oil/Water	19	
	SPCC, Ref. No. 20 - the 8,000 gal Creosote Blowdown tank containing Creo/Water	20	
	SPCC, Ref. No. 21 - the 6 ft. Dia. X 60 ft. long, Air Receiver containing compressed air	------	Removed from list. Contains only compressed air
	SPCC, Ref. No. 22 - the 7 ft. Dia. X 40 ft. long Air Receiver containing compressed air	------	Removed from list. Contains only compressed air
	SPCC, Ref. No. 23 - the 8,000 gal Penta Blowdown tank containing water/penta/oil	23	
	SPCC, Ref. No. 26 - the 150,000 gal Aeration Tank containing waste water	26	
	SPCC, Ref. No. 27 - the 25,000 gal Clarifier Tank containing waste water	27	
	SPCC, Ref. No. 28 - the 15,000 gal Discharge Tank containing waste water	28	
	SPCC, Ref. No. 29 - the 8,000 gal Creosote Dehydrator	29	
	SPCC, Ref. No. 30 - the 14,000 gal North Penta Equalization Tank containing water/penta/oil	30	
	SPCC, Ref. No. 31 - the 14,000 gal South Penta Equalization Tank containing water/penta/oil	31	
	SPCC, Ref. No. 32 - the 9,400 gal Penta Mix Tank containing Oil/Penta	32	
	SPCC, Ref. No. 33 - the 5,000 gal Penta Mix Tank containing Oil/Penta	33	
	SPCC, Ref. No. 34 - the 10,500 gal Penta Concentrate Tank containing 40% Pentachlorophenol Concentrate	34	
	SPCC, Ref. No. 35 – the 100,000 gal Stormwater Tank	35	This Tank has been added.
AA-004	Title V, Ref. No. 27, the Tie Mill and Lumber Mill with cyclone	42	
AA-005	Title V, Ref. No. 33, the Boiler House natural gas fired space heater rated at 0.2 MMBTUH	43	Insignificant Activity per APC-S-6.IV. Three (3) space heaters each rated at 0.2mmbtu/hr.
AA-006	Title V, Ref. No. 35, the natural gas fired steam cleaner rated at 0.44 MMBTUH	44	Insignificant Activity per APC-S-6.IV.
AA-007	Title V, Ref. No. 36, the Wood Stove Shop Heater rated at 0.10 MMBTUH	--------	Source no longer exists. Has been removed from site.
AA-008	Title V, Ref. No. 8, the Treated Wood Storage Areas	46	
AA-009	Title V, Ref. No. 31, the Pole Kiln	47	
AA-010	Title V, Ref. No. 32, the Pole Peeler	48	
AA-011	Title V, Ref. No. 34, Wood Fuel Preparation and handling including grinding, conveying, and silo loading	49	
AA-012	Title V, Ref. No. 37, the two (2) Parts cleaners-degreasers	50	
AA-013	SPCC, Ref. No. 24, the 1,250 gal Gasoline Storage tank containing Gasoline used by company vehicles	51	Insignificant Activity per APC-S-6.IV.

Emission Point	Description (1996 Title V References)	Proposed Ref. No	Comments
AA-014	SPCC, Ref. No. 25, the 9,000 gal Diesel Storage tank used by company vehicles/Rolling Stock	52	Insignificant Activity per APC-S-6.IV.
AA-015	Title V, Ref. No. 33, the Oil Fired Murray Standby boiler room Natural Gas fired Space Heater rated at0.1 MMBTUH	54	Insignificant Activity per APC-S-6.IV.
AA-016	Title V, Ref. No. 33, the Fire Pump building Natural Gas fired Space Heater rated at 0.02 MMBTUH	-------	Source no longer exists. Has been removed from site.

2.2 Emission Factors and Emissions.

As noted above, KII has changed the formulation of creosote used for treating ties, poles and timber. This reformulation is a classic pollution prevention program since it made the treating operations easier and it reduced VOC emissions from the treating process as well. The reformulation resulted in an appreciable reduction in the vapor pressure of the creosote. One of the significant advantages to this reformulation was the elimination of certain HAPs from the creosote, which correspondingly reduced the HAP atmospheric emissions.

The PTE emissions for the Plant are included with the various MSDEQ Forms. However, a summary of the changes in the VOC emissions associated with creosote treatment is provided below.

Emissions from Creosote Treated Products

Pollutant	Production Emissions (tpy)	Storage Yard Emission (tpy)
	1996 Application/1997 Permit	
Total VOC	26.25	12.88
Napthalene	4.46	3.88
Benzene	5.78	0.003
Toluene	6.83	0.15
Dibenzofuran	0.16	n.a.
Quinoline	0.39	n.a.
Biphenyl	0.04	n.a.
Total HAPs	19.33	4.03
	2001 Application	
Total VOC	3.43	7.50
Napthalene	1.77	3.88
Dibenzofuran	0.15	0.33
Quinoline	0.08	0.17
Biphenyl	0.06	0.57
Total HAPs	2.06	4.95

NOTES: All emissions based on 2,000,000 ft^3 ties and 1,500,000 ft^3 poles
n.a. = not analyzed or reported.
All Emissions on a PTE basis.

The summary indicates that there is a substantial reduction in the emissions of VOC and certain organic HAPs from the production of creosote treated wood products. These emissions are included in the affected Forms required by MSDEQ in this reapplication.

2.3 Equipment Changes at the Plant

The equipment associated Emission Points AA-007, the Wood Stove Shop Heater, and AA-015, the Fire Pump Building natural gas fired space heater, have been removed from the site. A new stormwater storage tank has been added. It has been included in AA-003 and has the Reference No. 35.

3.0 Insignificant and Exempt Activities and Equipment

The MSDEQ regulations at APC-S-6.VI includes an extensive list of "Insignificant Activities and Emissions". Several of the operations and equipment at the Plant are listed as "Insignificant" in Sections APC-S-6-VI.A and VI.B. These are listed below and are included in Form C, as required by MSDEQ. In addition, the emissions from several, but not all, of these Insignificant Activities are included in the Plant-wide Emissions Summary, as required under APC-S-6.VI.C and VI.D. See the individual equipment and/or process Forms and the Emission Summary in Form C for the details.

Emission Point	Description	Insignificant Activity
AA-003	Compressed Air Receivers (Ref. Nos. 21 & 22)	APC-S-6.VI.B.27
AA-005	Boiler House natural gas fired space heater	APC-S-6.VI.B.2.a.
AA-006	Natural gas fired steam cleaner	APC-S-6.VI.B.2.a.
AA-013	1,000 gallon Gasoline Storage Tank	APC-S-6.VI.B.7
AA-014	20,000 gallon Diesel fuel Storage Tank	APC-S-6.VI.B.7
AA-015	Standby boiler room natural gas fired Space Heater	APC-S-6.VI.B.2.a.
------------	Outdoor kerosene heaters (5 units)	APC-S-6.VI.A.17
-----------	Emergency Power Generators (3 units at 11 hp and 6000 watts; 3 units at 16 hp and 8000 watts)	APC-S-6.VI.B.9

4.0 Alternative Operating Scenario

In the MSDEQ Title V Permit Program, an applicant has the opportunity to define an Alternative Operating Scenario for inclusion in the Permit. The Alternative Operating Scenario described below is provided in accordance with the requirements given in APC-S-6.II.C.7 and II.D.

The operation of the Wellons wood-fired boiler, Emission Point AA-001, is baselined on using a mixture of used, treated wood and untreated wood as the fuel. The emissions for the baseline operation were included in the original (1996) permit application and are included here as well. However, to be able to assure operation of the Wellons wood-fired boiler in the face of increasingly uncertain supplies of used treated wood products, KII is defining an Alternative Operating Scenario as the full power operation of the Wellons boiler using only untreated wood fuel. Inclusion of this Alternative Operating Scenario will provide KII the flexibility to operate the Plant in the face of fuel supply uncertainties. Note that this Alternative Operating Scenario in no way affects the quantities or mix of treated wood products manufactured at the Plant.

Because, in general, untreated wood fuel has a lower thermal rating (btu/lb of wood) than does used treated wood fuel, the quantity of untreated wood that must be burned as fuel greatly exceeds that of used treated wood fuel. For example, for the Wellons boiler at the Plant, with a nameplate rating of 60,000,000 btu/hr (60mmbtu/hr), the baseline scenario includes 37,580 tons of used treated wood fuel on a PTE basis. Correspondingly, the Alternative Operating Scenario requires 58,400 tons of untreated wood fuel on a PTE basis.

Also, the emissions associated with untreated wood fuel differs somewhat from those associated with used treated wood fuel. The used treated wood fuel mixture contains some pentachlorophenol treated wood. For this reason, emissions of HCl are characteristic of this fuel component and are missing when only untreated wood fuel is used. Also, the untreated wood fuel contains less sulfur which leads to lower SO_2 emissions than with the used treated wood fuel. The emission factors for the Alternative Operating Scenario are taken from AP-42 and are summarized below:

Potential To Emit Basis for Title V Application - Alternative Operating Scenario

AA-001-BOILER, WOOD FIRED	tn/yr	Sulfur	Chlorine		(lb/hr):
Total Wood Burned:	58,403	0.01%	0.04%		13333
Creo Wood Burned:	0	0.25%	0.04%		
Penta Wood Burned:	0	0.25%	0.25%		
Untreated Wood Burned:	58,403	0.01%	0.04%		
Removal Efficiency (1):		70.00%	45.00%		

Pollutant	Emission Factor	Units	Basis	Estimated (tn/yr)	Emissions (lb/hr)
Particulate	4.2	lb/tn	AP-42	122.65	28.00
SO2	0.08	lb/tn	AP-42	2.19	0.50
NOX (2)	1.60	lb/tn	1994 Test	46.72	10.67
CO	6.6	lb/tn	AP-42	192.73	44.00
VOC	0.18	lb/tn	AP-42	5.26	1.20
HCl	1.538	lb/tn PCP fuel	2/96 Test	0.00	0.00
Arsenic	8.8E-05	lb/tn	AP-42	0.0026	0.001
Cadmium	1.7E-05	lb/tn	AP-42	0.0005	0.000
Chromium	1.3E-04	lb/tn	AP-42	0.0038	0.001
Lead	3.1E-04	lb/tn	AP-42	0.0091	0.002
Manganese	8.9E-03	lb/tn	AP-42	0.2599	0.059
Nickel	5.6E-04	lb/tn	AP-42	0.0164	0.004
Selenium	1.8E-05	lb/tn	AP-42	0.0005	0.000
Mercury	6.5E-06	lb/tn	AP-42	0.0002	0.000
Total HAP Metals				0.29	0.067

~~(1) Removal efficiencies based on 2/96 stack test.~~
(2) 1994 Stack Test

The Grenada Plant meets the criteria for a Major Source under the Title V program whether untreated wood or used treated wood fuel is used in the Wellons boiler.

The emissions for the Wellons boiler (AA-001) are summarized in Section D of the MSDEQ Forms for each Scenario. The plant-wide summaries for both Scenarios are included in Section C of the MSDEQ Forms.

For this Alternative Operating Scenario, some of the emission limitations and monitoring & recordkeeping provisions of the existing Title V permit for the Baseline Scenario are no longer appropriate. It is requested that the following changes be made in the new Title V permit for the Alternative Operating Scenario:

a. In Section 3.B, for the Baseline Scenario, there is a temperature limitation in effect when treated wood fuel is used. Since treated wood will not be used for the Alternative Operating Scenario, this limitation should be removed.

b. In Section 3.B, for the Baseline Scenario, there is a limitation on the hourly feed rate of 9375 lb/hour for the used treated wood fuel. This limitation was established in the Construction Permit. For the Alternative Operating Scenario, this limitation must be revised upwards to account for the lower btu/lb heating value of the untreated wood fuel. It is requested that this limitation be set at 15,000 lb/hour for untreated wood fuel. This limitation provides some small margin on the fuel use rate corresponding to the PTE basis in the Emission Summary. This small margin will allow for some variation in the heating value of the untreated wood fuel. The Emission Summary is based on a heating value of 4500 btu/lb. If some fuel contains greater moisture or is lower quality, in general, the actual heating value will be below the value used in the emissions summary.

c. In Section 5.B, for the Baseline Scenario, there is a recordkeeping requirement to provide for continuous recording of the boiler temperature and to note the time periods when untreated wood fuel is fed to the boiler. For the Alternative Operating Scenario, used treated wood fuel will not be used at any time and it is requested that this monitoring & recordkeeping requirement be eliminated.

5.0 Monitoring, Recordkeeping & Reporting Requirements.

Section 5 of the existing Title V Permit contains several monitoring, recordkeeping and reporting (MRKR) requirements. Based on KII's experience operating in compliance with these requirements, some changes are recommended for the new Permit. These are focused on elimination of duplicative reporting requirements and on removing ambiguity from the existing language. The following changes are recommended:

Existing 5.A.4 – "Except as otherwise specified herein, the permittee shall submit reports of any required monitoring by July 31 and January 31 for the preceding six-month period. All instances of deviations from permit requirements must be clearly identified in such reports and all required reports must be certified by a responsible official consistent with APC-S-6, Section II.E."

Suggestions for Modification of Section 5.A.4 :

It is recommended that this is where all of the deviations should be reported and not under Condition 5.A.5. It is felt that semi-annual reporting is timely and that the 5-day reporting requirement in Condition 5.A.5 is burdensome. By eliminating the 5-day reporting requirement, duplicative reporting would be avoided. In addition, it is recommended that the language in the new permit be amended to include an explicit list of those deviations must be reported and what information for each deviation must be reported in the semi-annual reports.

Existing 5.A.5 – "Except as otherwise specified herein, the permittee shall report all deviations from permit requirements, including those attributable to upsets, the probable cause of such deviations, and any corrective actions or preventive measures taken within five (5) days of the time the deviation began."

Suggestions for Modification of Section 5.A.5:

It is recommended that the language in the new permit be amended to include an explicit list of those deviations which must be reported in the semi-annual reports. In addition, we would like the language of the permit to explain in explicit detail what information must be reported. Also we would like the 5-day reporting period to be eliminated and the Semi-Annual Air Report required under Section 5.A.4 be the only reporting schedule.

The existing Permit provides deviation reporting exemptions for the following conditions:

a. **Startups** – Opacity may exceed 40% for 15 minutes per startup in any one hour and not to exceed three (3) startups per stack in any twenty-four (24) hour period.

b. **Soot Blowing** – emissions from soot blowing operations shall be permitted provided such emissions do not exceed 60 percent opacity, and provided further that the aggregate duration of such emissions during any twenty-four (24) hour period does not exceed ten (10) minutes per billion BTU gross heating value of fuel in any one hour.

It is recommended that the following items be listed as exemptions for purposes of reporting deviations:

1. A longer duration allowance for soot blowing such as 15 minutes or more, since this is preventative maintenance that occurs 3 times a day on a normal operating day.

2. An opacity allowance for pulling ash. This is also a routine preventative maintenance measure that occurs at least twice daily. This practice is especially disruptive to the system in terms of opacity due to the behavior of "fly ash" that is removed from the ash box and the ash collector.

3. An opacity allowance for fuel cell clean-out. This is preventative maintenance that occurs 4 times per day and is also disruptive to the system in terms of opacity.

4. An opacity allowance for fuel feed adjustment. The condition of our fuel is constantly changing. A variety of factors in fuel conditions play a significant role in the combustion efficiency rate at which the fuel is burned. One fuel feed rate may work perfectly for the type of fuel that was fed into the boiler on one day, but then that rate may be too high or too low for the fuel fed into the boiler on the next day. Sometimes the difference can be observed between fuels in consecutive hours.

5. A time/temperature allowance for monitoring system performance checks during combustion of treated wood fuel. At least once per month it is necessary to perform internal system checks and tests of the CEM and process control systems. At least once a quarter (conservatively), tests will need to be run on the fuel feed system to ensure its accuracy. The fuel feed system may have to be switched manually from untreated to treated fuel to ensure the effectiveness of the switchover setpoints installed in our computer system. The switchover setpoint is put into the monitoring computer that automatically switches from treated wood fuel to untreated wood fuel in the event of a temperature drop that falls below 1200° Fahrenheit.

6.0 MSDEQ Forms

The remainder of this Section includes the Forms that are required for this Renewal Application. The majority of these Forms are applicable both to the Baseline Scenario and the Alternative Operating Scenario. The exceptions are the Forms for the Wellons Boiler (Emission Point AA-001). There are individual Form C submittals for the two Scenarios. Also, for Form C, individual emission summaries are included for the two Scenarios. Forms B and C are signed by the Plant Manager, who is the Responsible Official for this Renewal Application.

FOR OFFICIAL USE ONLY
APPLICATION RECEIPT DATE:
APPLICATION NO.:
FOR MODIFICATION : MINOR: SIGNIFICANT:

STATE OF MISSISSIPPI
DEPARTMENT OF ENVIRONMENTAL QUALITY
OFFICE OF POLLUTION CONTROL
AIR DIVISION
P.O. BOX 10385
JACKSON, MS. 39289-0385
PHONE NO.: (601) 961 - 5171

APPLICATION FOR TITLE V AIR POLLUTION CONTROL PERMIT TO OPERATE AIR EMISSIONS EQUIPMENT

PERMITTING ACTIVITY:

________ INITIAL APPLICATION
________ MODIFICATION
___X___ RENEWAL OF OPERATING PERMIT

NAME: KOPPERS INDUSTRIES INC.
CITY: TIE PLANT
COUNTY: GRENADA
FACILITY No. (if known): 0960-00012

APPLICATION FOR TITLE V PERMIT TO
OPERATE AIR EMISSIONS EQUIPMENT

CONTENTS OF THIS RENEWAL APPLICATION

Section B Owners Information

1. Name, Address & Contact for the Owner/Applicant

   A. Company Name: KOPPERS INDUSTRIES INC.

   B. Mailing Address:

      1. Street Address or P.O. Box: 436 SEVENTH AVENUE
      2. City: PITTSBURGH 3. State: PA
      4. Zip Code: 15219-1800
      5. Telephone No.: (412) 227-2114

   C. Contact:

      1. Name: TIMOTHY R. BASILONE
      2. Title: ENVIRONMENTAL MANAGER

2. Name, Address, Location and Contact for the Facility:

   A. Name: KOPPERS INDUSTRIES INC.

   B. Mailing Address:
      1. Street Address or P.O. Box: P.O. BOX 160
      2. City: TIE PLANT 3. State: MS
      4. Zip Code: 38960
      5. Telephone No.: (662) 226-4584

   C. Site Location:
      1. Street: 1 KOPPERS DRIVE
      2. City: TIE PLANT 3. State: MS
      4. County: GRENADA 5. Zip Code: 38960
      6. Telephone No.: (662) 226-4584

      Note: If the facility is located outside of the City limits, please attach a sketch or description to this application showing the approximate location of the site.

   D. Contact:

      1. Name: THOMAS L. HENDERSON
      2. Title: PLANT MANAGER

3. SIC Code(s)(including any associated with alternate operating scenarios): 2491

4. Number of Employees: 65

5. Principal Product(s): UTILITY POLES AND RAILROAD CROSSTIES

6. Principal Raw Materials: WOOD POLES, CROSSTIES, LUMBER, CREOSOTE, PENTACHLOROPHENOL, DIESEL FUEL

7. Principal Process(es): WOOD PRESERVING

8. Maximum amount of principal product produced or raw material consumed per day: 20,000 CUBIC FEET

9. Facility Operating Schedule (Optional):

   A. Specify maximum hours per day the operation will occur: 24 HOURS

   B. Specify maximum days per week the operation will occur: 7 DAYS

   C. Specify maximum weeks per year the operation will occur: 52 WEEKS

   D. Specify the months the operation will occur: ALL

10. Is this facility a small business as defined by the Small Business Act? (Optional) NO

11. **EACH APPLICATION MUST BE SIGNED BY THE APPLICANT.**

The application must be signed by a responsible official as defined in Regulation APC-S-6, Section I.A.26.

I certify that to the best of my knowledge and belief formed after reasonable inquiry, the statements and information in this application are true, complete, and accurate, and that, as a responsible official, my signature shall constitute an agreement that the applicant assumes the responsibility for any alteration, additions, or changes in operation that may be necessary to achieve and maintain compliance with all applicable Rules and Regulations.

THOMAS L. HENDERSON
Printed Name of Responsible Official

PLANT MANAGER
Title

9-26-01
Date Application Signed

Thomas L. Henderson
Signature of Applicants Responsible Official

SECTION C EMISSIONS SUMMARY for the ENTIRE FACILITY

List below the total emissions for each pollutant from the entire facility in accordance with Operating Permit Application Requirements, pp. 3-5. For stack emissions, use the maximum annual allowable (potential) emissions. For fugitive emissions, use the annual emissions calculated using the maximum operating conditions.

NORMAL OPERATING SCENARIO – USE OF TREATED AND UNTREATED WOOD FUEL

POLLUTANT Footnote 1	ANNUAL EMISSION RATE	
	lb/hr	tons/yr
PARTICULATE (LESS FUGITIVE)		54.56
SO2		116.10
NOX		80.32
CO		160.57
VOC (LESS FUGITIVE)		72.44
VOC (INCLUDING FUGITIVE)		100.07
HAPS (ORGANICS/VOC)		7.02
NAPHTHALENE		5.64
HAP METALS		0.19
HCL		11.54
TOTAL HAPS		18.74
SEE PTE TABLES (FOLLOWING 5 PAGES)		

1. All regulated air pollutants,including hazardous air pollutants emitted from the entire facility should be listed. A list of regulated air pollutants has been provided in Section A.

With the exception of the emissions resulting from insignificant activities and emissions as defined in Regulation APC-S-6, Section VII, the pollutants listed above are all regulated air pollutants reasonably expected to be emitted from the facility.

Thomas C. Henderson

SIGNATURE (must match signature on page 17)

EMISSION INVENTORY CALCULATION
KOPPERS INDUSTRIES, INC. - GRENADA, MS
Potential To Emit Basis for Title V Application

AA-001-BOILER, WOOD FIRED	tn/yr	Sulfur	Chlorine		(lb/hr):
Total Wood Burned:	37,580	0.23%	0.12%		8580
Creo Wood Burned:	20,000	0.25%	0.04%		
Penta Wood Burned:	15,000	0.25%	0.25%		
Untreated Wood Burned:	2,580	0.01%	0.04%		
Removal Efficiency (1):		70.00%	45.00%		

Pollutant	Emission Factor	Units	Basis	Estimated (tn/yr)	Emissions (lb/hr)
Particulate	2.47	lb/tn	9/2000 Test	46.41	10.60
SO2	2.80	lb/tn	Mass Calc	52.65	12.02
NOX (3)	3.3	lb/tn	2/96 test	62.01	14.16
CO (2)	8.3	lb/tn	CEM	155.96	35.61
VOC	0.18	lb/tn	AP-42	3.38	0.77
HCl	1.538	lb/tn PCP fuel	2/96 Test	11.54	6.60
Arsenic	8.8E-05	lb/tn	AP-42	0.0017	0.000
Cadmium	1.7E-05	lb/tn	AP-42	0.0003	0.000
Chromium	1.3E-04	lb/tn	AP-42	0.0024	0.001
Lead	3.1E-04	lb/tn	AP-42	0.0058	0.001
Manganese	8.9E-03	lb/tn	AP-42	0.1672	0.038
Nickel	5.6E-04	lb/tn	AP-42	0.0105	0.002
Selenium	1.8E-05	lb/tn	AP-42	0.0003	0.000
~~Mercury~~	~~6.5E-06~~	~~lb/tn~~	~~AP-42~~	~~0.0001~~	~~0.000~~
Total HAP Metals				0.19	0.043

(1) Removal efficiencies based on 2/96 stack test.
(2) CO factor is 8.3 for 600 ppm fired on untreated fuel, 2.1 for 150 ppm fired on treated fuel.
(3) NOX factor is 3.3 for high fire, treated wood. Use 1.6 for untreated wood.

AA-002 BOILER, FUEL OIL			Fuel Use Rate(MGal/hr):		0.204
Oil Burned(MGal/yr):	1787	Sulfur Content:		0.500	%

Pollutant	Emission Factor	Units	Basis	Estimated (tn/yr)	Emissions (lb/hr)
Particulate	2	lb/MGal	AP-42	1.79	0.41
SO2	71	lb/MGal	AP-42	63.44	14.48
NOX	20	lb/MGal	AP-42	17.87	4.08
CO	5	lb/MGal	AP-42	4.47	1.02
VOC	0.2	lb/MGal	AP-42	0.18	0.04

Number of days boiler assumed to operate is 365

EMISSION INVENTORY CALCULATION
KOPPERS INDUSTRIES, INC. - GRENADA, MS
Potential To Emit Basis for Title V Application

AA-003-WOOD PRESERVING PROCESSES

Creosote Ties	2,000,000	C. F.
Creosote Poles	1,500,000	C. F.
Total Creosote Wood	3,500,000	C. F.
Oil/Penta Poles	3,500,000	C. F.

Pollutant	Emission Factor	Units	Basis	Estimated (tn/yr)	Emissions (lb/hr)
Creosote (VOC)	1.96E-03	lb/cf	Form R	3.43	0.78
HAPs contained in creosote:					
Biphenyl	1.72	% in vapor	Calculation	0.06	0.01
Dibenzofurans	4.43	% in vapor	Calculation	0.15	0.03
Naphthalene	51.62	% in vapor	Calculation	1.77	0.40
Quinoline	2.32	% in vapor	Calculation	0.08	0.02
TOTAL CREO. HAP	60.09	% in vapor		2.06	0.47
Pentachlorophenol (VOC)	3.73E-06	lb/cf	Form R	0.01	0.00
#6 Oil (VOC)	1.4E-02	lb/cf	Engr. Est.	24.75	5.65
TOTAL VOC				28.18	6.43

AA-008-PRESERVATIVE TREATED WOOD STORAGE FUGITIVES

Pollutant	Emission Factor	Units	Basis	Estimated (tn/yr)	Emissions (lb/hr)
Creosote Ties					
Creosote (VOC)	2.65E-03	lb/cf	FR Test & Creo Data	2.65	0.61
Naphthalene	1.37E-03	lb/cf	FR Test & Creo Data	1.37	0.31
Quinoline	6.15E-05	lb/cf	FR Test & Creo Data	0.06	0.01
Biphenyl	4.56E-04	lb/cf	FR Test & Creo Data	0.46	0.10
Dibenzofuran	1.18E-04	lb/cf	FR Test & Creo Data	0.12	0.03
Creosote Poles					
Creosote (VOC)	6.47E-03	lb/cf	FR Test & Creo Data	4.85	1.11
Naphthalene	3.34E-03	lb/cf	FR Test & Creo Data	2.51	0.57
Quinoline	1.50E-04	lb/cf	FR Test & Creo Data	0.11	0.03
Biphenyl	1.11E-04	lb/cf	FR Test & Creo Data	0.11	0.03
Dibenzofuran	2.87E-04	lb/cf	FR Test & Creo Data	0.21	0.05
Penta Poles					
Oil (VOC, est. as creo)	1.15E-02	lb/cf	FR Test	20.13	4.59
Pentachlorophenol	1.9E-06	lb/cf	Engr. Est.	0.00	0.00
Totals					
VOC				27.63	6.30
Naphthalene				3.88	0.88
Quinoline				0.17	0.04
Biphenyl				0.57	0.13
Dibenzofuran				0.33	0.08
Pentachlorophenol				0.00	0.00
HAP Organics (Total)				4.95	1.13

EMISSION INVENTORY CALCULATION
KOPPERS INDUSTRIES, INC. - GRENADA, MS
Potential To Emit Basis for Title V Application

AA-009-DRY KILNS

Poles Dried	1,600,000	C. F.	Batch size (cf):		13000
			Batch time (hrs):		72

Pollutant	Emission Factor	Units	Basis	Estimated (tn/yr)	Emissions (lb/hr)
VOC	0.05	lb/cf	Alabama	40.00	9.03

AA-004-CYCLONES FOR WOOD MILLING

Number of Cyclones:	1
Ave. Hours/Day:	8
Ave Days/Yr Each:	300
Total Hours:	2400

Pollutant	Emission Factor	Units	Basis	Estimated (tn/yr)	Emissions (lb/hr)
Particulate	2	lb/hr	AP-42	2.40	0

AA-010-POLE PEELER

Poles Peeled=	1,000,000	CF/yr	440	CF/hr
Pole Density=	45	lb/CF		
Pole Amount Peeled=	22,500	tn/yr	9.9	tn/hr

Pollutant	Emission Factor	Units	Basis	Estimated (tn/yr)	Emissions (lb/hr)
Particulate	0.350	lb/ton	AP-42	3.94	3.465

SPACE HEATERS, NATURAL GAS

Location	BTU/Hr	BTU/CF	CF/Hr	Hr/Yr	MMCF/Yr
AA-005-Boiler House	600000	1000	600	8760	5.256
AA-015-Standby Boiler Room	100000	1000	100	8760	0.876
AA-016-Fire Pump Building	No longer exists				
TOTAL	700000		700		6.132

EMISSION INVENTORY CALCULATION
KOPPERS INDUSTRIES, INC. - GRENADA, MS
Potential To Emit Basis for Title V Application

Pollutant	Emission Factor	Units	Basis	Estimated (tn/yr)	Emissions (lb/hr)
Particulate	0.18	lb/MMCF	AP-42	0.00	0.00
SO2	0.6	lb/MMCF	AP-42	0.00	0.00
NOX	94	lb/MMCF	AP-42	0.29	0.07
CO	40	lb/MMCF	AP-42	0.12	0.03
VOC	11	lb/MMCF	AP-42	0.03	0.01

AA-011-WOOD FUEL PREPARATION & HANDLING (Fugitive)

Wood Fuel Processed 37,580 Tn/Yr 12 tn/hr

Pollutant	Emission Factor	Units	Basis	Estimated (tn/yr)	Emissions (lb/hr)
Particulate	0.25	lb/tn	Engr. Est.	4.70	3.00

AA-006-STEAM CLEANER, NATURAL GAS FIRED

Annual Usage 8760 hours/yr — Fuel Use Rate 440 CF/hr

Pollutant	Emission Factor	Units	Basis	Estimated (tn/yr)	Emissions (lb/hr)
Particulate	12	lb/MMCF	AP-42	0.02	0.01
SO2	0.6	lb/MMCF	AP-42	0.00	0.00
NOX	100	lb/MMCF	AP-42	0.19	0.04
CO	21	lb/MMCF	AP-42	0.04	0.01
VOC	5.8	lb/MMCF	AP-42	0.01	0.00

AA-007-WOOD STOVE HEATER, SHOP NO LONGER EXISTS

Annual Usage 0 tn/yr — Fuel Use Rate 0 tn/hr

Pollutant	Emission Factor	Units	Basis	Estimated (tn/yr)	Emissions (lb/hr)
Particulate	30.6	lb/tn	AP-42	0.00	0.00
SO2	0.4	lb/tn	AP-42	0.00	0.00
NOX	2.8	lb/tn	AP-42	0.00	0.00
CO	230.8	lb/tn	AP-42	0.00	0.00
VOC	43.8	lb/tn	AP-42	0.00	0.00

AA-012-PARTS CLEANERS, DEGREASERS

Number of units operating: 2

Pollutant	Emission Factor	Units	Basis	Estimated (tn/yr)	Emissions (lb/hr)
VOC	0.33	tn/unit/yr	AP-42	0.66	0.00

EMISSION INVENTORY CALCULATION
KOPPERS INDUSTRIES, INC. - GRENADA, MS
Potential To Emit Basis for Title V Application

TOTAL PLANT EMISSIONS

Pollutant		Estimated (tn/yr)	Emissions(1) (lb/hr)
Particulate (less fugitive)	....	54.56	12.46
SO2 (2)	....	116.10	26.51
NOX	....	80.36	18.35
CO	....	160.59	36.66
VOC(less fugitive)	....	72.45	16.54
VOC(including fugitive)		100.08	22.85
HAPs(Organics/VOC)	....	7.02	1.60
Naphthalene	....	5.64	1.29
HAP Metals	....	0.19	0.04
HCl	....	11.54	2.63
Total HAPs	....	18.74	4.28

(1) Average hourly emission rate; not instantaneous maximum emission rate.

SECTION C EMISSIONS SUMMARY for the ENTIRE FACILITY

List below the total emissions for each pollutant from the entire facility in accordance with Operating Permit Application Requirements, pp. 3-5. For stack emissions, use the maximum annual allowable (potential) emissions. For fugitive emissions, use the annual emissions calculated using the maximum operating conditions.

ALTERNATIVE OPERATING SCENARIO – USE OF UNTREATED WOOD FUEL ONLY

POLLUTANT Footnote 1	ANNUAL EMISSION RATE	
	lb/hr	tons/yr
PARTICULATE (LESS FUGITIVE)		130.79
SO2		65.63
NOX		65.04
CO		197.35
VOC (LESS FUGITIVE)		74.32
VOC (INCLUDING FUGITIVE)		101.95
HAPS (ORGANICS/VOC)		7.02
NAPHTHALENE		5.64
HAP METALS		0.29
HCL		0.00
TOTAL HAPS		7.31
SEE PTE TABLES (FOLLOWING 5 PAGES)		

1. All regulated air pollutants, including hazardous air pollutants emitted from the entire facility should be listed. A list of regulated air pollutants has been provided in Section A.

With the exception of the emissions resulting from insignificant activities and emissions as defined in Regulation APC-S-6, Section VII, the pollutants listed above are all regulated air pollutants reasonably expected to be emitted from the facility.

Thomas L. Henderson

SIGNATURE (must match signature on page 17)

EMISSION INVENTORY CALCULATION
KOPPERS INDUSTRIES, INC. - GRENADA, MS
Potential To Emit Basis for Title V Application

AA-001-BOILER, WOOD FIRED	tn/yr	Sulfur	Chlorine	(lb/hr):
Total Wood Burned:	58,403	0.01%	0.04%	13333
Creo Wood Burned:	0	0.25%	0.04%	
Penta Wood Burned:	0	0.25%	0.25%	
Untreated Wood Burned:	58,403	0.01%	0.04%	
Removal Efficiency (1):		70.00%	45.00%	

Pollutant	Emission Factor	Units	Basis	Estimated (tn/yr)	Emissions (lb/hr)
Particulate	4.2	lb/tn	AP-42	122.65	28.00
SO2	0.08	lb/tn	AP-42	2.19	0.50
NOX	1.6	lb/tn	1994 Test	46.72	10.67
CO	6.6	lb/tn	AP-42	192.73	44.00
VOC	0.18	lb/tn	AP-42	5.26	1.20
HCl	1.538	lb/tn PCP fuel	2/96 Test	0.00	0.00
Arsenic	8.8E-05	lb/tn	AP-42	0.0026	0.001
Cadmium	1.7E-05	lb/tn	AP-42	0.0005	0.000
Chromium	1.3E-04	lb/tn	AP-42	0.0038	0.001
Lead	3.1E-04	lb/tn	AP-42	0.0091	0.002
Manganese	8.9E-03	lb/tn	AP-42	0.2599	0.059
Nickel	5.6E-04	lb/tn	AP-42	0.0164	0.004
Selenium	1.8E-05	lb/tn	AP-42	0.0005	0.000
~~Mercury~~	~~6.5E-06~~	~~lb/tn~~	~~AP-42~~	~~0.0002~~	~~0.000~~
Total HAP Metals				0.29	0.067

(1) Removal efficiencies based on 2/96 stack test.

AA-002-BOILER, FUEL OIL Fuel Use Rate(MGal/hr): 0.204

Oil Burned(MGal/yr): 1787 Sulfur Content: 0.500 %

Pollutant	Emission Factor	Units	Basis	Estimated (tn/yr)	Emissions (lb/hr)
Particulate	2	lb/MGal	AP-42	1.79	0.41
SO2	71	lb/MGal	AP-42	63.44	14.48
NOX	20	lb/MGal	AP-42	17.87	4.08
CO	5	lb/MGal	AP-42	4.47	1.02
VOC	0.2	lb/MGal	AP-42	0.18	0.04

Number of days boiler assumed to operate is 365

EMISSION INVENTORY CALCULATION
KOPPERS INDUSTRIES, INC. - GRENADA, MS
Potential To Emit Basis for Title V Application

AA-003-WOOD PRESERVING PROCESSES

Creosote Ties	2,000,000	C. F.
Creosote Poles	1,500,000	C. F.
Total Creosote Wood	3,500,000	C. F.
Oil/Penta Poles	3,500,000	C. F.

Pollutant	Emission Factor	Units	Basis	Estimated (tn/yr)	Emissions (lb/hr)
Creosote (VOC)	1.96E-03	lb/cf	Form R	3.43	0.78
HAPs contained in creosote:					
Biphenyl	1.72	% in vapor	Calculation	0.06	0.01
Dibenzofurans	4.43	% in vapor	Calculation	0.15	0.03
Naphthalene	51.62	% in vapor	Calculation	1.77	0.40
Quinoline	2.32	% in vapor	Calculation	0.08	0.02
TOTAL CREO. HAP	60.09	% in vapor		2.06	0.47
Pentachlorophenol (VOC)	3.73E-06	lb/cf	Form R	0.01	0.00
#6 Oil (VOC)	1.4E-02	lb/cf	Engr. Est.	24.75	5.65
TOTAL VOC				28.18	6.43

AA-008-PRESERVATIVE TREATED WOOD STORAGE FUGITIVES

Pollutant	Emission Factor	Units	Basis	Estimated (tn/yr)	Emissions (lb/hr)
Creosote Ties					
Creosote (VOC)	2.65E-03	lb/cf	FR Test & Creo Data	2.65	0.61
Naphthalene	1.37E-03	lb/cf	FR Test & Creo Data	1.37	0.31
Quinoline	6.15E-05	lb/cf	FR Test & Creo Data	0.06	0.01
Biphenyl	4.56E-04	lb/cf	FR Test & Creo Data	0.46	0.10
Dibenzofuran	1.18E-04	lb/cf	FR Test & Creo Data	0.12	0.03
Creosote Poles					
Creosote (VOC)	6.47E-03	lb/cf	FR Test & Creo Data	4.85	1.11
Naphthalene	3.34E-03	lb/cf	FR Test & Creo Data	2.51	0.57
Quinoline	1.50E-04	lb/cf	FR Test & Creo Data	0.11	0.03
Biphenyl	1.11E-04	lb/cf	FR Test & Creo Data	0.11	0.03
Dibenzofuran	2.87E-04	lb/cf	FR Test & Creo Data	0.21	0.05
Penta Poles					
Oil (VOC, est. as creo)	1.15E-02	lb/cf	FR Test	20.13	4.59
Pentachlorophenol	1.9E-06	lb/cf	Engr. Est.	0.00	0.00
Totals					
VOC				27.63	6.30
Naphthalene				3.88	0.88
Quinoline				0.17	0.04
Biphenyl				0.57	0.13
Dibenzofuran				0.33	0.08
Pentachlorophenol				0.00	0.00
HAP Organics (Total)				4.95	1.13

EMISSION INVENTORY CALCULATION
KOPPERS INDUSTRIES, INC. - GRENADA, MS
Potential To Emit Basis for Title V Application

AA-009-DRY KILNS

Poles Dried	1,600,000	C. F.	Batch size (cf):		13000
			Batch time (hrs):		72

Pollutant	Emission Factor	Units	Basis	Estimated (tn/yr)	Emissions (lb/hr)
VOC	0.05	lb/cf	Alabama	40.00	9.03

AA-004-CYCLONES FOR WOOD MILLING

Number of Cyclones:	1
Ave. Hours/Day:	8
Ave Days/Yr Each:	300
Total Hours:	2400

Pollutant	Emission Factor	Units	Basis	Estimated (tn/yr)	Emissions (lb/hr)
Particulate	2	lb/hr	AP-42	2.40	2

AA-010-POLE PEELER

Poles Peeled=	1,000,000	CF/yr	440	CF/hr
Pole Density=	45	lb/CF		
Pole Amount Peeled=	22,500	tn/yr	9.9	tn/hr

Pollutant	Emission Factor	Units	Basis	Estimated (tn/yr)	Emissions (lb/hr)
Particulate	0.350	lb/ton	AP-42	3.94	3.465

SPACE HEATERS, NATURAL GAS

Location	BTU/Hr	BTU/CF	CF/Hr	Hr/Yr	MMCF/Yr
AA-005-Boiler House	600000	1000	600	8,760	5.256
AA-015-Standby Boiler Room	100000	1000	100	8,760	0.876
AA-016-Fire Pump Building	No longer exists.				
TOTAL	700000		700		6.132

EMISSION INVENTORY CALCULATION
KOPPERS INDUSTRIES, INC. - GRENADA, MS
Potential To Emit Basis for Title V Application

Pollutant	Emission Factor	Units	Basis	Estimated (tn/yr)	Emissions (lb/hr)
Particulate	0.18	lb/MMCF	AP-42	0.00	0.00
SO2	0.6	lb/MMCF	AP-42	0.00	0.00
NOX	94	lb/MMCF	AP-42	0.29	0.07
CO	40	lb/MMCF	AP-42	0.12	0.03
VOC	11	lb/MMCF	AP-42	0.03	0.01

AA-011-WOOD FUEL PREPARATION & HANDLING (Fugitive)

Wood Fuel Processed 58,403 Tn/Yr 12 tn/hr

Pollutant	Emission Factor	Units	Basis	Estimated (tn/yr)	Emissions (lb/hr)
Particulate	0.25	lb/tn	Engr. Est.	7.30	3.00

AA-006-STEAM CLEANER, NATURAL GAS FIRED

Annual Usage 8760 hours/yr — Fuel Use Rate 440 CF/hr

Pollutant	Emission Factor	Units	Basis	Estimated (tn/yr)	Emissions (lb/hr)
Particulate	12	lb/MMCF	AP-42	0.02	0.01
SO2	0.6	lb/MMCF	AP-42	0.00	0.00
NOX	100	lb/MMCF	AP-42	0.19	0.04
CO	21	lb/MMCF	AP-42	0.04	0.01
VOC	5.8	lb/MMCF	AP-42	0.01	0.00

~~AA-007-WOOD STOVE HEATER, SHOP~~ NO LONGER EXISTS

Annual Usage 0 tn/yr — Fuel Use Rate 0 tn/hr

Pollutant	Emission Factor	Units	Basis	Estimated (tn/yr)	Emissions (lb/hr)
Particulate	30.6	lb/tn	AP-42	0.00	0.00
SO2	0.4	lb/tn	AP-42	0.00	0.00
NOX	2.8	lb/tn	AP-42	0.00	0.00
CO	230.8	lb/tn	AP-42	0.00	0.00
VOC	43.8	lb/tn	AP-42	0.00	0.00

AA-012-PARTS CLEANERS, DEGREASERS

Number of units operating: 2

Pollutant	Emission Factor	Units	Basis	Estimated (tn/yr)	Emissions (lb/hr)
VOC	0.33	tn/unit/yr	AP-42	0.66	0.00

EMISSION INVENTORY CALCULATION
KOPPERS INDUSTRIES, INC. - GRENADA, MS
Potential To Emit Basis for Title V Application

TOTAL PLANT EMISSIONS

Pollutant		Estimated (tn/yr)	Emissions (1) (lb/hr)
Particulate (less fugitive)	....	130.79	29.86
SO2 (2)	....	65.63	14.98
NOX	....	65.07	14.86
CO	....	197.36	45.06
VOC(less fugitive)	....	74.32	16.97
VOC(including fugitive)		101.95	23.28
HAPs(Organics/VOC)	....	7.02	1.60
Naphthalene	....	5.64	1.29
HAP Metals	....	0.29	0.07
HCl	....	0.00	0.00
Total HAPs	....	7.31	1.67

(1) Average hourly emission rate; not instantaneous maximum emission rate.
(2) Assumes backup boiler operating at same time as primary for number of days shown.

SECTION C

For the sections listed below indicate the number that have been completed for each section as part of this application.

Section B	1	Section L1		Section M1	1
Section C	2	Section L2	2	Section M2	
Section D	6	Section L3		Section M3	5
Section E	6	Section L4		Section M4	
Section F	1	Section L5		Section M5	1
Section G		Section L6		Section M6	4
Section H	1	Section L7		Section M7	
Section I				Section M8	
Section J				Section N	1
Section K				Section O	2

As a minimum, sections B, C, M, N and O must be completed for the application to be considered complete.

Please list below all insignificant activities required by APC-S-6, Section VII.B that apply to your facility.

(1) EMISSION POINT AA-003, REF. NOS. 21 AND 22, COMPRESSED AIR RECEIVERS, PER APC-S.VI.B.27

(2) EMISSION POINT AA-005, NATURAL GAS SPACE HEATERS (3), RATED AT 0.2 MMBTU/HR, PER S.VI.B.2.A

(3) EMISSION POINT AA-006, NATURAL GAS FIRED STEAM CLEANER, PER APC-S-6.IV.B.2.A

(4) EMISSION POINT AA-013, GASOLINE STORAGE TANK, PER APC-S-6.IV.B.7

(5) EMISSION PONT AA-014, DIESEL STORAGE TANK, PER APC-S-6.IV.B.7

(6) EMISSION POINT AA-015, NATURAL GAS SPACE HEATER (1), RATED AT 0.1 MMBTU/HR, PER APC-S-6.IV.B.2.A

(7) OUTDOOR KEROSENE HEATERS (5 UNITS), PER APC-S-6.IV.A.17

(8) EMERGENCY POWER GENERATORS, (3) AT 11 HP AND 6,000 WATTS, AND (3) AT 16 HP AND 8,000 WATTS, PER APC-S-6.IV.B.9

SECTION C RISK MANAGEMENT PLANS

If the source is required to develop and register a risk management plan pursuant to Section 112(r) of the Title III of the Clean Air Act, the permittee need only specify that it will comply with the requirement to register such a plan. The content of the risk management plan need not itself be incorporated as a permit term.

Please answer the following questions:

I. Are you required to develop and register a risk management plan pursuant to Section 112(r)?

Yes ___X___ No

Only if "yes", answer questions II., III., and/or IV.

II. Have you submitted the risk management plan to the appropriate agency (i.e. Mississippi Emergency Management Agency (MEMA), Federal Emergency Management Agency (FEMA), etc.)?

Yes ______ No

III. If yes, give agency name and date submitted. ______________________________

____

____

____

____

IV. If no, provide a schedule for developing and submitting the risk management plan to the appropriate agency and providing our agency with certification that this submittal was made.

____

____

____

____

FUEL BURNING EQUIPMENT (page 1 of 2) SECTION D

USE OF TREATED AND UNTREATED WOOD FUEL

1. Emission Point No. / Name: AA-001, REF. NO. 40, WOOD FIRED BOILER

2. Equipment Description: WELLONS 2 CELL COMBUSTION SYSTEM, BOILER, AND COGENERATION POWER UNIT

3. Was this unit constructed or modified after August 7, 1977? Yes __X__ No
If yes please give date and explain.

4. Capacity: 60.0 MMBTU/hr 5. Type of burner: FUEL CELL

6. Usage Type (i.e. Space Heat, Process, etc.) : PROCESS

7. Complete the following table, identifying each type of fuel and the amount used. Specify the units for heat content, hourly usage, and yearly usage.

FUEL TYPE	HEAT CONTENT	% SULFUR	% ASH	MAXIMUM HOURLY USAGE	ACTUAL YEARLY USAGE
TREATED WOOD RESIDUE	4,000-6,000 BTU/LB	0.25	5.0	8,760 HRS/YR	8,424 HRS/YR

8. Please list any fuel components that are hazardous air pollutants and the percentage in the fuel.
(APPROXIMATE AMOUNTS) 1% PENTACHLOROPHENOL; 15% CREOSOTE; 2% NAPHTHALENE

9. Operating Schedule: (Optional) 24 hours/day 7 days/week 52 weeks/year

10. Stack Data:
   - A. Height: 80 FT
   - B. Inside diameter: 3 FT
   - C. Exit gas velocity: 60 FT/SEC
   - D. Exit gas temperature: 471° F

11. UTM Coordinates:
   - A. Zone
   - B. North
   - C. East

12. POLLUTANT EMISSIONS:

USE OF TREATED AND UNTREATED WOOD FUEL

Example emission rate calculations, monitoring data, or stack test data must be attached in accordance with Operating Permit Application Requirements, pp. 3-5.

EMISSION POINT NO.	POLLUTANT (note 1)	CONTROL EQUIPMENT		ACTUAL EMISSION RATE (in accordance with Operating Permit Application Requirements, pp. 3-5)			PROPOSED ALLOWABLE EMISSION RATE (Optional)		
		* yes/no	effic.	note 2	lb/hr	tn/yr	note 2	lb/hr	tn/yr
AA-001	PARTICULATE	YES					0.3 GR/DSCF	10.60	46.41
	SO2	NO						12.02	52.65
	NOX	NO						14.16	62.01
	CO	NO						35.61	155.96
	VOC	NO						0.77	3.38
	HCL	NO						6.60	11.54
	TOTAL HAP METALS	NO						0.043	0.19

1. All regulated air pollutants including hazardous air pollutants emitted from this source should be listed. A list of regulated air pollutants has been provided in Section A.
2. Provide emission rate in units of applicable emission standard, e.g. lb/MMbtu, gr/dscf, etc. This may not apply to every emission point or every pollutant from an emission point.

* If yes, attach appropriate Air Pollution Control Data Sheet from Section L or manufacturers specifications if other.

FUEL BURNING EQUIPMENT (page 1 of 2) SECTION D

ALTERNATIVE OPERATING SCENARIO – USE OF UNTREATED WOOD FUEL ONLY

1. Emission Point No. / Name: AA-001, REF. NO. 40, WOOD FIRED BOILER

2. Equipment Description: WELLONS 2 CELL COMBUSTION SYSTEM, BOILER, AND COGENERATION POWER UNIT

3. Was this unit constructed or modified after August 7, 1977? Yes X No
If yes please give date and explain.

4. Capacity: 60.0 MMBTU/hr 5. Type of burner: FUEL CELL

6. Usage Type (i.e. Space Heat, Process, etc.) : PROCESS

7. Complete the following table, identifying each type of fuel and the amount used. Specify the units for heat content, hourly usage, and yearly usage.

FUEL TYPE	HEAT CONTENT	% SULFUR	% ASH	MAXIMUM HOURLY USAGE	ACTUAL YEARLY USAGE
UNTREATED WOOD AND BARK RESIDUE	4,000 BTU/LB	0.01	0.5	8,760 HRS/YR	

8. Please list any fuel components that are hazardous air pollutants and the percentage in the fuel.

9. Operating Schedule: (Optional) 24 hours/day 7 days/week 52 weeks/year

10. Stack Data:
A. Height: 80 FT C. Exit gas velocity: 70 FT/SEC
B. Inside diameter: 3 FT D. Exit gas temperature: 471° F

11. UTM Coordinates:
A. Zone B. North C. East

FUEL BURNING EQUIPMENT (page 2 of 2) — SECTION D

12. POLLUTANT EMISSIONS:

ALTERNATIVE OPERATING SCENARIO – BURNING UNTREATED WOOD ONLY

Example emission rate calculations, monitoring data, or stack test data must be attached in accordance with Operating Permit Application Requirements, pp. 3-5.

EMISSION POINT NO.	POLLUTANT (note 1)	CONTROL EQUIPMENT		ACTUAL EMISSION RATE (in accordance with Operating Permit Application Requirements, pp. 3-5)			PROPOSED ALLOWABLE EMISSION RATE (Optional)		
		* yes/no	effic.	note 2	lb/hr	tn/yr	note 2	lb/hr	tn/yr
AA-001	PARTICULATE	YES					0.3 GR/DSCF	28.0	122.65
	SO2	NO						0.50	2.19
	NOX	NO						10.67	46.72
	CO	NO						44.0	192.73
	VOC	NO						1.20	5.26
	HCL	NO						0.00	0.00
	TOTAL HAP METALS	NO						0.067	0.29

1. All regulated air pollutants including hazardous air pollutants emitted from this source should be listed. A list of regulated air pollutants has been provided in Section A.
2. Provide emission rate in units of applicable emission standard, e.g. lb/MMbtu, gr/dscf, etc. This may not apply to every emission point or every pollutant from an emission point.

* If yes, attach appropriate Air Pollution Control Data Sheet from Section L or manufacturers specifications if other.

FUEL BURNING EQUIPMENT (page 1 of 2) SECTION D

1. Emission Point No. / Name: AA-002, REF. NO. 41, OIL FIRED BOILER

2. Equipment Description: BACKUP SERVICE BOILER

3. Was this unit constructed or modified after August 7, 1977? Yes ___ X ___ No
If yes please give date and explain.

4. Capacity: 28.5 MMBTU/hr 5. Type of burner: ATOMIZING OIL

6. Usage Type (i.e. Space Heat, Process, etc.) : PROCESS

7. Complete the following table, identifying each type of fuel and the amount used. Specify the units for heat content, hourly usage, and yearly usage.

FUEL TYPE	HEAT CONTENT	% SULFUR	% ASH	MAXIMUM HOURLY USAGE	ACTUAL YEARLY USAGE
#2 OIL	140,000 BTU/GAL	0.50	1.6	204 GAL/HR	100,000 GAL

8. Please list any fuel components that are hazardous air pollutants and the percentage in the fuel.
NONE

9. Operating Schedule: (Optional) 24 hours/day 7 days/week 2 weeks/year

10. Stack Data:
A. Height: 36 FT C. Exit gas velocity: 32 FT/SEC
B. Inside diameter: 2.5 FT D. Exit gas temperature: 570° F

11. UTM Coordinates:
A. Zone B. North C. East

12. POLLUTANT EMISSIONS:

Example emission rate calculations, monitoring data, or stack test data must be attached in accordance with Operating Permit Application Requirements, pp. 3-5.

EMISSION POINT NO.	POLLUTANT (note 1)	CONTROL EQUIPMENT		ACTUAL EMISSION RATE (in accordance with Operating Permit Application Requirements, pp. 3-5)			PROPOSED ALLOWABLE EMISSION RATE (Optional)		
		* yes/no	effic.	note 2	lb/hr	tn/yr	note 2	lb/hr	tn/yr
AA-002 (SEE NOTE BELOW)	PARTICULATE	NO						0.41	1.79
	S02	NO						14.48	63.44
	NOX	NO						4.08	17.87
	CO	NO						1.02	4.47
	VOC	NO						0.04	0.18

NOTE: THIS BOILER WILL NOT OPERATE AT THE SAME TIME AS SOURCE AA-001 (WOOD FIRED BOILER). THIS BOILER IS FOR BACKUP SERVICE ONLY.

1. All regulated air pollutants including hazardous air pollutants emitted from this source should be listed. A list of regulated air pollutants has been provided in Section A.
2. Provide emission rate in units of applicable emission standard, e.g. lb/MMbtu, gr/dscf, etc. This may not apply to every emission point or every pollutant from an emission point.

* If yes, attach appropriate Air Pollution Control Data Sheet from Section L or manufacturers specifications if other.

FUEL BURNING EQUIPMENT (page 1 of 2) SECTION D

1. Emission Point No. / Name: AA-005, REF. NO. 43, NATURAL GAS SPACE HEATER

2. Equipment Description: SPACE HEATERS USED IN PLANT BUILDINGS. (3) UNITS LOCATED IN BOILER HOUSE

3. Was this unit constructed or modified after August 7, 1977? Yes X No
   If yes please give date and explain.

4. Capacity: 0.20 MMBTU/hr 5. Type of burner: NATURAL GAS

6. Usage Type (i.e. Space Heat, Process, etc.) : SPACE HEAT

7. Complete the following table, identifying each type of fuel and the amount used. Specify the units for heat content, hourly usage, and yearly usage.

FUEL TYPE	HEAT CONTENT	% SULFUR	% ASH	MAXIMUM HOURLY USAGE	ACTUAL YEARLY USAGE
NATURAL GAS	1,000 BTU/CF			320 CF/HR	645 MCF

8. Please list any fuel components that are hazardous air pollutants and the percentage in the fuel.
   NONE

9. Operating Schedule: (Optional) 24 hours/day 7 days/week 12 weeks/year

10. Stack Data:
    A. Height: NA C. Exit gas velocity: NA
    B. Inside diameter: NA D. Exit gas temperature: NA

11. UTM Coordinates:
    A. Zone B. North C. East

FUEL BURNING EQUIPMENT (page 2 of 2) SECTION D

12. POLLUTANT EMISSIONS:

Example emission rate calculations, monitoring data, or stack test data must be attached in accordance with Operating Permit Application Requirements, pp. 3-5.

EMISSION POINT NO.	POLLUTANT (note 1)	CONTROL EQUIPMENT		ACTUAL EMISSION RATE (in accordance with Operating Permit Application Requirements, pp. 3-5)			PROPOSED ALLOWABLE EMISSION RATE (Optional)		
		* yes/no	effic.	note 2	lb/hr	tn/yr	note 2	lb/hr	tn/yr
AA-005	PM							0.00	0.00
	SO2							0.00	0.00
	NOX							0.06	0.25
	CO							0.02	0.10
	VOC							0.01	0.03

1. All regulated air pollutants including hazardous air pollutants emitted from this source should be listed. A list of regulated air pollutants has been provided in Section A.
2. Provide emission rate in units of applicable emission standard, e.g. lb/MMbtu, gr/dscf, etc. This may not apply to every emission point or every pollutant from an emission point.

* If yes, attach appropriate Air Pollution Control Data Sheet from Section L or manufacturers specifications if other.

FUEL BURNING EQUIPMENT (page 1 of 2) — SECTION D

1. Emission Point No. / Name: AA-006, REF. NO. 44, NATURAL GAS FIRED STEAM CLEANER

2. Equipment Description: WATER HEATER FOR STEAM CLEANER USED FOR EQUIPMENT CLEANING

3. Was this unit constructed or modified after August 7, 1977? X Yes ______ No
If yes please give date and explain. 1992

4. Capacity: 0.44 MMBTU/hr   5. Type of burner: NATURAL GAS

6. Usage Type (i.e. Space Heat, Process, etc.) : PROCESS

7. Complete the following table, identifying each type of fuel and the amount used. Specify the units for heat content, hourly usage, and yearly usage.

FUEL TYPE	HEAT CONTENT	% SULFUR	% ASH	MAXIMUM HOURLY USAGE	ACTUAL YEARLY USAGE
NATURAL GAS	1,000 BTU/CF	0.0	0.0	8,760 HR/YR	2,000 HR/YR

8. Please list any fuel components that are hazardous air pollutants and the percentage in the fuel.
NONE

9. Operating Schedule: (Optional) 8 hours/day 5 days/week 50 weeks/year

10. Stack Data:
A. Height: NA   C. Exit gas velocity: NA
B. Inside diameter: NA   D. Exit gas temperature: NA

11. UTM Coordinates:
A. Zone   B. North   C. East ______

FUEL BURNING EQUIPMENT (page 2 of 2) SECTION D

12. POLLUTANT EMISSIONS:

Example emission rate calculations, monitoring data, or stack test data must be attached in accordance with Operating Permit Application Requirements, pp. 3-5.

EMISSION POINT NO.	POLLUTANT (note 1)	CONTROL EQUIPMENT		ACTUAL EMISSION RATE (in accordance with Operating Permit Application Requirements, pp. 3-5)			PROPOSED ALLOWABLE EMISSION RATE (Optional)		
		yes/no *	effic.	note 2	lb/hr	tn/yr	note 2	lb/hr	tn/yr
AA-006	PM							0.01	0.02
	SO2							0.00	0.00
	NOX							0.04	0.19
	CO							0.01	0.04
	VOC							0.00	0.01

1. All regulated air pollutants including hazardous air pollutants emitted from this source should be listed. A list of regulated air pollutants has been provided in Section A.
2. Provide emission rate in units of applicable emission standard, e.g. lb/MMbtu, gr/dscf, etc. This may not apply to every emission point or every pollutant from an emission point.

* If yes, attach appropriate Air Pollution Control Data Sheet from Section L or manufacturers specifications if other.

FUEL BURNING EQUIPMENT (page 1 of 2) SECTION D

1. Emission Point No. / Name: AA-015, REF. NO. 53, NATURAL GAS SPACE HEATER

2. Equipment Description: SPACE HEATER USED IN PLANT BUILDINGS (1) UNIT

3. Was this unit constructed or modified after August 7, 1977? Yes X No
   If yes please give date and explain.

4. Capacity: 0.1 MMBTU/hr 5. Type of burner: NATURAL GAS

6. Usage Type (i.e. Space Heat, Process, etc.) : SPACE HEAT

7. Complete the following table, identifying each type of fuel and the amount used. Specify the units for heat content, hourly usage, and yearly usage.

FUEL TYPE	HEAT CONTENT	% SULFUR	% ASH	MAXIMUM HOURLY USAGE	ACTUAL YEARLY USAGE
NATURAL GAS	1,000 BTU/CF	0.0	0.0	107 CF/HR	215 MCF

8. Please list any fuel components that are hazardous air pollutants and the percentage in the fuel.
   NONE

9. Operating Schedule: (Optional) 24 hours/day 7 days/week 12 weeks/year

10. Stack Data:
    A. Height: NA C. Exit gas velocity: NA
    B. Inside diameter: NA D. Exit gas temperature: NA

11. UTM Coordinates:
    A. Zone B. North C. East

12. POLLUTANT EMISSIONS:

Example emission rate calculations, monitoring data, or stack test data must be attached in accordance with Operating Permit Application Requirements, pp. 3-5.

EMISSION POINT NO.	POLLUTANT (note 1)	CONTROL EQUIPMENT		ACTUAL EMISSION RATE (in accordance with Operating Permit Application Requirements, pp. 3-5)			PROPOSED ALLOWABLE EMISSION RATE (Optional)		
		yes/no *	effic.	note 2	lb/hr	tn/yr	note 2	lb/hr	tn/yr
AA-015	PM							0.00	0.00
	SO2							0.00	0.00
	NOX							0.00	0.01
	CO							0.00	0.01
	VOC							0.00	0.00

1. All regulated air pollutants including hazardous air pollutants emitted from this source should be listed. A list of regulated air pollutants has been provided in Section A.
2. Provide emission rate in units of applicable emission standard, e.g. lb/MMbtu, gr/dscf, etc. This may not apply to every emission point or every pollutant from an emission point.

* If yes, attach appropriate Air Pollution Control Data Sheet from Section L or manufacturers specifications if other.

MANUFACTURING PROCESSES (page 1 of 2) SECTION E

1. Emission Point No./ Name: AA-003, WOOD PRESERVING PROCESS

2. Process Description: PRESSURE TREATMENT OF UTILITY POLES WITH PENTACHLOROPHENOL OR CREOSOTE, AND RAILROAD CROSSTIES WITH CREOSOTE

3. Was this unit constructed or modified after August 7, 1977? ______ yes __X__ no
If yes please give date and explain.

4. Capacity (tons/hr): 7,000,000 CF WOOD PRODUCTS PER YEAR

5. Raw Material Input:

MATERIAL	QUANTITY/HR AVERAGE	QUANTITY/HR MAXIMUM	QUANTITY/YEAR
WOOD	342 CF	800CF	UP TO 7,000,000 CF

6. Product Output:

PRODUCT or BY-PRODUCT	QUANTITY/HR AVERAGE	QUANTITY/HR MAXIMUM	QUANTITY/YEAR
TREATED WOOD	342 CF	800 CF	UP TO 7,000,000 CF

7. Stack Data:
A. Height: NA
B. Inside diameter: NA
C. Exit gas velocity: NA
D. Exit gas temperature: NA

8. UTM Coordinates:
A. Zone ______
B. North ______
C. East ______

13. POLLUTANT EMISSIONS:

Example emission rate calculations, monitoring data, or stack test data must be attached in accordance with Operating Permit Application Requirements, pp. 3-5.

EMISSION POINT NO.	POLLUTANT (note 1)	CONTROL EQUIPMENT		ACTUAL EMISSION RATE (in accordance with Operating Permit Application Requirements, pp. 3-5)			PROPOSED ALLOWABLE EMISSION RATE (Optional)		
		* yes/no	effic.	note 2	lb/hr	tn/yr	note 2	lb/hr	tn/yr
AA-003	VOC	NO						6.58	28.18
	NAPHTHALENE	NO						0.40	1.77
	QUINOLINE	NO						0.02	0.08
	BIPHENYL	NO						0.01	0.06
	DIBENZOFURAN	NO						0.03	0.15
	PENTACHLOROPHENOL	NO						0.00	0.01

1. All regulated air pollutants including hazardous air pollutants emitted from this source should be listed in accordance with Operating Permit Application Requirements, pp. 3-5. A list of regulated air pollutants has been provided in Section A.
2. Provide emission rate in units of applicable emission standard, e.g. lb/MMbtu, gr/dscf, etc. This may not apply to every emission point or every pollutant from an emission point.

* If yes, attach appropriate Air Pollution Control Data Sheet from Section L or manufacturers specifications if other.

MANUFACTURING PROCESSES (page 1 of 2) SECTION E

1. Emission Point No./ Name: AA-004, REF. NO. 42, CYCLONES FOR WOOD MILLING

2. Process Description: DUST COLLECTION FROM UNTREATED WOOD MILLING AND CUTTING

3. Was this unit constructed or modified after August 7, 1977? _________ yes ____X_____no
If yes please give date and explain. ____________

4. Capacity (tons/hr): ____________

5. Raw Material Input:

MATERIAL	QUANTITY/HR AVERAGE	QUANTITY/HR MAXIMUM	QUANTITY/YEAR
ROUGH CUT WOOD PRODUCTS			2,000,000 CF

6. Product Output:

PRODUCT or BY-PRODUCT	QUANTITY/HR AVERAGE	QUANTITY/HR MAXIMUM	QUANTITY/YEAR
TRIMMED AND SHAPED UNTREATED WOOD PRODUCTS			2,000,000 CF

7. Stack Data:
   A. Height: NA
   B. Inside diameter: NA
   C. Exit gas velocity: NA
   D. Exit gas temperature: NA

8. UTM Coordinates:
   A. Zone ______
   B. North ______
   C. East ______

13. POLLUTANT EMISSIONS:

Example emission rate calculations, monitoring data, or stack test data must be attached in accordance with Operating Permit Application Requirements, pp. 3-5.

EMISSION POINT NO.	POLLUTANT (note 1)	CONTROL EQUIPMENT		ACTUAL EMISSION RATE (in accordance with Operating Permit Application Requirements, pp. 3-5)			PROPOSED ALLOWABLE EMISSION RATE (Optional)		
		yes/no *	effic.	note 2	lb/hr	tn/yr	note 2	lb/hr	tn/yr
AA-004	PARTICULATE	YES						0.55	2.40

1. All regulated air pollutants including hazardous air pollutants emitted from this source should be listed in accordance with Operating Permit Application Requirements, pp. 3-5. A list of regulated air pollutants has been provided in Section A.
2. Provide emission rate in units of applicable emission standard, e.g. lb/MMbtu, gr/dscf, etc. This may not apply to every emission point or every pollutant from an emission point.

* If yes, attach appropriate Air Pollution Control Data Sheet from Section L or manufacturers specifications if other.

MANUFACTURING PROCESSES (page 1 of 2) SECTION E

1. Emission Point No./ Name: AA-008, REF. NO. 46, TREATED WOOD STORAGE

2. Process Description: STORAGE AND HANDLING OF TREATED WOOD PRODUCTS FOLLOWING TREATMENT AND PRIOR TO SHIPMENT

3. Was this unit constructed or modified after August 7, 1977? ______ yes __X__ no
   If yes please give date and explain. ______

4. Capacity (tons/hr): NA

5. Raw Material Input:

MATERIAL	QUANTITY/HR AVERAGE	QUANTITY/HR MAXIMUM	QUANTITY/YEAR

6. Product Output:

PRODUCT or BY-PRODUCT	QUANTITY/HR AVERAGE	QUANTITY/HR MAXIMUM	QUANTITY/YEAR
TREATED POLES			UP TO 5,000,000 CF
TREATED TIES			2,000,000 CF
TOTAL TREATED WOOD			UP TO 7,000,000 CF

7. Stack Data:
   A. Height: NA
   B. Inside diameter: NA
   C. Exit gas velocity: NA
   D. Exit gas temperature: NA

8. UTM Coordinates:
   A. Zone ______
   B. North ______
   C. East ______

MANUFACTURING PROCESSES (page 2 of 2) — SECTION E

13. POLLUTANT EMISSIONS:

Example emission rate calculations, monitoring data, or stack test data must be attached in accordance with Operating Permit Application Requirements, pp. 3-5.

EMISSION POINT NO.	POLLUTANT (note 1)	CONTROL EQUIPMENT		ACTUAL EMISSION RATE (in accordance with Operating Permit Application Requirements, pp. 3-5)			PROPOSED ALLOWABLE EMISSION RATE (Optional)		
		Yes/no *	effic.	note 2	lb/hr	tn/yr	note 2	lb/hr	tn/yr
AA-008	VOC	NO						6.30	27.63
	NAPHTHALENE	NO						0.88	3.88
	QUINOLINE	NO						0.04	0.17
	BIPHENYL	NO						0.13	0.57
	DIBENZOFURAN	NO						0.08	0.33
	PENTACHLOROPHENOL	NO						0.00	0.00

1. All regulated air pollutants including hazardous air pollutants emitted from this source should be listed in accordance with Operating Permit Application Requirements, pp. 3-5. A list of regulated air pollutants has been provided in Section A.
2. Provide emission rate in units of applicable emission standard, e.g. lb/MMbtu, gr/dscf, etc. This may not apply to every emission point or every pollutant from an emission point.

* If yes, attach appropriate Air Pollution Control Data Sheet from Section L or manufacturers specifications if other.

MANUFACTURING PROCESSES (page 1 of 2) SECTION E

1. Emission Point No./ Name: AA-009, REF. NO. 47, POLE KILN

2. Process Description: DRY WOOD POLES PRIOR TO TREATMENT

3. Was this unit constructed or modified after August 7, 1977? ________ yes ____X____ no
If yes please give date and explain.

4. Capacity (tons/hr): 13,000 CF PER BATCH

5. Raw Material Input:

MATERIAL	QUANTITY/HR AVERAGE	QUANTITY/HR MAXIMUM	QUANTITY/YEAR
GREEN WOOD POLES			1,600,000 CF

6. Product Output:

PRODUCT or BY-PRODUCT	QUANTITY/HR AVERAGE	QUANTITY/HR MAXIMUM	QUANTITY/YEAR
DRY WOOD POLES			1,600,000 CF

7. Stack Data:
   A. Height: NA
   B. Inside diameter: NA
   C. Exit gas velocity: NA
   D. Exit gas temperature: NA

8. UTM Coordinates:
   A. Zone ______
   B. North ______
   C. East ______

13. POLLUTANT EMISSIONS:

Example emission rate calculations, monitoring data, or stack test data must be attached in accordance with Operating Permit Application Requirements, pp. 3-5.

EMISSION POINT NO.	POLLUTANT (note 1)	CONTROL EQUIPMENT		ACTUAL EMISSION RATE (in accordance with Operating Permit Application Requirements, pp. 3-5)			PROPOSED ALLOWABLE EMISSION RATE (Optional)		
		* yes/no	effic.	note 2	lb/hr	tn/yr	note 2	lb/hr	tn/yr
AA-009	VOC	NO						9.03	40.00

1. All regulated air pollutants including hazardous air pollutants emitted from this source should be listed in accordance with Operating Permit Application Requirements, pp. 3-5. A list of regulated air pollutants has been provided in Section A.
2. Provide emission rate in units of applicable emission standard, e.g. lb/MMbtu, gr/dscf, etc. This may not apply to every emission point or every pollutant from an emission point.

* If yes, attach appropriate Air Pollution Control Data Sheet from Section L or manufacturers specifications if other.

MANUFACTURING PROCESSES (page 1 of 2) SECTION E

1. Emission Point No./ Name: AA-010, REF. NO. 48, POLE PEELER

2. Process Description: REMOVE BARK AND CAMBIUM LAYER FROM PINE LOGS TO PRODUCE WHITE POLES

3. Was this unit constructed or modified after August 7, 1977? ______ yes __X__ no
If yes please give date and explain. ______

4. Capacity (tons/hr): 9.9

5. Raw Material Input:

MATERIAL	QUANTITY/HR AVERAGE	QUANTITY/HR MAXIMUM	QUANTITY/YEAR
BARKED LOGS	22 PIECES	22 PIECES	22,500 PIECES

6. Product Output:

PRODUCT or BY-PRODUCT	QUANTITY/HR AVERAGE	QUANTITY/HR MAXIMUM	QUANTITY/YEAR
WHITE POLES	22 PIECES	22 PIECES	22,500 PIECES
BARKED AND WOOD CHIPS	5.5 TONS/HR	5.5 TONS/HR	5,000 TONS/YR

7. Stack Data:
   - A. Height: NA
   - B. Inside diameter: NA
   - C. Exit gas velocity: NA
   - D. Exit gas temperature: NA

8. UTM Coordinates:
   - A. Zone ______
   - B. North ______
   - C. East ______

13. POLLUTANT EMISSIONS:

Example emission rate calculations, monitoring data, or stack test data must be attached in accordance with Operating Permit Application Requirements, pp. 3-5.

EMISSION POINT NO.	POLLUTANT (note 1)	CONTROL EQUIPMENT		ACTUAL EMISSION RATE (in accordance with Operating Permit Application Requirements, pp. 3-5)			PROPOSED ALLOWABLE EMISSION RATE (Optional)		
		yes/no *	effic.	note 2	lb/hr	tn/yr	note 2	lb/hr	tn/yr
AA-010	PARTICULATE	NO						3.47	3.94

1. All regulated air pollutants including hazardous air pollutants emitted from this source should be listed in accordance with Operating Permit Application Requirements, pp. 3-5. A list of regulated air pollutants has been provided in Section A.
2. Provide emission rate in units of applicable emission standard, e.g. lb/MMbtu, gr/dscf, etc. This may not apply to every emission point or every pollutant from an emission point.

* If yes, attach appropriate Air Pollution Control Data Sheet from Section L or manufacturers specifications if other.

MANUFACTURING PROCESSES (page 1 of 2) SECTION E

1. Emission Point No./ Name: AA-011, REF. NO. 49, WOOD FUEL PREPARATION AND HANDLING

2. Process Description: PREPARATION OF WOOD FUEL FOR BOILER, INCLUDING GRINDING, HANDLING, AND LOADING INTO SILO ON CONVEYORS

3. Was this unit constructed or modified after August 7, 1977? ______ yes __X__ no
   If yes please give date and explain. ______

4. Capacity (tons/hr): 12

5. Raw Material Input:

MATERIAL	QUANTITY/HR AVERAGE	QUANTITY/HR MAXIMUM	QUANTITY/YEAR
WOOD RESIDUE	8 TONS	12 TONS	58,403 TONS

6. Product Output:

PRODUCT or BY-PRODUCT	QUANTITY/HR AVERAGE	QUANTITY/HR MAXIMUM	QUANTITY/YEAR
WOOD CHIPS AND SAWDUST	8 TONS	12 TONS	58,403 TONS

7. Stack Data:
   A. Height: NA
   B. Inside diameter: NA
   C. Exit gas velocity: NA
   D. Exit gas temperature: NA

8. UTM Coordinates:
   A. Zone ______
   B. North ______
   C. East ______

13. POLLUTANT EMISSIONS:

Example emission rate calculations, monitoring data, or stack test data must be attached in accordance with Operating Permit Application Requirements, pp. 3-5.

EMISSION POINT NO.	POLLUTANT (note 1)	CONTROL EQUIPMENT		ACTUAL EMISSION RATE (in accordance with Operating Permit Application Requirements, pp. 3-5)			PROPOSED ALLOWABLE EMISSION RATE (Optional)		
		yes/no *	effic.	note 2	lb/hr	tn/yr	note 2	lb/hr	tn/yr
AA-011	PARTICULATE	NO						3.00	7.30

1. All regulated air pollutants including hazardous air pollutants emitted from this source should be listed in accordance with Operating Permit Application Requirements, pp. 3-5. A list of regulated air pollutants has been provided in Section A.
2. Provide emission rate in units of applicable emission standard, e.g. lb/MMbtu, gr/dscf, etc. This may not apply to every emission point or every pollutant from an emission point.

* If yes, attach appropriate Air Pollution Control Data Sheet from Section L or manufacturers specifications if other.

SECTION F COATING, SOLVENT USAGE, and/or DEGREASING (page 1 of 5)

NOTE: For emission sources of volatile organic compounds (VOC's) including spray booths, painting, degreasing, finishing, gluing and solvent usage.

COMPLETE AND ATTACH THE APPROPRIATE AIR POLLUTION CONTROL DEVICE FORM.

1. Emission Point No./ Name: AA-012, REF. NO. 50, (2) PARTS CLEANER/DEGREASER'S

2. Process Description (INDICATE NO. OF IDENTICAL PROCESSES-BOOTHS, DIP TANKS, DEGREASING TANKS, FINISHING LINES, ETC.):

   2 EACH, SAFETY KLEEN INC. PARTS CLEANERS

3. Were any of these units constructed or modified after August 7, 1977? ________ yes ________no
   If yes please give date and explain. ________

4. COATING: NA

   A. Describe Articles Coated: ________

   B. Operating Schedule (Optional)

      1. Maximum: Hours/Day Days/Week ________ Weeks/Year
      2. Average: Hours/Day Days/Week ________ Weeks/Year

   C. Bake ovens: Type of oven: For direct fired ovens:

      Number of Ovens:________ ( ) Steam ( ) direct fired ( ) Electric ( ) Other______ Heat input MMBTU/hr________ Fuel type

5. SPRAY BOOTHS: NA

   A. Width (ft) Height ________ (ft)
      Depth (ft) No. Open Sides ________

   B. Operating Schedule

      1. Maximum: Hours/Day Days/Week ________ Weeks/Year
      2. Average: Hours/Day Days/Week ________ Weeks/Year

   C. Method of Spray:
      ( ) Airless ( ) Air Atomize ( ) Electrostatic ( ) Other: ________
      Overspray ________ %

   D. Exhaust Fan Data:

      No. of Fans Total Horsepower Total Volume (cfm)________

SECTION F COATING, SOLVENT USAGE, and/or DEGREASING (page 2 of 5)

E. Exhaust Control:

( ) None
( ) Waterwash
( ) Adsorption
( ) Incineration
( ) Baffles
( ) Dry Filter
( ) Other: ____________

Control Efficiency:

Particulate %
Hydrocarbon %

Exhaust Stack Data:

Diameter ____ (FT)
Height ____ (FT)
Flow ____ (CFM)

6. DEGREASING:

A. Describe articles degreased. Include surface area of parts degreased in square feet per hour (ft^2/hr) and square feet per year (ft^2/yr).

MAINTENANCE PARTS CLEANING, ONLY PERIODIC USE

B. Type of degreasing:

1. Cold Solvent X No. of Units 2

2. Vapor ____

1. Oven top conveyor No. of Units ____
2. Conveyorized non-boiling No. of Units ____
3. Conveyorized vapor No. of Units ____
4. Other ____________

C. Tank Dimensions (ft):

Width 2 (ft) Height 1 (ft) Length 3 (ft)

D. Operating Schedule (Optional)

1. Maximum: Hours/Day 2 7 Days/Week 52 Weeks/Year

2. Average: 1 Hours/Day 4 Days/Week 40 Weeks/Year

7. UTM Coordinates:

A. Zone B. North C. East ____

SECTION F COATING, SOLVENT USAGE, and/or DEGREASING (page 3 of 5)

12. List all Volatile Organic Compounds (coatings, thinners, lacquers, solvents, degreasers, etc.) as used in accordance with Operating Permit Application Requirements, pp. 3-5:

LINE ID	PRODUCT NAME	DENSITY (lbs/gallon)	PERCENT VOLATILE	AMOUNT RECLAIMED/ RETURNED* (gallons/yr)	PRODUCT USAGE **		MAXIMUM VOC EMISSION RATES	
					AVG.	MAX	(lbs/hr)	(tons/yr)
50	SAFETY KLEEN INC.- SOLVENT	6.6	100	90-100	24 GAL/YR	50 GAL/YR	0.20	0.66

USE SEPARATE SHEET(S) IF NEEDED.

* SEE ITEM 15 ON PAGE 5 OF THIS SECTION FOR RECLAMATION CREDIT AND DOCUMENTATION REQUIRED.
** PRODUCT USAGE SHOULD NOT INCLUDE THOSE AMOUNTS RETURNED TO THE SUPPLIER, RECYCLED, OR REUSED.

SECTION F COATING, SOLVENT USAGE, and/or DEGREASING (page 4 of 5)

13. List all Hazardous Air Pollutants (HAP'S) found in each product:

PRODUCT NAME	HAZARDOUS AIR POLLUTANT	CAS NUMBER	MAXIMUM PRODUCT USAGE ** (LBS/HR)	PERCENT HAP	MAXIMUM HAP EMISSION RATES (in accordance with Operating Permit Application Requirements, pp. 3-5) (LBS/HR)	(TONS/YR)
SAFETY KLEEN PETROLEUM DISTILLATE SOLVENT	VOC	644742-47-8	0.20	100	0.00	0.66

USE SEPARATE SHEET(S) IF NEEDED.

** PRODUCT USAGE SHOULD NOT INCLUDE THOSE AMOUNTS RETURNED TO THE SUPPLIER, RECYCLED, OR REUSED.

SECTION F COATING, SOLVENT USAGE, and/or DEGREASING

14. Describe the storage and handling methods used in employing products listed in tables No. 12 &13. Include disposal methods of the collected waste.

SOLVENT RECEIVED IN CLOSED CONTAINERS, USED IN CLEANERS, AND RECYCLED BACK TO MANUFACTURER

15. List reclaimed material: MATERIAL TYPES INCLUDE COATINGS, THINNERS, SOLVENTS, DEGREASERS, LACQUERS, ETC.

PRODUCT/MATERIAL TYPE	QUANTITY USED (GAL/YR)	QUANTITY RECLAIMED (GAL/YR)
NO ON SITE RECLAMATION		

Describe methods that the products listed above are reclaimed, including how they are captured and reused or returned.

* PLEASE NOTE THAT MATERIAL RECLAIMED WILL ONLY BE CREDITED IF PROPERLY DOCUMENTED.

SECTION H TANK SUMMARY (page 1 of 2)

1. Emission Point No./Name: AA-003, ALL RELATED TANK DATA INCLUDED IN TANK SUMMARY DATA SPREADSHEET (FOLLOWING PAGES)

2. Was this tank constructed or modified after August 7, 1977? ________ yes ________no
   If yes please give date and explain. ________________________________

3. Product Stored: ________________________________
   If more than one product is stored, provide the information in 4.A-E for each product.

4. Tank Data:

   A. True Vapor Pressure at storage temperature: ______ psia/°F
   B. Reid Vapor Pressure at storage temperature: ______ psia/°F
   C. Density of product at storage temperature: ______ lb/gal
   D. Molecular Weight of product vapor at storage temperature: ______ lb/lbmol
   E. Throughput for most recent calendar year: ______ gal/yr
   F. Tank Capacity: ______ gal
   G. Tank Diameter: ______ feet
   H. Tank Height / Length: ______ feet
   I. Average Vapor Space Height: ______ feet
   J. Tank Orientation: ______Vertical or Horizontal
   K. Type of Roof: ______ Dome or Cone
   L. Is the Tank Equipped with a Vapor Recovery System? Yes______ No
      If Yes, describe on separate sheet of paper and attach. Indicate efficiency.
   M. Check the Type of Tank:
      Fixed Roof ______ External Floating Roof
      Pressure ______ Internal Floating Roof
      ______ Variable Vapor Space
      Other, describe: ________________________________
   N. Check the Closest City:
      Jackson, MS ______ Birmingham, AL
      Memphis, TN ______ Montgomery, AL
      New Orleans, LA ______ Baton Rouge, LA
   O Check the Tank Paint Color:
      ______ Aluminum Specular Gray Light
      Aluminum Diffuse ______ Gray Medium
      Red ______ White
      Other, describe: ________________________________
   P. Tank Paint Condition: ______ Good or Poor
   Q. Check Type of Tank Loading
      1. Trucks and Rail Cars
         ______ Submerged Loading of clean cargo tank
         ______ Submerged Loading : Dedicated Normal Service
         ______ Submerged Loading : Dedicated Vapor Balance Service
         ______ Splash Loading of clean cargo tank
         ______ Splash Loading : Dedicated Normal Service
         ______ Splash Loading : Dedicated Vapor Balance Service
      2. Marine Vessels
         ______ Submerged Loading: Ships
         Submerged Loading: Barges

SECTION H TANK SUMMARY (page 2 of 2)

R. For External Floating Roof Tanks

1. Check the Type of Tank Seal:

   Mechanical Shoe

   _______ Primary Seal Only

   _______ With Shoe-Mounted Secondary Seal

   _______ With Rim-Mounted Secondary Seal

   Liquid Mounted Resilient Seal

   _______ Primary Seal Only

   _______ With Shoe-Mounted Secondary Seal

   _______ With Rim-Mounted Secondary Seal

   Vapor Mounted Resilient Seal

   _______ Primary Seal Only

   _______ With Shoe-Mounted Secondary Seal

   _______ With Rim-Mounted Secondary Seal

2. Type of External Floating Roof: _______ Pontoon

   _______ Double-Deck

S. For Internal Floating Roof Tanks

1. Check the Type of Tank Seal:

   Liquid Mounted Resilient Seal

   _______ Primary Seal Only

   _______ With Rim-Mounted Secondary Seal

   Vapor Mounted Resilient Seal

   _______ Primary Seal Only

   _______ With Rim-Mounted Secondary Seal

2. Number of Roof Columns: _______
3. Length of Deck Seam _______ feet:
4. Area of Deck: _______ $feet^2$
5. Effective Column Diameter: _______ feet
6. Check the Type of Tank:

   _______ Bolted with Column Supported Roof

   _______ Welded with Column Supported Roof

   _______ Bolted with Self-Supported Roof

   _______ Welded with Self-Supported Roof

5. Emissions Summary
   1. Breathing Loss: lb/hr _______ TPY
   2. Working Loss: lb/hr _______ TPY
   3. Total Emissions: lb/hr _______ TPY
6. UTM Coordinates: _______

   A. Zone _______ B. North _______ C. East _______

SECTION H
TANK SUMMARY TABLE

Section H Reference	Item	Units											
	Plant Reference Number		GRN-06	GRN-07	GRN-08	GRN-09	GRN-10	GRN-11	GRN-12	GRN-13	GRN-14	GRN-15	GRN-16
1	Emission Point Number		AA-003	AA-003	AA-003	AA-003	AA-003	AA-003	AA-003	AA-003	AA-003	AA-003	AA-003
	Reference No. (Table 2.1)		6	7	8	9	10	11	12	13	14	15	16
	Name		#1 Work Tank	#2 Work Tank	#3 Work Tank	#4 Work Tank	#5 Work Tank	Creosote Measuring Tank	#1 Creosote Storage Tank	#2 Surge Tank	#5 Storage Tank	#8 Storage Tank	#10 Surge Tank
2	Construction Date		1903	1903	1979	1950	1930	1950	1903	1903	1903	1903	1903
3	Material Stored		Oil / Pentachlorophenol	Creosote	Creosote	Creosote	Pentachlorophenol Cr	Creosote	Creosote	Process Water	#2 Diesel Fuel	Creosote	Process Water
4A	Temperature	psia											
4B	Temperature	psia											
	Storage Temperature	Degrees F	150	200	200	200	150	200	200	60	60	150	60
4C	Density @ Storage Temperature	lb/gal	7.75	9.25	9.25	8.95	7.75	8.95	8.95	8.34	7.1	9.25	8.34
4D	Molecular Weight @ Storage Temperature	lb/lbmole											
4E	Throughput	gallons/yr	8,500,000	8,200,000	8,200,000	6,500,000	8,500,000	740,000	740,000	1,600,000	127,500	660,000	1,400,000
4F	Tank Capacity	gallons	29,786	29,786	29,786	22,419	29,786	4,200	100,000	100,000	100,000	105,000	300,000
4G	Tank Diameter	feet	13	13	13	6	13	6	29	26	27	30	40
4H	Tank Height / Length	feet	30	30	30	108	30	20	24	24	24	20	32
4I	Average Vapor Space Height	feet	1	1	1	1	1	1	1	1	1	1	1
4J	Tank Orientation (Horizontal or Vertical)		Vertical	Vertical	Vertical	Horizontal	Vertical	Vertical	Vertical	Vertical	Vertical	Vertical	Vertical
4K	Type of Roof (Dome or Cone)		Dome	Dome	Dome		Dome	Dome	Cone	Cone	Cone	Cone	Cone
4L	Vapor Recovery System?	yes or no	No	No	No	No	No	No	No	No	No	No	No
4M	Type of Tank?		Fixed Roof	Fixed Roof	Fixed Roof	Fixed Roof	Fixed Roof	Fixed Roof	Fixed Roof	Fixed Roof	Fixed Roof	Fixed Roof	Fixed Roof
4N	Closest City	Memphis	Memphis	Memphis	Memphis	Memphis	Memphis	Memphis	Memphis	Memphis	Memphis	Memphis	Memphis
4O	Tank Paint Color		Black	Black	Black	Aluminum	Black	Black	Black	Black	Black	Black	Black
4P	Paint Condition (Good or Poor)		Poor	Poor	Poor	Poor	Poor	Poor	Poor	Poor	Good	Good	Poor
4Q	Tank Loading (Splash Loading - Dedicated Normal Service; Splash Loading - Dedicated Vapor Balance Service; Bottom)		Bottom	Bottom	Bottom	Bottom	Bottom	Bottom	Bottom	Bottom	Bottom	Bottom	Bottom
4R	Not Applicable To Any Tanks												
4S	Not Applicable To Any Tanks												
5.1	Breathing Loss (See Note)	lb/hr											
		TPY											
5.2	Working Loss (See Note)	lb/hr											
		TPY											
5.3	Total Emissions (See Note)	lb/hr											
		TPY											
	NOTE: All tank emissions are included in Plant Summary Table of Section C of the Application.												

SECTION H
TANK SUMMARY TABLE

Section H Reference	Item	Units											
	Plant Reference Number		GRN-17	GRN-18	GRN-19	GRN-20	GRN-23	GRN-24	GRN-25	GRN-26	GRN-27	GRN-28	GRN-29
1	Emission Point Number		AA-003	AA-003	AA-003	AA-003	AA-003	AA-013	AA-014	AA-003	AA-003	AA-003	AA-003
	Reference No. (Table 2.1)		17	18	19	20	23	24	25	26	27	28	29
	Name		Storm Surge Water	Coagulant	Decanting	Creosote Blowdown	Pentachlorophenol Blowdown	Gasoline	Diesel	Aeration	Clarifier	Discharge	Creosote Dehydrator
2	Construction Date		1989	1987	1989	1980	1983	1975	1930	1986	1986	1986	1983
3	Material Stored		Storm Water	Coagulant Polymer	Creosote / Oil / Water	Creosote / Water	Water / Pentachlorophenol / Oil	Gasoline	#2 Diesel	Process Waste Water	Process Waste Water	Process Waste Water	Creosote / Water
4A	Temperature	psia											
4B	Temperature	psia											
	Storage Temperature	Degrees F	60	60	80	150	100	60	60	80	80	80	220
4C	Density @ Storage Temperature	lb/gal	8.34	8.67	8.34	8.34	8.34	6.5	7	8.34	8.34	8.34	10
4D	Molecular Weight @ Storage Temperature	lb/lbmole											
4E	Throughput	gallons/yr	2,272,000	9,000	230,000	532,000	493,000	10,000	80,000	5,000,000	5,000,000	5,000,000	200,000
4F	Tank Capacity	gallons	250,000	1,500	2500	8,000	8,000	1,250	9,000	150,000	25,000	15,000	8,000
4G	Tank Diameter	feet	36	6	8	10	10	4	6	40	15	15	10
4H	Tank Height / Length	feet	36	10	12	14	14	12	32	25	18	8	24
4I	Average Vapor Space Height	feet	1	1	1	1	1	1	1	1	1	1	1
4J	Tank Orientation (Horizontal or Vertical)		Vertical	Vertical	Vertical	Vertical	Vertical	Horizontal	Horizontal	Vertical	Vertical	Vertical	Horizontal
4K	Type of Roof (Dome or Cone)		None	Dome	Dome	Dome	Dome			None	None	None	None
4L	Vapor Recovery System?	yes or no		No	No	No	No	No	No	No	No	No	No
4M	Type of Tank?		Open	Fixed Roof	Fixed Roof	Fixed Roof	Fixed Roof	Fixed Roof	Fixed Roof	Open	Open	Open	Open
4N	Closest City	Memphis	Memphis	Memphis	Memphis	Memphis	Memphis	Memphis	Memphis	Memphis	Memphis	Memphis	Memphis
4O	Tank Paint Color		Blue	Beige	Black	Black	Black	Aluminum	Aluminum	White	Blue	Blue	Black
4P	Paint Condition (Good or Poor)		Good	Good	Good	Poor	Poor	Good	Good	Good	Good	Good	Poor
4Q	Tank Loading (Splash Loading - Dedicated Normal Service; Splash Loading - Dedicated Vapor Balance Service; Bottom)		Splash Loading Dedicated Normal Service	Splash Loading Dedicated Normal Service	Splash Loading Dedicated Normal Service	Splash Loading Dedicated Normal Service	Splash Loading Dedicated Normal Service	Bottom	Bottom	Splash Loading Dedicated Normal Service	Splash Loading Dedicated Normal Service	Splash Loading Dedicated Normal Service	Bottom
4R	Not Applicable To Any Tanks												
4S	Not Applicable To Any Tanks												
5.1	Breathing Loss (See Note)	lb/hr											
		TPY											
5.2	Working Loss (See Note)	lb/hr											
		TPY											
5.3	Total Emissions (See Note)	lb/hr											
		TPY											
	NOTE: All tank emissions are included in Plant Summary Table of Section C of the Application.												

SECTION H
TANK SUMMARY TABLE

Section H Reference	Item	Units						
	Plant Reference Number		GRN-30	GRN-31	GRN-32	GRN-33	GRN-34	GRN-35
1	Emission Point Number		AA-003	AA-003	AA-003	AA-003	AA-003	AA-003
	Reference No. (Table 2.1)		30	31	32	33	34	35
	Name		North Pentachlorophenol Equalization	South Pentachlorophenol Equalization	Pentachlorophenol Mix	Pentachlorophenol Mix	Pentachlorophenol Concentrate	Stormwater Process
2	Construction Date		1983	1983	1970	1970	1960	1970
3	Material Stored		Water / Penta / Oil	Water / Penta / Oil	Oil / Penta	Oil / Penta	Pentachlorophenol Concentrate	Creosote / Penta / Water
4A	Temperature	psia						
4B	Temperature	psia						
	Storage Temperature	Degrees F	60	60	60	60	60	60
4C	Density @ Storage Temperature	lb/gal	8	8	7.75	7.75	9.55	8.34
4D	Molecular Weight @ Storage Temperature	lb/lbmole						
4E	Throughput	gallons/yr	65,000	65,000	850,000	850,000	120,000	400,000
4F	Tank Capacity	gallons	14,000	14,000	9,400	5,000	10,500	100,000
4G	Tank Diameter	feet	10	10	9	10	13	30
4H	Tank Height / Length	feet	24	24	14	15	30	20
4I	Average Vapor Space Height	feet	1	1	1	1	1	1
4J	Tank Orientation (Horizontal or Vertical)		Vertical	Vertical	Vertical	Horizontal	Vertical	Vertical
4K	Type of Roof (Dome or Cone)		Cone	Cone	Flat		Flat	Flat
4L	Vapor Recovery System?	yes or no	No	No	No	No	No	No
4M	Type of Tank?		Fixed Roof	Fixed Roof	Fixed Roof	Fixed Roof	Fixed Roof	Fixed Roof
4N	Closest City	Memphis	Memphis	Memphis	Memphis	Memphis	Memphis	Memphis
4O	Tank Paint Color		Black	Black	Black	Black	Aluminum	Concrete
4P	Paint Condition (Good or Poor)		Poor	Poor	Poor	Poor	Good	
4Q	Tank Loading (Splash Loading - Dedicated Normal Service; Splash Loading - Dedicated Vapor Balance Service; Bottom)		Splash Loading Dedicated Normal Service	Splash Loading Dedicated Normal Service	Bottom	Splash Loading Dedicated Normal Service	Bottom	Splash Loading Dedicated Normal Service
4R	Not Applicable To Any Tanks							
4S	Not Applicable To Any Tanks							
5.1	Breathing Loss (See Note)	lb/hr						
		TPY						
5.2	Working Loss (See Note)	lb/hr						
		TPY						
5.3	Total Emissions (See Note)	lb/hr						
		TPY						
	NOTE: All tank emissions are included in Plant Summary Table of Section C of the Application.							

SECTION L2 CYCLONES

1. Emission Point No. / Name: AA-001, REF. NO. 40, MULTICLONE

2. Manufacturers Name and Model No.: WELLONS MULTICLONE COLLECTOR

3. Date of construction for existing sources or date of anticipated start-up for new sources:
1972

4. Cyclone Data:
   a) Cyclone type (if more than 1, put total number) :

Simple	____	Potbellied	
High Efficiency	____	Multiclone	X

   b) Efficiency: 90 %

   c) Pollutant viscosity: ____ poise

   d) Flow Rate: 25,450 acfm

   e) Pollutant size entering cyclone: ____ microns

   f) Pressure drop: ____ inches H_2O

   g) Baffles or Louvers (specify): ____

   h) Cyclone dimensions:

Inlet:	2.0	ft
Outlet:	0.5	ft
Body diameter:	6.0	ft
Body height:	15.0	ft
Cone height:	8.0	ft

   i) Wet spray: Yes X No
   1. No. of Nozzles: ____
   2. Type of liquid used: ____
   3. Flow rate: ____ gpm
   4. Make-up rate: ____ gpm
   5. % recycled: ____ %

   j) Fan location:
   1. Downstream: ____ Direct emission
   ____ Auxiliary Stack
   2. Upstream: ____X No cap (vertical emissions)
   ____ Fixed cap (diffuse emissions)
   ____ Wind respondent cap (horizontal emissions)

5. Which process(es) does the cyclone(s) control emissions from? WOOD FIRED BOILER SOURCE AA-001, REF. NO. 40

6. Attach a diagram of the cyclone(s) used.

SECTION L2 CYCLONES

1. Emission Point No. / Name: AA-004, REF. NO. 42, CYCLONES FOR WOOD MILLING

2. Manufacturers Name and Model No.: UNKNOWN

3. Date of construction for existing sources or date of anticipated start-up for new sources: UNKNOWN

4. Cyclone Data:
   a) Cyclone type (if more than 1, put total number) :
      X Simple ____ Potbellied
      High Efficiency ____ Multiclone

   b) Efficiency: ______ %

   c) Pollutant viscosity: ______ poise

   d) Flow Rate: ______ acfm

   e) Pollutant size entering cyclone: ______ microns

   f) Pressure drop: ______ inches H_2O

   g) Baffles or Louvers (specify): ____________

   h) Cyclone dimensions:
      Inlet: 0.83 ft
      Outlet: 0.83 ft
      Body diameter: 4.0 ft
      Body height: 3.0 ft
      Cone height: 4.5 ft

   i) Wet spray: Yes ______ X No
      1. No. of Nozzles: ______
      2. Type of liquid used: ______
      3. Flow rate: ______ gpm
      4. Make-up rate: ______ gpm
      5. % recycled: ______ %

   j) Fan location:
      1. Downstream: ______ Direct emission
         ______ Auxiliary Stack
      2. Upstream: ______ No cap (vertical emissions)
         ______ Fixed cap (diffuse emissions)
         ______ Wind respondent cap (horizontal emissions)

5. Which process(es) does the cyclone(s) control emissions from? SAWDUST AND CUTTINGS FROM ADZING AND BORING OF CROSSTIES AND LUMBER

6. Attach a diagram of the cyclone(s) used.

SECTION M COMPLIANCE DEMONSTRATION (page 1 of 2)

Completion of Section M is not required for a complete application. It is presented to merely reflect what may be required by the Enhanced Monitoring and/or the Periodic Monitoring Regulations. Upon promulgation of those regulations, this section will be revised to reflect the actual requirements. Until then, the information in this section should be utilized for planning purposes.

Choose the type of monitoring that is suggested for your source in the "Enhanced Monitoring Guideline". Fill out the appropriate form and attach to the corresponding emission point description pages.

A. Compliance Demonstration by Continuous Emissions Monitoring (CEM).

Sulfur Dioxide(SO_2)	Nitrogen Oxides (NO_x)	Oxygen (O_2)
Carbon Dioxide (CO_2)	Total Reduced Sulfur (TRS)	Opacity
Hydrogen Chloride (Hcl)	Carbon Monoxide (CO)	Flow
Hydrogen Sulfide (H_2S)	Volatile Organic Compound (VOC)	

B. Compliance Demonstration by Periodic Emission Monitoring using Portable Monitors.

SO_2 NO_x O_2 CO_2 CO HCl H_2S VOC Flow Moisture
Combustibles Combustion Efficiency

C. Compliance Demonstration by Monitoring Control System Parameters or Operating Parameters of a Process.

Baghouse	Pressure drop across baghouse, Broken bag detector, Opacity.
Mechanical Collectors	Pressure drop across collector, Hopper full detector, Opacity.
Electrostatic Precipitators	Primary and secondary voltage,Primary and secondary currents, Spark Rate, Broken wire detector, Rap cycle frequency, Resistivity measurement, Inlet water flow, Total solids, Opacity.
Thermal Incinerator	Firebox temperature.
Catalytic Incinerator	Catalyst bed temperature.
Flare	Pilot light detector, Temperature after flame zone.
Particulate Scrubber	Pressure drop across scrubber and demister, Scrubber fluid recirculation rate, Pump discharge pressure, Pump motor current.
Absorber for Gases	pH of fluid, Fluid recirculation rate, Air flow, Pressure drop across absorber and demister, Fluid temperature.
Carbon Absorber	Steam mass flow rate per regeneration cycle, Carbon bed temperature.
Condenser	Condenser exit temperature, Amount of solvent recovered daily.Charging rate, Production rate, Hours of operation, Secondary chamber temperature, Kiln or dryer exit temperature, Burner combustion efficiency, Power consumption, Static pressure, Fuel usage rate, Water injection rate.

D. Compliance Demonstration by Monitoring Maintenance Procedures.

Water quality testing
Sludge solids testing
Electrostatic precipitator cleaning frequency
Blacklight inspection of baghouses
Sludge mercury testing
Periodic inspection of process operating parameters
VOC leak testing
Soot blowing frequency
Fugitive dust control measures
Control equipment inspection frequency
Reid vapor pressure testing

E. Compliance Demonstration by Stack Testing.

EPA Method 1 & 2 : Flow (S-type pilot tubes, Hot-wire anemometer)
EPA Method 3 : CO_2, O_2, CO (Orsat, Fyrite)
EPA Method 3A : CO_2, O_2, (Analyzers)
EPA Method 4 : Moisture (Wet bulb-Dry bulb, Impingers)
EPA Method 5 : PM
EPA Method 6 : SO_2 (Impingers)
EPA Method 6B : SO_2 (24 hour average)
EPA Method 6C : SO_2 (Analyzer)
EPA Method 7E :NO_x (Analyzer)
EPA Method 9 : Opacity (Visible emissions reader)
EPA Method 10 : CO (Analyzer)
EPA Method 16 : TRS (Gas Chromatograph)
EPA Method 16A : TRS (Impingers)
EPA Method 16B: TRS (Gas Chromatograph)
EPA Method 18 : VOC (Gas Chromatograph)
EPA Method 21 : VOC Leaks (Analyzer)
EPA Method 25A: VOC (Analyzer with FID)
EPA Method 25B : VOC (NDIR Analyzer)

~~F. Compliance Demonstration by Fuel Sampling and Analysis (FSA).~~

Coal Sampling
Waste oil sampling
Refuse derived fuel sampling
Coke sampling
Sewage sludge sampling
Landfill gas sampling
Tire derived fuel sampling
Paper sludge sampling

G. Compliance Demonstration by Recordkeeping.

Testing and monitoring records
Compliance schedule records
Process hours of operation records
Fuel usage records
As-applied coating & ink composition records
Records of malfunction
As-applied coating & ink records,
Transfer efficiency records
Production records

SECTION M1 COMPLIANCE DEMONSTRATION BY CONTINUOUS EMISSIONS MONITORING (CEM)

An installation plan for each new (i.e. proposed) Continuous Emission Monitoring (CEM) System shall be submitted with the permit application for approval. Fill out one (1) sheet per analyzer.

1. Emission Point No./Name : AA-001 WOOD FIRED BOILER

2. Continuous Emission Monitoring Data:

A. Name of Manufacturer: HORIBA

B. Model number: CMA-321

C. Serial Number: 566220011

D. Date of installation of CEM: 1992

E. Which does the CEM monitor: X Pollutant ______ Dilutent
Flow ______X Opacity

F. Pollutant / Dilutent / Flow being monitored: CO, OPACITY

G. Type of analyzer: In situ ______X Extractive
Dilution ______ O_2
CO_2 ______ Thermal
______ Differential Pressure
Other (specify) : ______

H. Type of analyzer description: MAGNETOPNEUMATIC

I. Backup system (attach other compliance demonstration forms if needed): ______

J. Opacity CEM:
How measured: X Monitor ______ Visible Emission Evaluation

K. If CEM is not previously certified, then it shall be submitted for certification within 60 days of startup of the CEM system.

L. State the operating principles of the analyzer: SEE FOLLOWING PAGE

M. Attach a schematic of the CEM system showing the sample acquisition point and location of the monitor and explain any deviations from the siting criteria in Performance Specifications 1, 2, 3, 4, 5, 6 and 7 in 40 CFR Part 60, Appendix B.

1. OVERVIEW

1.1. THEORY OF OPERATION

The SNIFFER system is designed to measure the concentration of CO, CO_2, and O_2 components in stack gas emitted from a stationary source. The system uses a magnetopneumatic analyzer to measure O_2 and infra-red analyzers (NDIR method) to measure CO and CO_2. During the operation of the mangnetopneumatic analyzer, oxygen molecules are drawn into a non-homogenous magnetic field and attracted to a higher magnetic field, resulting in a pressure increase. A pressure increase is produced outside of the magnetic field using nitrogen gas. This differential pressure is measured using a condenser type microphone, which produces an electrical signal. A stable signal is then produced and transmitted by exciting the magnet intermittently and processing the alternating signal. The output signal is directly linear to the oxygen concentration.

The principle of the non-dispersive infra-red analyzer involves a dual beam method with an opto-pneumatic double layer detector. The infra-red source emits infra-red radiation, which is modulated by a rotating chopper wheel. After passing through the sample cell, the radiation is detected by the double layer detector. A window that is permeable to the infra-red radiation divides the detector chamber into two gas chambers or layers, which are linked together by a capillary that contains a microflow sensor. The center part of the absorption curve is absorbed by the first detector level while the edges are absorbed by the second detector level, resulting in a pressure differential between the two detector levels. The gas flow that results from the pressure differential is detected by the microflow sensor. This detected output signal is then processed by the microprocessor into a linear output signal.

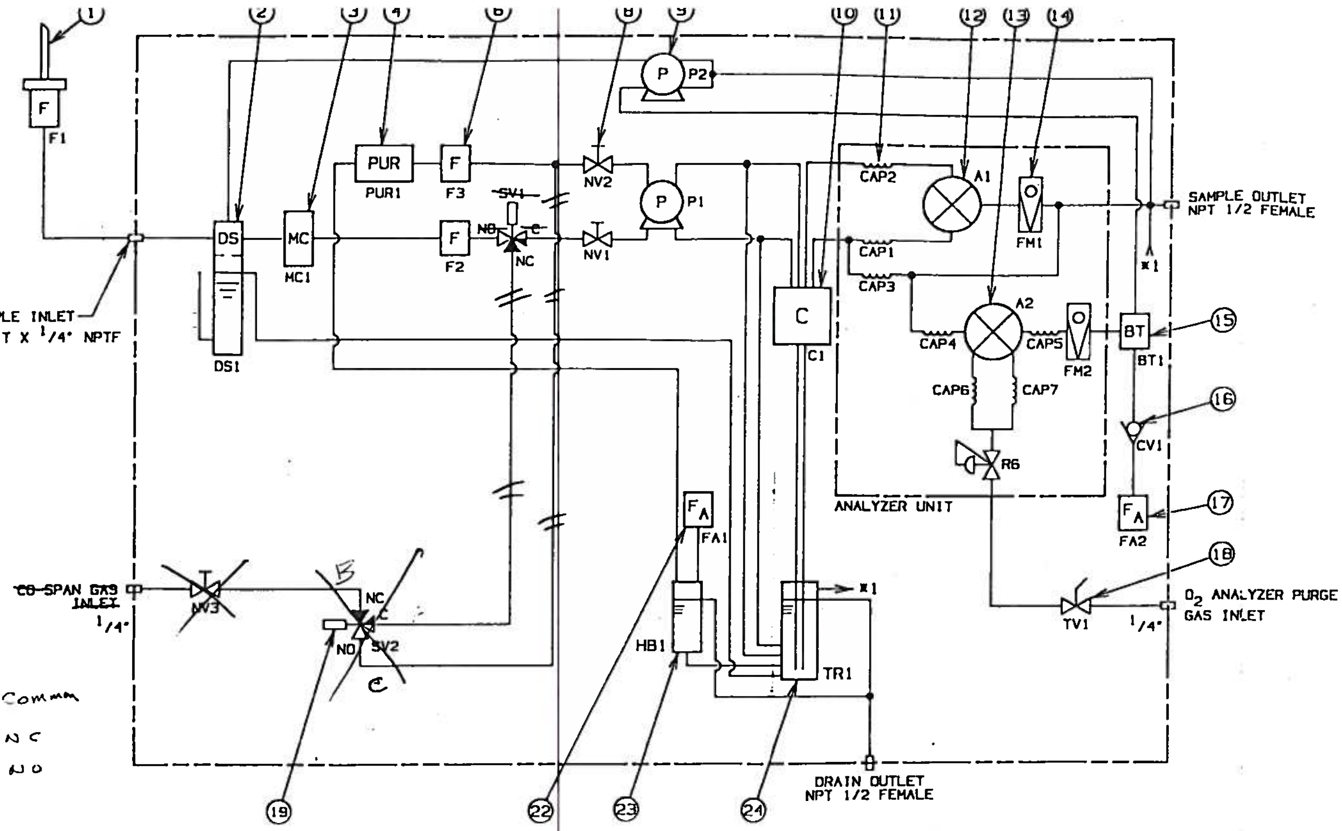
The SNIFFER system also incorporates other components that allow the Analyzers to be calibrated, and the data from them to be recorded.

1.2 COMPONENTS

The SNIFFER system incorporates a Sample Conditioner, Analyzer, Calibration Unit, Opacity Monitors, and Strip Chart Recorder. Figure 1-1 shows how the components are configured in the system cabinet.

1.2.1 Sample Conditioner

The Sample Conditioner takes sample gas from the stack port and supplies a steady flow of clean sample gas to the Analyzer.



A Comm
B NC
C NO

1	PRIMARY FILTER	
2	DRAIN SEPARATOR	PVC
3	MIST CATCHER	MC-050
4	ZERO GAS PURIFIER	PUR-01
5		
6	FILTER	
7		
8	NEEDLE VALVE	PVC
9	PUMP	GP-2201
10	THERMO-ELECTRIC DEHUMIDIFIER	DH-107H
11	CAPILLARY	
12	ANALYZER	CFA CO
13	ANALYZER	MPA O2
14	FLOW METER	
15	BUFFER TANK	PVC
16	CHECK VALVE	
17	AIR FILTER	0.3μ
18	TOGGLE VALVE	
19	SOLENOID VALVE	SVC-301-7HA
20		
21		
22	AIR FILTER	3μ
23	HUMIDIFIER	PVC
24	PRESSURE TRAP	PVC

NOTES: UNLESS OTHERWISE SPECIFIED

1. AFTER MEASUREMENT DISCHARGE THE SAMPLE GAS FROM SAMPLE OUTLET TO AN AREA AT ATMOSPHERIC PRESSURE IN COMPLIANCE WITH ENVIRONMENTAL SAFETY REGULATIONS.
2. INTERNAL RACK PLUMBING IS MADE OF TEFLON OR SOFT PVC.
3. SAMPLE LINE SUPPLIED BY OTHERS.

REV	DESCRIPTION	DATE	APPROVED
A	AS BUILT	5/26/92	J.C.
	REVISIONS		

CONTRACT NO. FWO. 0270-1 S/O. 203192 ENERTEC, INC.

APPROVALS		DATE
DRAWN	J.N.	4/28/92
CHECKED	JH	4-28-92
ISSUED	J.C.	4/29/92

HORIBA

HORIBA INSTRUMENTS, INC.
17671 ARMSTRONG AVE.
IRVINE, CALIF. 92714

ENDA-1250 STACK GAS SYSTEM FLOW DIAGRAM

SIZE	FSCM NO.	DWG NO.	REV
B	53595	585608	A

SCALE | SHEET 1 OF 1

SECTION M3 COMPLIANCE DEMONSTRATION BY MONITORING CONTROL SYSTEM PARAMETERS OR OPERATING PARAMETERS OF A PROCESS

The monitoring of a control system parameter or a process parameter may be acceptable provided that a correlation between the parameter value and the emission rate of a particular pollutant is established in the form of a curve of emission rate versus parameter values. At least three sets of stack test data, that bracket the emission limit if possible, shall be used to define the emission curve. This data shall constitute the certification of the system and must be attached for approval. If it is not attached, it shall be submitted within 60 days from the date of startup of the system or the date of application, which ever is later.

1. Emission Point No./Name : AA-002, REF. NO. 41, OIL FIRED BOILER

2. Method of monitoring description:
   MONITORING BY MEASUREMENT OF FUEL OIL CONSUMPTION FOR TOTAL TIME IN OPERATION

Attach separate sheets if needed.

3. Backup system (attach other compliance demonstration forms if needed):

4. The monitoring system shall be subject to appropriate performance specifications, calibration requirements, and quality assurance procedures.

5. If a quality assurance / quality control plan is not attached with the application for approval, it shall be submitted within 60 days from the date of startup of the monitoring program or the date of application, which ever is later.

SECTION M3 COMPLIANCE DEMONSTRATION BY MONITORING CONTROL SYSTEM PARAMETERS OR OPERATING PARAMETERS OF A PROCESS

The monitoring of a control system parameter or a process parameter may be acceptable provided that a correlation between the parameter value and the emission rate of a particular pollutant is established in the form of a curve of emission rate versus parameter values. At least three sets of stack test data, that bracket the emission limit if possible, shall be used to define the emission curve. This data shall constitute the certification of the system and must be attached for approval. If it is not attached, it shall be submitted within 60 days from the date of startup of the system or the date of application, which ever is later.

1. Emission Point No./Name : AA-003 WOOD PRESERVING PROCESS

2. Method of monitoring description:
MONITORING BY MEASUREMENT OF CUBIC FEET OF PRODUCTS PRODUCED

Attach separate sheets if needed.

3. Backup system (attach other compliance demonstration forms if needed):

4. The monitoring system shall be subject to appropriate performance specifications, calibration requirements, and quality assurance procedures.

5. If a quality assurance / quality control plan is not attached with the application for approval, it shall be submitted within 60 days from the date of startup of the monitoring program or the date of application, which ever is later.

SECTION M3 COMPLIANCE DEMONSTRATION BY MONITORING CONTROL SYSTEM PARAMETERS OR OPERATING PARAMETERS OF A PROCESS

The monitoring of a control system parameter or a process parameter may be acceptable provided that a correlation between the parameter value and the emission rate of a particular pollutant is established in the form of a curve of emission rate versus parameter values. At least three sets of stack test data, that bracket the emission limit if possible, shall be used to define the emission curve. This data shall constitute the certification of the system and must be attached for approval. If it is not attached, it shall be submitted within 60 days from the date of startup of the system or the date of application, which ever is later.

1. Emission Point No./Name : AA-005, REF. NO. 43, NATURAL GAS SPACE HEATERS, (3) UNITS

2. Method of monitoring description: MONITORING BY MEASUREMENT OF NATURAL GAS CONSUMPTION

Attach separate sheets if needed.

3. Backup system (attach other compliance demonstration forms if needed):

4. The monitoring system shall be subject to appropriate performance specifications, calibration requirements, and quality assurance procedures.

5. If a quality assurance / quality control plan is not attached with the application for approval, it shall be submitted within 60 days from the date of startup of the monitoring program or the date of application, which ever is later.

SECTION M3 COMPLIANCE DEMONSTRATION BY MONITORING CONTROL SYSTEM PARAMETERS OR OPERATING PARAMETERS OF A PROCESS

The monitoring of a control system parameter or a process parameter may be acceptable provided that a correlation between the parameter value and the emission rate of a particular pollutant is established in the form of a curve of emission rate versus parameter values. At least three sets of stack test data, that bracket the emission limit if possible, shall be used to define the emission curve. This data shall constitute the certification of the system and must be attached for approval. If it is not attached, it shall be submitted within 60 days from the date of startup of the system or the date of application, which ever is later.

1. Emission Point No./Name : AA-006, REF. NO. 44, NATURAL GAS FIRED STEAM CLEANER

2. Method of monitoring description: MONITORING BY MEASUREMENT OF NATURAL GAS CONSUMPTION

Attach separate sheets if needed.

3. Backup system (attach other compliance demonstration forms if needed):

4. The monitoring system shall be subject to appropriate performance specifications, calibration requirements, and quality assurance procedures.

5. If a quality assurance / quality control plan is not attached with the application for approval, it shall be submitted within 60 days from the date of startup of the monitoring program or the date of application, which ever is later.

SECTION M3 COMPLIANCE DEMONSTRATION BY MONITORING CONTROL SYSTEM PARAMETERS OR OPERATING PARAMETERS OF A PROCESS

The monitoring of a control system parameter or a process parameter may be acceptable provided that a correlation between the parameter value and the emission rate of a particular pollutant is established in the form of a curve of emission rate versus parameter values. At least three sets of stack test data, that bracket the emission limit if possible, shall be used to define the emission curve. This data shall constitute the certification of the system and must be attached for approval. If it is not attached, it shall be submitted within 60 days from the date of startup of the system or the date of application, which ever is later.

1. Emission Point No./Name : AA-015, REF. NO. 53, NATURAL GAS FIRED SPACE HEATER, (1) UNIT

2. Method of monitoring description: MONITORING BY MEASUREMENT OF NATURAL GAS CONSUMPTION

Attach separate sheets if needed.

3. Backup system (attach other compliance demonstration forms if needed):

4. The monitoring system shall be subject to appropriate performance specifications, calibration requirements, and quality assurance procedures.

5. If a quality assurance / quality control plan is not attached with the application for approval, it shall be submitted within 60 days from the date of startup of the monitoring program or the date of application, which ever is later.

SECTION M5 COMPLIANCE DEMONSTRATION BY STACK TESTING

Compliance demonstration by stack testing will be carried out in accordance with EPA approved reference methods and the stack test report must be attached.

1. Emission Point No./Name : AA-001, REF. NO. 40, WOOD FIRED BOILER

2. Pollutant being tested for: PARTICULATE AND VISIBLE EMISSIONS

3. Test Method: SEE STACK TEST REPORT (FOLLOWING PAGES)

4. Compliance shall be demonstrated:
   Daily Weekly ____ Monthly
   Other (specify): BIENNIAL (ONCE EVERY 2 YEARS)

5. Any measured emission rate that exceeds an emission limit established by the permit must be reported as an excess emission.

6. Is this an existing method of demonstrating compliance:
   X Yes ______ No

7. Backup system (attach other compliance demonstration forms if needed):______

____

NVIRONMENTAL MONITORING LABORATORIES, INC.

). Box 655 ○ 624 Ridgewood Road
lgeland, Mississippi 39158

phone: 601/856-3092
fax : 601/853-2151

Section M5
Stack Test

September 29, 2000

Subject: Koppers Industries - Grenada, Mississippi
Wood Waste Boiler - Stack Emissions Test
Facility No. 0960-00012

On September 22, 2000, Environmental Monitoring Laboratories performed air emissions testing for Koppers Industries in the Tie Plant community near Grenada, Mississippi. Testing was done to measure particulate and visible emissions from the wood waste boiler in accordance with requirements of the Mississippi Department of Environmental Quality.

Results of emissions testing are shown below.

PARTICULATE EMISSIONS			VISIBLE EMISSIONS
#/hr	gr/dscf	#/MM Btu	High SMA, % opacity
8.75	0.076	0.192	31.88

Mr. Anthony Mahan of Koppers coordinated the testing project. Danny Russell of Environmental Monitoring Laboratories was responsible for sample collection and analysis of particulate samples. Sample custody was limited to Mr. Russell.

Following is a report of the test.

REPORT OF AIR EMISSIONS TESTS
FOR KOPPERS INDUSTRIES, INC.
GRENADA PLANT
WOOD WASTE BOILER

Section M5

Grenada, Mississippi
September 22, 2000

Stack Test

CONTENTS

REPORT CERTIFICATION

I certify that I have examined the information submitted herein, and based upon inquires of those responsible for obtaining the data or upon my direct acquisition of data, I believe the submitted information is true, accurate and complete.

Signed ______________

Daniel G. Russell

2.0 SOURCE DESCRIPTION:.

Section M5
Stack Test

Koppers Industries, Inc. operates a 30,000 pound per hour Wellons wood waste boiler at their wood preserving facility in Grenada, Mississippi. The boiler provides steam for the timber treating processes and a turbine generator. Fuel is typically wood waste generated from the manufacture of treated wood products.

Heat input as calculated from the test data and an F-Factor was an average 45.16 MM Btu/hr.

The boiler exhausts to the atmosphere by way of a 34.5 inch diameter vertical stack. Two sample ports at 90° are provided at a location that is 432 inches (12.5 diameters) below the stack exit and 356 inches (10.3 diameters) above an upstream stack tapered section.

3.0 TEST PROCEDURES:

Test procedures used are those described in the Code of Federal Regulations, Title 40, Part 60, Appendix A. Specifically, Method 1 was used to determine the number of sample points and Method 5 to determine flow rates, moisture content, and particulate emissions. The sampling train was identical to that described in Method 5 except that the cyclone was omitted. Visible emissions were read in accordance with Method 9 concurrently with the emissions test

Heat input to the boilers was determined by continuously monitoring oxygen content of the flue gas as described in Method 3A and calculating heat input using an F-factor of 9280 scf per million Btu of heat input for the wood waste fuel.

Filters were recovered by rinsing the front half of the filter holder into the probe wash and securing the filters in glass petri dishes. Part of the sample filter normally adheres to the filter gasket, and some of the adhering material is recovered into the probe wash. Therefore some of the filter weight is attributed to the probe wash weight.

Filters were heated in an oven for 2 hours at 105° C, desiccated at least 24 hours and weighed to constant weight. Probe wash samples in acetone were evaporated to dryness over low heat in tared beakers, desiccated for at least 24 hours and weighed to constant weight. Weighings are made at 6 hour or greater intervals (samples stored in desiccator). Final weights were considered valid and were recorded if there was no more than 0.5 milligrams difference from the previous weighing.

Section M5
Stack Test

1.0 Test Results:

Wellons Wood Waste Boiler

Run No.		1	2	3	AVG.
Date		9/22/00	9/22/00	9/22/00	-------
Time Start		0955	0116	1235	-----
Time End		1059	1220	1339	-----
PARTICULATE EMISSIONS	#/hr	12.69	5.10	8.46	8.75
PARTICULATE EMISSIONS	gr/dscf	0.109	0.044	0.075	0.076
PARTICULATE EMISSIONS	#/MM Btu	0.265	0.113	0.199	0.192
VISIBLE EMISSIONS	high SMA, %	31.88	15.00	10.42	31.88
HEAT INPUT	MM Btu/hr	47.92	45.12	42.43	45.16
VOLUMETRIC FLOWRATE	acfm	27884	26664	26376	26975
VOLUMETRIC FLOWRATE	dscfm	13593	13454	13149	13399
VELOCITY	ft./sec.	71.6	68.5	67.7	69.3
STACK TEMPERATURE	°F	481	470	462	471
MOISTURE	%	12.9	10.9	12.8	12.2
SAMPLE RATE	% isokinetic	100	101	97	99

SECTION M6 COMPLIANCE DEMONSTRATION BY FUEL SAMPLING AND ANALYSIS

An installation plan for each Fuel Sampling Analysis (FSA) System must be submitted with the permit application for approval. Fill out one (1) sheet per analyzer.

1. Emission Point No./Name : AA-002, REF. NO. 41, OIL FIRED BOILER

2. Date of construction if for existing sources or date of anticipated start-up for new sources: BEFORE AUGUST 7, 1977

3. List the ASTM fuel sample collecting and analyzing methods used: ______ EMISSION ESTIMATE BASIS – AP-42

4. Fuel being sampled: ______

5. How will samples be taken: Automated ______ Manual

6. Fuel Sampling Data:

   A. Name of Manufacturer: ______

   B. Model number: ______

   C. Serial Number: ______

   D. Is this an existing FSA system: YES ______ No

   E. How will samples be taken: Automated ______ Manual

   F. ~~Backup system (attach other compliance demonstration forms if needed):~~ ______

   G. State the method of operating of the sampler: ______

   H. Attach a schematic of the FSA system showing the sample acquisition point and location of the machine.

   I. Compliance shall be demonstrated:

      Daily Weekly Monthly ______ Quarterly

7. Any composite sample over the emission rate will be reported as an excess emission.

8. If the FSA system certification is not attached for approval, it must be submitted within 60 days from startup of the FSA system or the date of application, which ever is later.

SECTION M6 COMPLIANCE DEMONSTRATION BY FUEL SAMPLING AND ANALYSIS

An installation plan for each Fuel Sampling Analysis (FSA) System must be submitted with the permit application for approval. Fill out one (1) sheet per analyzer.

1. Emission Point No./Name : AA-005, REF. NO. 43, NATURAL GAS SPACE HEATERS (3) UNITS

2. Date of construction if for existing sources or date of anticipated start-up for new sources: BEFORE AUGUST 7, 1977

3. List the ASTM fuel sample collecting and analyzing methods used: EMISSION ESTIMATE BASIS – AP-42

4. Fuel being sampled: ________

5. How will samples be taken: Automated______ Manual

6. Fuel Sampling Data:

   A. Name of Manufacturer: ________

   B. Model number: ________

   C. Serial Number: ________

   D. Is this an existing FSA system: YES______ No

   E. ~~How will samples be taken: Automated______ Manual~~

   F. Backup system (attach other compliance demonstration forms if needed): ________

   G. State the method of operating of the sampler: ________

   H. Attach a schematic of the FSA system showing the sample acquisition point and location of the machine.

   I. Compliance shall be demonstrated:

      Daily Weekly Monthly ______ Quarterly

7. Any composite sample over the emission rate will be reported as an excess emission.

8. If the FSA system certification is not attached for approval, it must be submitted within 60 days from startup of the FSA system or the date of application, which ever is later.

SECTION M6 COMPLIANCE DEMONSTRATION BY FUEL SAMPLING AND ANALYSIS

An installation plan for each Fuel Sampling Analysis (FSA) System must be submitted with the permit application for approval. Fill out one (1) sheet per analyzer.

1. Emission Point No./Name : AA-006, REF. NO. 44, NATURAL GAS FIRED STEAM CLEANER

2. Date of construction if for existing sources or date of anticipated start-up for new sources: 1992

3. List the ASTM fuel sample collecting and analyzing methods used: EMISSION ESTIMATE BASIS – AP-42

4. Fuel being sampled: ______

5. How will samples be taken: Automated ______ Manual

6. Fuel Sampling Data:

   A. Name of Manufacturer: ______

   B. Model number: ______

   C. Serial Number: ______

   D. Is this an existing FSA system: YES ______ No

   E. How will samples be taken: Automated ______ Manual

   F. Backup system (attach other compliance demonstration forms if needed): ______

   G. State the method of operating of the sampler: ______

   H. Attach a schematic of the FSA system showing the sample acquisition point and location of the machine.

   I. Compliance shall be demonstrated:

      Daily Weekly Monthly ______ Quarterly

7. Any composite sample over the emission rate will be reported as an excess emission.

8. If the FSA system certification is not attached for approval, it must be submitted within 60 days from startup of the FSA system or the date of application, which ever is later.

SECTION M6 COMPLIANCE DEMONSTRATION BY FUEL SAMPLING AND ANALYSIS

An installation plan for each Fuel Sampling Analysis (FSA) System must be submitted with the permit application for approval. Fill out one (1) sheet per analyzer.

1. Emission Point No./Name : AA-015, REF. NO. 53, NATURAL GAS FIRED SPACE HEATER, (1) UNIT

2. Date of construction if for existing sources or date of anticipated start-up for new sources: BEFORE AUGUST 7, 1977

3. List the ASTM fuel sample collecting and analyzing methods used: EMISSION ESTIMATE BASIS – AP-42

4. Fuel being sampled: ________

5. How will samples be taken: Automated______ Manual

6. Fuel Sampling Data:

   A. Name of Manufacturer: ________

   B. Model number: ________

   C. Serial Number: ________

   D. Is this an existing FSA system: YES______ No

   E. How will samples be taken: Automated______ Manual

   F. Backup system (attach other compliance demonstration forms if needed): ________

   G. State the method of operating of the sampler: ________

   H. Attach a schematic of the FSA system showing the sample acquisition point and location of the machine.

   I. Compliance shall be demonstrated:

   Daily Weekly Monthly ______ Quarterly

7. Any composite sample over the emission rate will be reported as an excess emission.

8. If the FSA system certification is not attached for approval, it must be submitted within 60 days from startup of the FSA system or the date of application, which ever is later.

SECTION N Current Applicable Requirements and Status (page 1 of 2)

List applicable state and federal regulations and applicable test methods for determining compliance with each applicable requirement. Clearly identify federal regulations from state requirements. Provide the compliance status as of the day the application is signed.

Emission Point No.	Applicable Requirement	Pollutant	Test Method	Limits	Compliance Status IN / OUT
AA-001	APC-S-1, SEC. 3.4(B)	PM	METHOD 5	0.3 GR/DSCF	IN
AA-001	APC-S-1, SEC. 3.1	OPACITY	CEM	40%	IN
AA-001	APC-S-1, SEC. 4.1(C)	SO2	STACK TEST & ENGINEER CALCS.	2.4 LB/MMBTU	IN
AA-002	APC-S-1, SEC. 3.4(A)	PM	AP-42	E=0.8808I-0.1667 =14.36 LB/HR	IN
AA-002	APC-S-1, SEC. 3.1	OPACITY		40%	IN
AA-002	APC-S-1, SEC. 4.1(C)	SO2	AP-42	2.4 LB/MMBTU	IN
AA-004	APC-S-1, SEC. 6	PM	AP-42	E=4.1P 0.67 27 LB/HR	IN
AA-010	APC-S-1, SEC. 6	PM	AP-42	4.78 LB/HR	IN
AA-011	APC-S-1, SEC. 6	PM	AP-42	4.84 LB/HR	IN
PLANT - WIDE	APC-S-1, SEC. 6	PM	VARIOUS	28.4 LB/HR	IN

SECTION N Future Applicable Requirements and Status (page 2 of 2)

List applicable state and federal regulations and applicable test methods for determining compliance with each applicable requirement. Clearly identify federal regulations from state requirements. Provide the compliance status as of the day the application is signed.

Emission Point No.	Applicable Requirement	Pollutant	Test Method	Limits	Compliance Status IN / OUT
	NONE				

SECTION O COMPLIANCE CERTIFICATION

1. Emission Point No./Name : AA-001, REF. NO. 40, WOOD FIRED BOILER

2. Indicate the source compliance status:

A. X Where this source is currently in compliance, we will continue to operate and maintain this source to assure compliance for the duration of the permit.

B. ______ The Current Emissions Requirements and Status form (previous page) includes new requirements that apply or will apply to this source during the term of the permit. We will meet such requirements on a timely basis.

C. ______ This source is not in compliance. The following statement of corrective action is submitted to describe action which we will take to achieve compliance.

1. ______ Attached is a brief description of the problem and the proposed solution.

2. ______ We will achieve compliance according to the following schedule.

Progress reports will be submitted:

Starting date: ______________ and every six (6) months thereafter

Problem	Action	Deadline

SECTION O COMPLIANCE CERTIFICATION

1. Emission Point No./Name : ALL POINTS EXCEPT AA-001

2. Indicate the source compliance status:

A. X Where this source is currently in compliance, we will continue to operate and maintain this source to assure compliance for the duration of the permit.

B. ______ The Current Emissions Requirements and Status form (previous page) includes new requirements that apply or will apply to this source during the term of the permit. We will meet such requirements on a timely basis.

C. ______ This source is not in compliance. The following statement of corrective action is submitted to describe action which we will take to achieve compliance.

1. ______ Attached is a brief description of the problem and the proposed solution.

2. ______ We will achieve compliance according to the following schedule.

Progress reports will be submitted:
Starting date: ____________ and every six (6) months thereafter

Problem	Action	Deadline

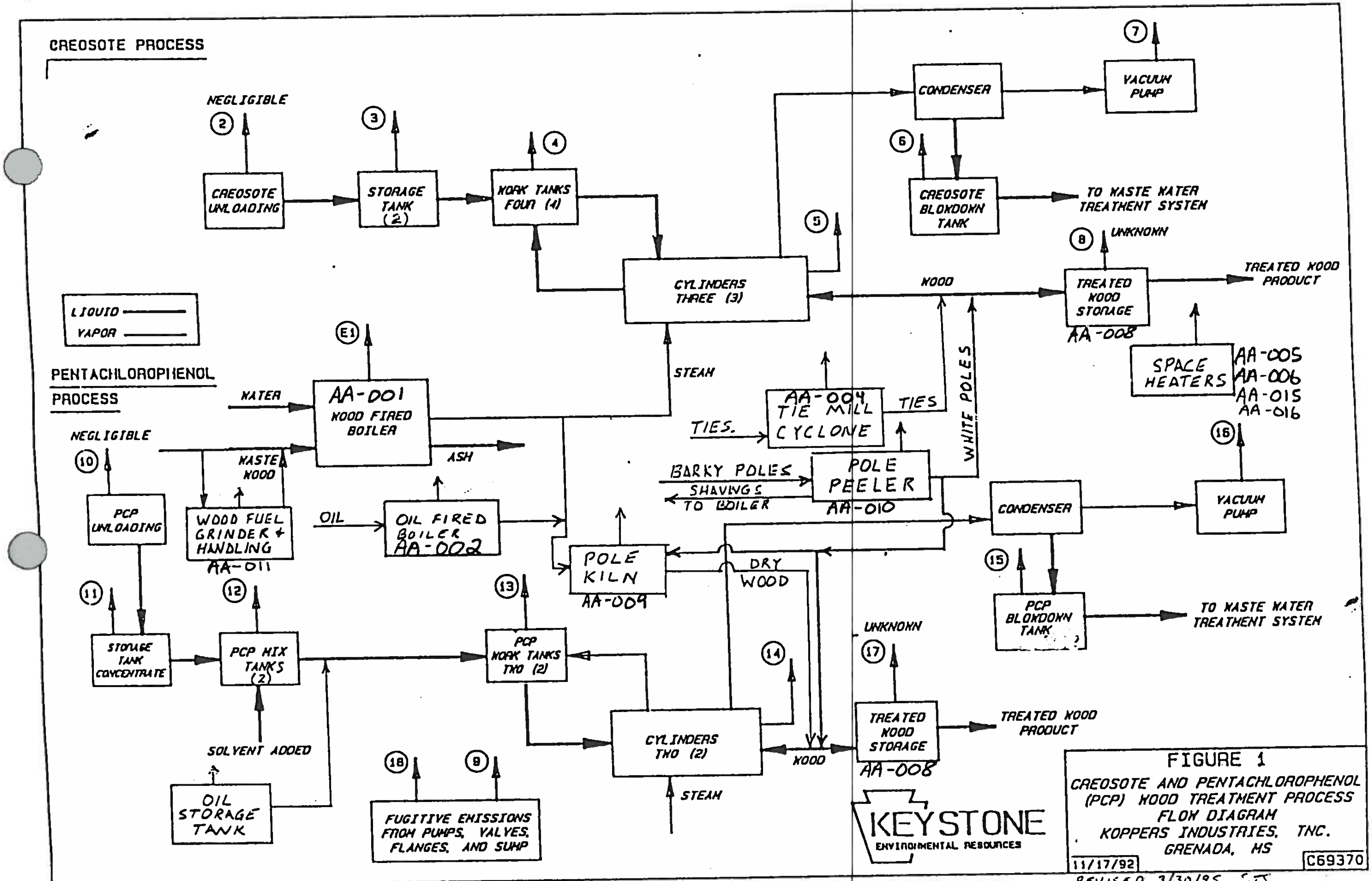
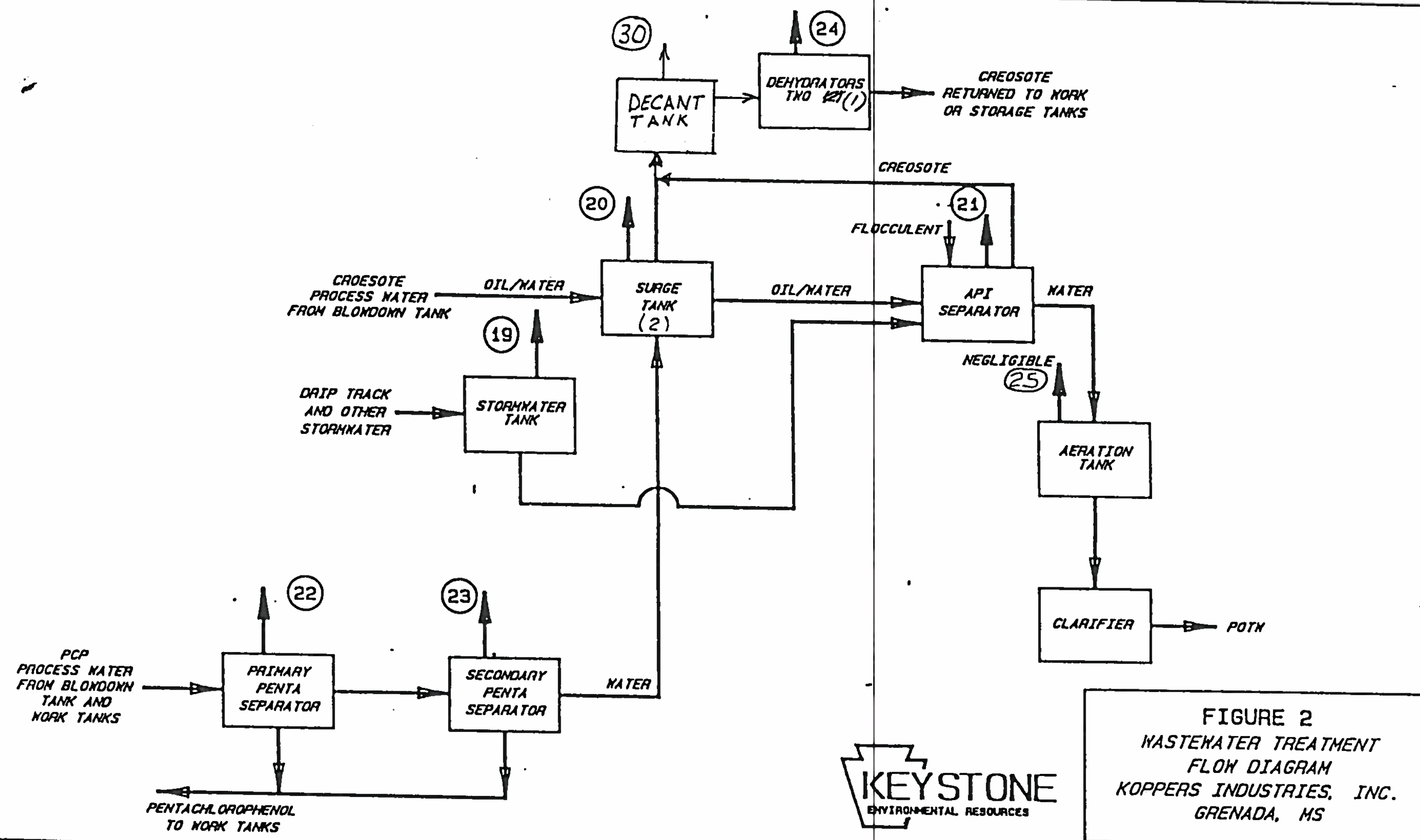


FIGURE 1
CREOSOTE AND PENTACHLOROPHENOL (PCP) WOOD TREATMENT PROCESS FLOW DIAGRAM
KOPPERS INDUSTRIES, INC.
GRENADA, MS

11/17/92 C69370

REVISED 3/30/95 SJ
9/29/95 SJ
9/26/01 TLH



KEYSTONE
ENVIRONMENTAL RESOURCES

FIGURE 2
WASTEWATER TREATMENT
FLOW DIAGRAM
KOPPERS INDUSTRIES, INC.
GRENADA, MS

11/17/92 C69371

REVISED 3/30/95 STS
9/26/01 TLH