Tronox LLC, Columbus

General Information

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

Address

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

Telecommunications

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

Alternate / Historic AI Identifiers

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

Regulatory Programs

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

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

Locational Data

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

10/13/2006 10:29:50 AM

ADDITIONAL INFORMATION FOR THE SYNTHETIC MINOR OPERATING PERMIT

Submitted to:

Bobby Hall
Environmental Engineer
State of Mississippi
Department of Environmental Quality
Office of Pollution Control
Air Facilities Branch

November 8, 1995

APPLICATION ADDENDUM FOR A SYNTHETIC MINOR OPERATING PERMIT

Columbus, Mississippi

RECEIVED
DEC 14 1995
DEQ-OPC

November 8, 1995

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.

See Attached - Primary Boiler

Anthony N. Helms
Printed/Typed Name | ***Signature** | **Date**

*Signature should be the same as on the application form.

Primary Boiler EP005

It is requested that the Primary Boiler be limited to three months equivalent operation using No. 2 Fuel Oil. Three months operation with No. 2 Fuel Oil corresponds to 216,000 gallons usage per year. This is based on a consumption rate of 100 gallons per hour. The nozzles on the boiler limit the operation of the boiler to this capacity. The heat content of the No. 2 Fuel Oil is 138,000 BTU. The method of compliance will be based on this annual fuel oil usage. This operational limitation will ensure that the boiler air emissions will not exceed threshold levels. Air emissions calculations are based on the operating scenario that will potentially produce the greatest amount of emissions. Air emission constituents that are emitted at the greatest rate with the burning of fuel oil are PM and SO_x. For these constituents, three months operation with fuel oil and nine months operation with natural gas scenario was chosen. Air emission constituents that are emitted at the greatest rate with the burning of natural gas are NO_x, CO, and VOCs. For these constituents, the 12 months operation with natural gas scenario was chosen. Please refer to the supporting calculations and written explanation in Section 3C of the operating permit application.

SUPPORT CALCULATIONS

TREATING CYLINDERS (EP001),
VACUUM PUMPS (EP001A-003A), AND
SWITCH TIE UNLOADER CYCLONE (EP004)

LOCATION WITHIN PERMIT:
SECTION 3
SECTION C
TREATING CYLINDERS
VERY FRONT OF SECTION

JOB 0168/5

SHEET NO. 1 OF 2

CALCULATED BY STM DATE 10-17-95

CHECKED BY WVW DATE 10-18-95

SCALE

AquAeTer
215 Jamestown Park, Suite 204
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(615) 373-8532 FAX (615) 373-8512

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SYNTHETIC MINOR OPERATING PERMIT APPLICATON
SUPPORT CALCULATIONS

EP001 - SCRUBBER INCLUDING EU001-003

The maximum number of charges per retort is dependent upon the type of charge used to treat the wood. Dry charges are 8 hrs in length and therefore according to PTE 3 dry charges are possible per day. Green charges are 24 hrs in length and therefore according to PTE 1 green charge per day is possible. For the quantity of wood and creosote used as raw materials, the calculation was based on an absolute maximum of 4 charges/day (3 dry charges/day + 1 green charge/day). This is equivalent to 1500 charges/year per retort. NOTE: This operating scenario is not possible, but was chosen for PTE.

Therefore,

$$\frac{1{,}500\text{ charges}}{\text{year}} * \frac{59\text{ ties}}{\text{tram}} * \frac{11\text{ trams}}{\text{retort}} * \frac{200\text{ lbs}}{\text{tie}} * \frac{1\text{ year}}{8{,}760\text{ hrs}} * 3\text{ retorts}$$

= 66,678 lbs/hr or 33 tons/hr for 3 retorts

Then,

$$\frac{33\text{ tons}}{\text{hour}} * \frac{1}{3\text{ retorts}} = 11\text{ tons/hr for 1 retort}$$

The same development was used for creosote based on the following:

8 lbs creosote / ft³ wood
3.72 ft³ wood / tie

#4 is based on 1 retort whereas #5 is based on 3 retorts

JOB 01613

SHEET NO. 2 OF 2

CALCULATED BY STM DATE 10-17-95

CHECKED BY ______ DATE ______

SCALE ______

LOCATION WITHIN PERMIT:
SECTION 3
SECTION C
TREATING CYLINDERS
3rd SET OF FORMS

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SUPPORT CALCULATIONS

▶ EP001A-003A

The maximum level of emissions for the vacuum pumps is based on the green charge because it is during this treatment process that the greatest amount of emissions are produced. According to PTE, 1 green charge perday is possible. An absolute maximum of 1,500 charges/year for 3 retorts.

Therefore

$$\frac{1{,}500 \text{ charges}}{\text{year}} * \frac{59 \text{ ties}}{\text{tram}} * \frac{11 \text{ trams}}{\text{retort}} * \frac{200 \text{ lbs}}{\text{tie}} * \frac{1 \text{ year}}{8{,}760 \text{ hrs}}$$

= 22,226 lbs/hr or 11 tons/hr for 3 retorts

3 retorts * 1 green charge/day * 365 days/yr = 1,095 charges/yr

The true maximum number of charges (~~1,105~~ 1,095 charges/yr) per year was chosen to calculate the rated capacity of the individual units.

$$\frac{\text{~~1,105~~ } 1{,}095 \text{ charges}}{\text{year}} * \frac{59 \text{ ties}}{\text{tram}} * \frac{11 \text{ trams}}{\text{retort}} * \frac{200 \text{ lbs}}{\text{tie}} * \frac{1 \text{ year}}{8{,}760 \text{ hrs}}$$

= ~~16,373~~ 16,225 lbs/hr or 8 [ok] tons/hr for 1 retort

The same development was used for creosote based on the following:

8 lbs creosote/ft^3 wood

3.72 ft^3 wood / tie

#4 is based on 1 retort whereas #5 is based on 3 retorts

LOCATION WITHIN PERMIT:
SECTION 3
SECTION C
GREEN/DRY TIE PROCESSING
MIDDLE OF SECTION

PLANT:	Columbus
PROCESS UNIT:	Switch tie Unloader
EMISSION:	PM

Wood Waste Emission Factor

Saw Cut - 7x9 tie

	Width (in)	Depth (in)	Length (ft)
1. Dimensions of tie (W x L x D)	7	9	8.5
2. Weight of tie (lb)	200		
3. Cubic feet of tie (ft3)	3.72		
4. Pound per cubic foot (lb/ft3)	53.78		
5. Saw cut (in)	0.25		
6. Cubic feet of saw cut (ft3)	0.0091		
7. Pounds of wood waste per cut (lb/cut)	0.49		
8. Pounds of wood waste per tie (lb/tie)	0.98		

		Unit
Maximum By-Product		
Number of units	1	
Maximum number of ties processed	5,000	ties/day
	~~1,825,000~~	~~ties/yr~~
Maximum volume of wood waste produced	4,902	lb/day
	895	ton/yr
Maximum volume of PM produced	49.02	lb/day
	8.95	ton/yr
Typical By-Product		
Number of units	1	
Typical number of ties processed	3,000	ties/day
	1,095,000	ties/yr
Typical volume of wood waste produced	2,941	lb/day
	537	ton/yr
Typical volume of PM produced	29.41	lb/day
	5.37	ton/yr

*

same

Saw Cut - 6x8 tie

	Width (in)	Depth (in)	Length (ft)
1. Dimensions of tie (W x L x D)	6	8	8.5
2. Weight of tie (lb)	175		
3. Cubic feet of tie (ft3)	2.83		
4. Pound per cubic foot (lb/ft3)	61.76		
5. Saw cut (in)	0.25		
6. Cubic feet of saw cut (ft3)	0.0069		
7. Pounds of wood waste per cut (lb/cut)	0.43		
8. Pounds of wood waste per tie (lb/tie)	0.86		

Maximum By-Product		
Number of units	1	
Maximum volume of wood waste produced	4,289	lb/day
	782.78	ton/yr
Maximum volume of PM produced	42.89	lb/day
	7.83	ton/yr
Typical By-Product		
Number of units	1	
Typical volume of wood waste produced	2,574	lb/day
	469.67	ton/yr
Typical volume of PM produced	25.74	lb/day
	4.70	ton/yr

correction, but remains below 7x9 tie maximum

Spike

	Diameter (in)	Depth (in)
1. Dimensions of bit	0.5625	5
2. Cubic feet of spike (ft3)	0.0007	
3. Pounds of wood waste per spike (lb/spike)	0.0444	
4. Pounds of wood waste per tie (lb/tie)	0.36	

Maximum By-Product		
Number of units	1	
Maximum volume of wood waste produced	1,776	lb/day
	324.04	ton/yr
Maximum volume of PM produced	17.76	lb/day
	3.24	ton/yr
Typical By-Product		
Number of units	1	
Typical volume of wood waste produced	1,065	lb/day
	194.43	ton/yr
Typical volume of PM produced	10.65	lb/day
	1.94	ton/yr

Bore - 7x9 tie

	Diameter (in)	Depth (in)
1. Dimensions of bit	0.5625	7
2. Cubic feet of bore (ft3)	0.00101	
3. Pounds of wood waste per bore (lb/bore)	0.05411	
4. Pounds of wood waste per tie (lb/tie)	0.43	

Maximum By-Product		
Number of units	1	
Maximum volume of wood waste produced	2,165	lb/day
	395.03	ton/yr
Maximum volume of PM produced	21.65	lb/day
	3.95	ton/yr
Typical By-Product		
Number of units	1	
Typical volume of wood waste produced	1,299	lb/day
	237.02	ton/yr
Typical volume of PM produced	12.99	lb/day
	2.37	ton/yr

Bore - 6x8 tie

	Diameter (in)	Depth (in)
1. Dimensions of bit	0.5625	6
2. Cubic feet of bore (ft3)	0.00086	
3. Pounds of wood waste per bore (lb/bore)	0.05327	
4. Pounds of wood waste per tie (lb/tie)	0.43	

Maximum By-Product		
Number of units	1	
Maximum volume of wood waste produced	2,131	lb/day
	388.85	ton/yr
Maximum volume of PM produced	21.31	lb/day
	3.89	ton/yr
Typical By-Product		
Number of units	1	
Typical volume of wood waste produced	1,278	lb/day
	233.31	ton/yr
Typical volume of PM produced	12.78	lb/day
	2.33	ton/yr

Assumptions

1. The width of the saw cut or bit cut is equivalent in mass to the amount of sawdust produced.
2. As spikes are invariable drilled at 5 inches, the heavier pound per cubic foot value for 6x8 ties was used.
3. Although the Switch tie Unloader may cut various sizes of ties, the number of 7x9 ties used for this estimation will more than compensate for larger cuts made on fewer ties.

References

1. AP-42 10.4

F:\DATA\0168\COLUMBUS\S_SORTER.WK3
18-Oct-95
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JOB 016813

SHEET NO. 1 OF 1

CALCULATED BY STM DATE 10-31-95

CHECKED BY ______ DATE ______

SCALE ______

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SYNTHETIC MINOR OPERATING PERMIT APPLICATION
SUPPORT CALCULATIONS

▷ SWITCH TIE UNLOADER

Calculations for the switch tie unloader were corrected for 6x8 tie processing. A multiplier changing the daily emission rate to the annual emission rate was inadvertently left out of the equation. The resulting annual rate for 6x8 tie processing remains below the maximum 7x9 tie processing emission rate.

EMISSION POINT DATA, SECTION C FORMS, AND SUPPORT CALCULATIONS FOR EMISSION UNITS PREVIOUSLY CONSIDERED INSIGNIFICANT ACTIVITIES

GROUNDWATER OIL/WATER SEPARATOR LIFT STATION
WWTF SCRUBBER RECYCLE TANK
FUEL OIL STORAGE TANKS
SPACE HEATERS

Supplemental Information for the Synthetic Minor Operating Permit Application

Additional Emission Points (previous Insignificant Activities):

EP0012A	Groundwater Oil/Water Separator Lift Station
EP0013A	Wastewater Treatment Facility Scrubber Recycle Sump/Tank
EP0014	Fuel Oil Tanks, 4 @ 25,000 gallons
EP0015	Fuel Oil Tank, 1@ 1,000 gallons
EP0016	Space Heaters, 4 units

EP0012A - It is assumed that the air emissions from the Groundwater Oil/Water Separator Lift Station are similar to those from the Groundwater Oil/Water Separator (EP012). The flow rate and water temperature of both units are equivalent. Appropriate air emissions were therefore determined by developing a ratio based on the surface areas of the units. Air emissions from the Groundwater Oil/Water Separator were calculated using the U.S. Environmental Protection Agency (USEPA) Water8 model. Please refer to Figures 2 and 3 in Section 2, Application Addendum for Synthetic Minor Operating Permit, of the operating permit application. Section 3 C contains the air emission summary for the wastewater treatment system (located at the end of the Section).

EP0013A - It is assumed that the air emissions from the Wastewater Treatment Facility Scrubber Recycle Sump/Tank are similar to those from the treatment system Surge Tank (EP010). Appropriate air emissions were determined by developing a ratio based on the diameter of the units. Air emissions from the Surge Tank were calculated using the USEPA Water8 model. This assumption is conservative as the Surge Tank handles process water and the Scrubber Sump/Tank is fed by the Groundwater Oil/Water Separator. Please refer to Figures 2 and 3 in Section 2, Application Addendum for Synthetic Minor Operating Permit, of the operating permit application. Section 3 C contains the air emission summary for the wastewater treatment system (located at the end of the Section).

EP014 - It is assumed that the air emissions from the four 25,000 gallon Fuel Storage Tanks are similar to those calculated for a similar tank at another Kerr-McGee facility in Avoca, Pennsylvania. Air emissions from the Avoca facility fuel tank were calculated according to the USEPA guidance document, AP42, and confirmed with the USEPA Tanks2.0 model. The number of tank turnovers used in the calculations for the Avoca facility were modified to account for more pieces of rolling stock at the Columbus facility. The resulting air emissions were multiplied by four to approximate the air emissions from the four Columbus facility fuel tanks. Please refer to the attached support calculations.

Air emissions from petroleum storage tanks are estimated as volatile organic compounds (VOCs). The calculation of specific hazardous air pollutant (HAP)

EP014 - (cont'd) emissions is typically not performed due to the negligible levels of these constituents. The 1990 industry average content of benzene in gasoline ranged from 1.53 (summer) to 1.64 (winter) percent volume (UOP 1991). Diesel fuels have lower vapor pressures than gasolines and, therefore, the content of benzene in diesels is again reduced.

EP015 - The estimation for air emissions from the 1,000 gallon Fuel Storage Tank is based on a similar tank at the Avoca facility. Air emissions from the Avoca facility tank were divided by 25 to approximate the air emissions from the small tank at Columbus. The resulting air emission levels are negligible. Please refer to EP014 for further discussion.

EP016 - Air emissions from the four on-site space heaters were calculated according to the USEPA document, AIRS Facility Subsystem.

MANUFACTURING PROCESSES (page 1 of 2) SECTION E

1. Emission Point No./ Name: EP012A - Groundwater Oil/Water Separator Lift Station

2. Process Description: Separation and recovery of creosote from ground water

3. Was this unit constructed or modified after August 7, 1977? X yes ____ no
   If yes please give date and explain. Unit added in 1994.

4. Rated Capacity (tons/hr): N/A

Raw Material Input:

MATERIAL	QUANTITY/HR AVERAGE	QUANTITY/HR MAXIMUM	QUANTITY/YEAR
N/A			

6. Product Output:

PRODUCT or BY-PRODUCT	QUANTITY/HR AVERAGE	QUANTITY/HR MAXIMUM	QUANTITY/YEAR
N/A			

7. Stack Data: Scrubber
   A. Height: (Packed) 10 ft   C. Exit gas velocity: 200 acfm
   B. Inside diameter: 2 ft   D. Exit gas temperature: 200° F

8. UTM Coordinates:
   A. Zone 16 East B. North 1397973.68 C. East 629058.79

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 (a)			PROPOSED ALLOWABLE EMISSION RATE (3)		
		* yes/no	effic.	note 2	lb/hr	tn/yr	note 2	lb/hr	tn/yr
EP012	Naphthalene	No		lb/hr	$1.77x10^{-3}$	$7.75x10^{-3}$	lb/hr	$1.77x10^{-3}$	$7.75x10^{-3}$
EP012	Quinoline	No		lb/hr	$1.72x10^{-4}$	$7.53x10^{-4}$	lb/hr	$1.72x10^{-4}$	$7.53x10^{-4}$
EP012	Dibenzofuran	No		lb/hr	$3.43x10^{-4}$	$1.50x10^{-3}$	lb/hr	$3.43x10^{-4}$	$1.50x10^{-3}$
EP012	Biphenyl	No		lb/hr	$2.29x10^{-6}$	$1.0x10^{-5}$	lb/hr	$2.29x10^{-6}$	$1.0x10^{-5}$
EP012	VOCs	No		lb/hr	$4.21x10^{-3}$	$1.84x10^{-4}$	lb/hr	$4.21x10^{-3}$	$1.84x10^{-4}$

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.

3. Emission rate with an assumed cyclone collection efficiency of 75%.

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

(a) Emissions are continuous.

SUPPORT CALCULATIONS

JOB 0163/3

SHEET NO. 1 OF 2

CALCULATED BY STM DATE 11-02-95

CHECKED BY WVW DATE 11-02-95

SCALE

AquAeTer

215 Jamestown Park, Suite 204
Brentwood, TN 37027
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KMCC COLUMBUS
EMISSIONS CALCULATIONS

▷ GROUNDWATER OIL/WATER SEPARATOR - LIFT STATION

Surface Areas:

Groundwater Oil/water Separator $12 ft \times 56 ft = 672 ft^2$

Lift Station $11.5 ft \times 4.5 ft = 51.75 ft^2$

Ratio:

$$\frac{51.75\ ft^2}{672\ ft^2} = 0.0770$$

This ratio will be applied to the separator air emissions to derive air emissions for the lift station. From Section 3, Section C, Wastewater Treatment Systems, Summary spreadsheet (last page), Naphthalene emissions are equivalent to 201.0 lbs/yr.

Therefore,

201.0 lbs Naphthalene/yr * 0.0770 = 15.48 lbs/yr

or

$$\frac{15.48\ lbs\ Naph}{year} * \frac{1\ year}{8{,}760\ hours} = 1.77 \times 10^{-3}\ lbs\ Naph/hour$$

From the relationships previously established:

$$\frac{77.4\ lbs\ Naph}{15.0\ lbs\ Dbf} = \frac{1.77 \times 10^{-3}\ lbs\ N}{x\ lbs\ Dbf} \qquad x = 3.43 \times 10^{-4}\ lbs\ Dibenzofuran/hr$$

$$\frac{77.4\ lbs\ Naph}{7.5\ lbs\ Quin} = \frac{1.77 \times 10^{-3}\ lbs\ N}{x\ lbs\ Quin} \qquad x = 1.72 \times 10^{-4}\ lbs\ Quinoline/hr$$

$$\frac{77.4\ lbs\ Naph}{0.1\ lbs\ Biph} = \frac{1.77 \times 10^{-3}\ lbs\ N}{x\ lbs\ Biph} \qquad x = 2.29 \times 10^{-6}\ lbs\ Biphenyl/hr$$

JOB 0165/3

SHEET NO. 2 OF 2

CALCULATED BY SJM DATE 11-02-95

CHECKED BY WVW DATE 11-02-95

SCALE

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KMCC COLUMBUS
EMISSIONS CALCULATIONS

▶ GROUNDWATER OIL/WATER SEPARATOR LIFT STATION (cont'd)

$$\frac{1.77 \times 10^{-3} \text{ lbs Naph/hr}}{0.42} = 4.21 \times 10^{-3} \text{ lbs VOC/hr}$$

or

$$\frac{1.77 \times 10^{-3} \text{ lbs Naph}}{\text{hr}} * \frac{8{,}760 \text{ hrs}}{\text{year}} * \frac{1 \text{ ton}}{2{,}000 \text{ lbs}} = 7.75 \times 10^{-3} \text{ tons/yr}$$

$$\frac{3.43 \times 10^{-4} \text{ lbs Dbf}}{\text{hr}} * \frac{8{,}760 \text{ hrs}}{\text{year}} * \frac{1 \text{ ton}}{2{,}000 \text{ lbs}} = 1.50 \times 10^{-3} \text{ tons/yr}$$

$$\frac{1.72 \times 10^{-4} \text{ lbs Quin}}{\text{hr}} * \frac{8{,}760 \text{ hrs}}{\text{year}} * \frac{1 \text{ ton}}{2{,}000 \text{ lbs}} = 7.53 \times 10^{-4} \text{ tons/yr}$$

$$\frac{2.29 \times 10^{-6} \text{ lbs Biph}}{\text{hr}} * \frac{8{,}760 \text{ hrs}}{\text{year}} * \frac{1 \text{ ton}}{2{,}000 \text{ lbs}} = 1.00 \times 10^{-5} \text{ tons/yr}$$

$$\frac{4.21 \times 10^{-3} \text{ lbs VOC}}{\text{hr}} * \frac{8{,}760 \text{ hrs}}{\text{year}} * \frac{1 \text{ ton}}{2{,}000 \text{ lbs}} = 1.84 \times 10^{-2} \text{ tons/yr}$$

MANUFACTURING PROCESSES (page 1 of 2) SECTION E

1. Emission Point No./ Name: EP013A - WWTF Scrubber Recycle Tank Sump (EU021B)

2. Process Description: Provides scrubber blow down water

3. Was this unit constructed or modified after August 7, 1977? X yes ____ no
If yes please give date and explain.
The Wastewater Treatment Scrubber is the initial scrubber permitted at the site (MDEQ Number 1680-00020). This scrubber was moved in 1995 from the work tanks to the wastewater treatment facility to provide more air emissions control. Along with this modification to the air treatment system at the facility, the recycle sump has become a source of blow down water for the scrubber.

4. Rated Capacity (tons/hr): N/A

Raw Material Input:

MATERIAL	QUANTITY/HR AVERAGE	QUANTITY/HR MAXIMUM	QUANTITY/YEAR
N/A			

6. Product Output:

PRODUCT or BY-PRODUCT	QUANTITY/HR AVERAGE	QUANTITY/HR MAXIMUM	QUANTITY/YEAR
N/A			

7. Stack Data: Scrubber 10 ft C. Exit gas velocity: 200 acfm
B. Inside diameter: 2 ft D. Exit gas temperature: 200° F

8. UTM Coordinates:
A. Zone 16 East B. North 1398024.42 C. East 629043.56

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 (a)			PROPOSED ALLOWABLE EMISSION RATE (3)		
		* yes/no	effic	note 2	lb/hr	tn/yr	note 2	lb/hr	tn/yr
EP010	Naphthalene	No		lb/hr	$2.49x10^{-3}$	$1.09x10^{-2}$	lb/hr	$2.49x10^{-3}$	$1.09x10^{-2}$
EP010	Quinoline	No		lb/hr	$2.41x10^{-4}$	$1.06x10^{-3}$	lb/hr	$2.41x10^{-4}$	$1.06x10^{-3}$
EP010	Dibenzofuran	No		lb/hr	$4.83x10^{-4}$	$2.12x10^{-3}$	lb/hr	$4.83x10^{-4}$	$2.12x10^{-3}$
EP010	Biphenyl	No		lb/hr	$3.22x10^{-6}$	$1.41x10^{-5}$	lb/hr	$3.22x10^{-6}$	$1.41x10^{-5}$
EP010	VOCs	No		lb/hr	$5.93x10^{-3}$	$2.60x10^{-2}$	lb/hr	$5.93x10^{-3}$	$2.60x10^{-2}$

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.

3. Emission rate with an assumed cyclone collection efficiency of 75%.

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

(a) Emissions are continuous.

SUPPORT CALCULATIONS

JOB 0168

SHEET NO. 1 OF 2

CALCULATED BY STM DATE 11-02-95

CHECKED BY WVW DATE 11-02-95

SCALE

AquAeTer
215 Jamestown Park, Suite 204
Brentwood, TN 37027
(615) 373-8532 FAX (615) 373-8512

KMCC COLUMBUS
EMISSIONS CALCULATIONS

▷ WWTF SCRUBBER RECYCLE TANK/SUMP

Surface Areas:

Surge Tank $\pi \left(\frac{21 ft}{2}\right)^2 = 346.36 ft^2$

Recycle Tank $\pi \left(\frac{10 ft}{2}\right)^2 = 78.54 ft^2$

Ratio:

$$\frac{78.54 ft^2}{346.36 ft^2} = 0.2268$$

This ratio will be applied to the surge tank air emissions to derive air emissions for the recycle tank. From Section 3, Section C, Wastewater Treatment Systems, Summary spreadsheet (last page), Naphthalene emissions are equivalent to 96.3 lbs/year.

Therefore,

96.3 lbs Naphthalene/yr * 0.2268 = 21.84 lbs/yr

or

$$\frac{21.84 \text{ lbs Naph}}{\text{year}} \times \frac{1 \text{ year}}{8{,}760 \text{ hours}} = 2.49 \times 10^{-3} \text{ lbs Naph/hour}$$

From the relationships previously established:

$$\frac{77.4 \text{ lbs Naph}}{15.0 \text{ lbs Dbf}} = \frac{2.49 \times 10^{-3} \text{ lbs Naph}}{x \text{ lbs Dbf}} \quad x = 4.83 \times 10^{-4} \frac{\text{lbs Dibenzofuran}}{\text{hour}}$$

$$\frac{77.4 \text{ lbs Naph}}{7.5 \text{ lbs Quin}} = \frac{2.49 \times 10^{-3} \text{ lbs Naph}}{x \text{ lbs Quin}} \quad x = 2.41 \times 10^{-4} \frac{\text{lbs Quinoline}}{\text{hour}}$$

JOB 01695/3

SHEET NO. 2 OF 2

CALCULATED BY STM DATE 11-02-95

CHECKED BY WVW DATE 11-02-95

SCALE

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KMCC COLUMBUS
EMISSIONS CALCULATIONS

▷ WWTF SCRUBBER RECYCLE TANK/SUMP (cont'd)

$$\frac{77.4 \text{ lbs Naph}}{0.1 \text{ lbs Biph}} = \frac{2.49 \times 10^{-3} \text{ lbs Naph}}{x \text{ lbs Biph}} \quad x = 3.22 \times 10^{-6} \text{ lbs Biphenyl/hour}$$

$$\frac{2.49 \times 10^{-3} \text{ lbs Naph}}{0.42} = 5.93 \times 10^{-3} \text{ lbs VOC/hour}$$

or

$$\frac{2.49 \times 10^{-3} \text{ lbs Naph}}{\text{hour}} * \frac{8{,}760 \text{ hours}}{\text{year}} * \frac{1 \text{ ton}}{2000 \text{ lbs}} = 1.09 \times 10^{-2} \text{ tons/yr}$$

$$\frac{4.83 \times 10^{-4} \text{ lbs Dbf}}{\text{hour}} * \frac{8{,}760 \text{ hours}}{\text{year}} * \frac{1 \text{ ton}}{2{,}000 \text{ lbs}} = 2.12 \times 10^{-3} \text{ tons/yr}$$

$$\frac{2.41 \times 10^{-4} \text{ lbs Quin}}{\text{hour}} * \frac{8{,}760 \text{ hours}}{\text{year}} * \frac{1 \text{ ton}}{2{,}000 \text{ lbs}} = 1.06 \times 10^{-3} \text{ tons/yr}$$

$$\frac{3.22 \times 10^{-6} \text{ lbs Biph}}{\text{hour}} * \frac{8{,}760 \text{ hours}}{\text{year}} * \frac{1 \text{ ton}}{2{,}000 \text{ lbs}} = 1.41 \times 10^{-5} \text{ tons/yr}$$

$$\frac{5.93 \times 10^{-3} \text{ lbs VOC}}{\text{hour}} * \frac{8{,}760 \text{ hours}}{\text{year}} * \frac{1 \text{ ton}}{2{,}000 \text{ lbs}} = 2.60 \times 10^{-2} \text{ tons/yr}$$

TANK SUMMARY (page 1 of 2) SECTION H

1. Emission Point No./Name: EP014 - Fuel Tanks (4- 25,000 gals)

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

3. Product Stored: No. 2 Fuel Oil
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: 0.0074 psia/°F
B. Reid Vapor Pressure at storage temperature: NA psia/°F
C. Density of product at storage temperature: 7.1 lb/gal
D. Molecular Weight of product vapor at storage temperature: 130 lb/lbmol
E. Throughput for most recent calendar year: 48,400 gal/yr
F. Tank Capacity: 25,348 gal
G. Tank Diameter: 12 feet
H. Tank Height / Length: 30 feet
I. Average Vapor Space Height: 3 feet
J. Tank Orientation: V Vertical or Horizontal
K. Type of Roof: D Dome or ____ Cone
L. Is the Tank Equipped with a Vapor Recovery System? Yes __X__ No ____
If Yes, describe on separate sheet of paper and attach. Indicate efficiency.
M. Check the Type of Tank:
__X__ Fixed Roof
____ Pressure
____ Variable Vapor Space
____ Other, describe: ________
____ External Floating Roof
____ Internal Floating Roof
N. Check the Closest City:
__X__ Jackson, MS
____ Memphis, TN
____ New Orleans, LA
____ Birmingham, AL
____ Montgomery, AL
____ Baton Rouge, LA
O Check the Tank Paint Color:
____ Aluminum Specular
____ Aluminum Diffuse
__X__ Red
____ Other, describe: Black
____ Gray Light
____ Gray Medium
____ White
P. Tank Paint Condition: G Good or Poor
Q. Check Type of Tank Loading
1. Trucks and Rail Cars
____ Submerged Loading of clean cargo tank
__X__ 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 N/A
____ Submerged Loading: Ships
____ Submerged Loading: Barges

R. For External Floating Roof Tanks NA

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 NA

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: 4.19×10^{-3} ✓ HAPs - Negligible VOCs - 0.26 lb/day ✓
   2. Working Loss: 1.93×10^{-3} ✓ HAPs - Negligible VOCs - 0.12 lb/day ✓
   3. Total Emissions: 6.12×10^{-3} ✓ HAPs - Negligible VOCs - 0.38 lb/day

6. UTM Coordinates:
   A. Zone 16 East B. North C. East

TANK SUMMARY (page 1 of 2) SECTION H

1. Emission Point No./Name: EP015 - Fuel Tank (1- 1,000 gals)

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

3. Product Stored: No. 2 Fuel Oil
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: 0.0074 psia/°F
B. Reid Vapor Pressure at storage temperature: NA psia/°F
C. Density of product at storage temperature: 7.1 lb/gal
D. Molecular Weight of product vapor at storage temperature: 130 lb/lbmol
E. Throughput for most recent calendar year: 48,400 gal/yr
F. Tank Capacity: 1,000 gal
G. Tank Diameter: 4 feet
H. Tank Height / Length: 10.5 feet
I. Average Vapor Space Height: 1 feet
J. Tank Orientation: H Vertical or ____ Horizontal
K. Type of Roof: D Dome or ____ Cone
L. Is the Tank Equipped with a Vapor Recovery System? Yes X No ____
If Yes, describe on separate sheet of paper and attach. Indicate efficiency.
M. Check the Type of Tank:
X Fixed Roof
____ External Floating Roof
____ Pressure
____ Internal Floating Roof
____ Variable Vapor Space
____ Other, describe:
N. Check the Closest City:
X 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
X Red
____ White
____ Other, describe: Black
P. Tank Paint Condition: G Good or Poor
Q. Check Type of Tank Loading
1. Trucks and Rail Cars
____ Submerged Loading of clean cargo tank
X 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 N/A
____ Submerged Loading: Ships
____ Submerged Loading: Barges

R. For External Floating Roof Tanks NA

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 NA

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: $4.19x10^{-5}$ HAPs - Negligible VOCs - $2.55x10^{-3}$ ✓
2. Working Loss: $1.93x10^{-5}$ HAPs - Negligible VOCs - $1.18x10^{-3}$ ✓
3. Total Emissions: $6.12x10^{-5}$ HAPs - Negligible VOCs - $3.73x10^{-3}$ ✓

6. UTM Coordinates:

A. Zone 16 East B. North _______ C. East _______

____

TO BE PROVIDED

SUPPORT CALCULATIONS

JOB 0168/3
SHEET NO. 1 OF
CALCULATED BY STM DATE 11-02-95
CHECKED BY SLK DATE 11-02-95
SCALE

AquAeTer
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KMCC COLUMBUS
EMISSIONS CALCULATIONS

▶ FUEL TANKS

4 @ 25,000 gals

L_B : $\frac{23.29 \text{ lbs VOC}}{\text{year}} * \frac{1 \text{ year}}{365 \text{ days}} * 4 \text{ tanks} = 2.55 \times 10^{-1} \text{ lbs/day}$

L_W : $\frac{10.75 \text{ lbs VOC}}{\text{year}} * \frac{1 \text{ year}}{365 \text{ days}} * 4 \text{ tanks} = 1.18 \times 10^{-1} \text{ lbs/day}$

Therefore,

2.55×10^{-1} lbs VOC/day * 0.0164 (% Benzene) = 4.18×10^{-3} lbs/day
1.18×10^{-1} lbs VOC/day * 0.0164 (% Benzene) = 1.94×10^{-3} lbs/day

1 @ 1,000

L_B : $\frac{23.29 \text{ lbs VOC}}{\text{year}} * \frac{1 \text{ year}}{365 \text{ days}} * \frac{1{,}000 \text{ gals}}{25{,}000 \text{ gals}} = 2.55 \times 10^{-3} \text{ lbs/day}$

L_W : $\frac{10.75 \text{ lbs VOC}}{\text{year}} * \frac{1 \text{ year}}{365 \text{ days}} * \frac{1{,}000 \text{ gals}}{25{,}000 \text{ gals}} = 1.18 \times 10^{-3} \text{ lbs/day}$

Therefore,

2.55×10^{-3} lbs VOC/day * 0.0164 (% Benzene) = 4.18×10^{-5} lbs/day
1.18×10^{-3} lbs VOC/day * 0.0164 (% Benzene) = 1.94×10^{-5} lbs/day

COLUMBUS

Fuel Tank (25,000 gals) - VOC Emissions

Breathing Loss, Lb, Emissions

		Unit	Symbol
1. Molecular Weight of Vapor	130.00	lb/lb mole	Mv
2. Average Atmospheric Pressure	14.58	psia	Pa
3. True Vapor Pressure at Bulk Liquid Conditions	0.0120	psia	P
4. Tank Diameter	12.00	ft	D
5. Average Vapor Space Height	3.00	ft	H
6. Average Ambient Diurnal Temperature Change	23.70	oF	T
7. Paint Factor	1.58	NA	Fp
8. Adjustment Factor for Small Tanks	1.00	NA	C
9. Product Factor	1.00	NA	Kc

Lb (lb/yr) = (2.26x10^-2) x (Mv) x ((P/Pa-P)^0.68) x (D^1.73) x (H^0.51) x (T^0.50) x Fp x C x Kc

Therefore, the Lb for the Fuel Tank = 23.29 lb/yr
0.0116 ton/yr

Working Loss, Lw, Emissions

		Unit	Symbol
1. Molecular Weight of Vapor	130.00	lb/lb mole	Mv
2. True Vapor Pressure at Bulk Liquid Conditions	0.0120	psia	P
3. Tank Capacity	25,000	gal	V
4. Number of Turnovers per Year	11.48	NA	N
5. Turnover Factor	1.00	NA	Kn
6. Product Factor	1.00	NA	Kc

Lw (lb/yr) = (2.40x10^-5) x Mv x P x V x N x Kn x Kc

Therefore, the Lw for the Fuel Tank = 10.75 lb/yr
0.0054 ton/yr

Assumptions

1. Evaporative emissions as loading losses are incorporated into the breathing and working losses for large storage tanks. (Section 4.4, Transportation and Marketing of Petroleum Liquids, refers to Section 4.3, Storage of Organic Liquids, for large storage tanks).

References

1. AP-42 4.3

F:\DATA\0168\COLUMBUS\FUEL_TK.WK3
01-Nov-95
11:32 AM

L_B = 23.29 lbs VOC/yr ∴ Benzene (HAPs) = 23.29 lb/yr * 0.0164
= 0.3820 lb/yr

Lw = 10.75 lbs VOC/yr ∴ Benzene (HAPs) = 10.75 lb/yr * 0.0164
= 0.1763 lb/yr

1. Emission Point No. / Name: **EP016 - Space Heaters (2) - Maintenance Shop**

2. Equipment Description: **Space Heaters**

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

4. Rated Capacity: **0.4** 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/cu ft**	**<0.5**	**<0.05**	**46.03 cu ft/hr**	**403,200 cu ft/yr**

8. Please list any fuel components that are hazardous air pollutants and the percentage in the fuel.

   N/A

9. Operating Schedule: **24** hours/day **7** days/week **3 months**/yr

10. Stack Data: **N/A**
    A. Height: ____ C. Exit gas velocity: ____
    B. Inside diameter: ____ D. Exit gas temperature: ____

11. UTM Coordinates:
    A. Zone 16 East **to be provided** B. North C. East

FUEL BURNING EQUIPMENT (page 2 of 2) — SECTION D

12. POLLUTANT EMISSIONS:

Emission rate calculations are attached under support calculations.

EMISSION POINT NO.	POLLUTANT (note 1)	CONTROL EQUIPMENT		ACTUAL EMISSION RATE			PROPOSED ALLOWABLE EMISSION RATE		
		* yes/no	effic.	note 2	lb/hr	tn/1mo	note 2	lb/hr	tn/yr
EP0016	SO_x	NO	N/A	lb/MM ft^3	2.8E-05	1.2E-04	lb/MM ft3	2.8E-05	1.2E-04
EP0016	NO_x	NO	N/A	lb/MM ft^3	4.6E-03	0.02	lb/MM ft3	4.6E-03	0.02
EP0016	CO	NO	N/A	lb/MM ft^3	9.2E-04	0.004	lb/MM ft3	9.2E-04	0.004
EP0016	PM	NO	N/A	lb/MM ft^3	1.4E-04	6.0E-04	lb/MM ft3	1.4E-04	6.0E-04
EP0016	PM-10	NO	N/A	lb/MM ft^3	1.4E-04	6.0E-04	lb/MM ft3	1.4E-04	6.0E-04
EP0016	VOCs	NO	N/A	lb/MM ft^3	2.4E-04	0.001	lb/MM ft3	2.4E-04	0.001

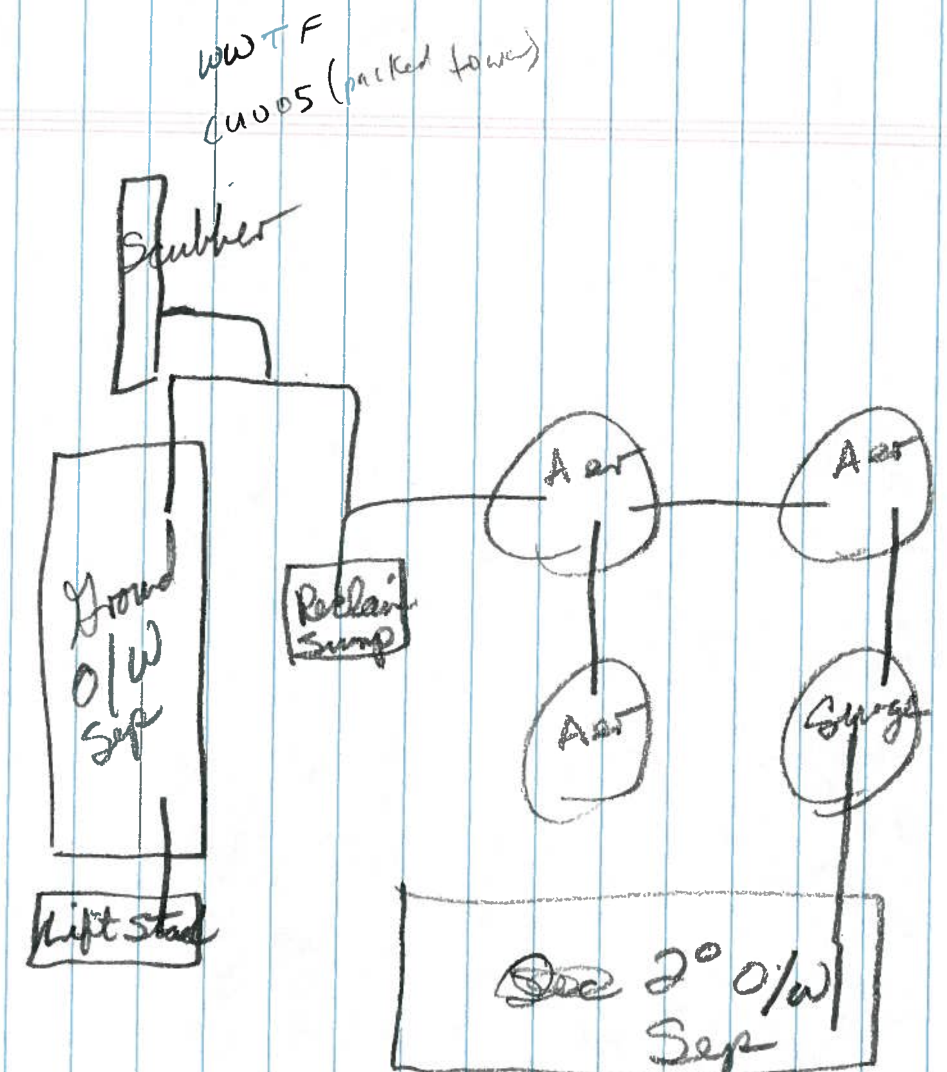
for 3 mos

multiply times 4

MM/ft^3 - million cubic feet burned

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.



WWTF
CU005 (packed tower)
Scrubber
Ground
O/W
Sep
Lift Stat
Reclaim
Sump
Aer
Aer
Aer
Surge
2° O/W
Sep

FUEL BURNING EQUIPMENT (page 1 of 2) 6 w/ 4 exhausts SECTION D

1. Emission Point No. / Name: **EP016 - Space Heaters (4) - Framing Mill**

2. Equipment Description: **Space Heaters**

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

4. Rated Capacity: **0.0065** 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/cu ft**	**<0.5**	**<0.05**	**1.5 cu ft/hr**	**13,104 cu ft/yr**

8. Please list any fuel components that are hazardous air pollutants and the percentage in the fuel.

   N/A

9. Operating Schedule: **24** hours/day **7** days/week **3 months**/yr

10. Stack Data: **N/A**
    A. Height: ____ C. Exit gas velocity: ____
    B. Inside diameter: ____ D. Exit gas temperature: ____

11. UTM Coordinates:
    A. Zone **16 East** B. North **1398087.86** C. East **629291.09**

12. POLLUTANT EMISSIONS:

Emission rate calculations are attached under support calculations.

EMISSION POINT NO	POLLUTANT (note 1)	CONTROL EQUIPMENT		ACTUAL EMISSION RATE*			PROPOSED ALLOWABLE EMISSION RATE		
		yes/no*	effic	note 2	lb/hr	tn/1mo	note 2	lb/hr	tn/yr
EP0016	SO_x	NO	N/A	lb/MM ft³	9.0E-07	3.9E-06	lb/MM ft3	9.0E-07	3.9E-06
EP0016	NO_x	NO	N/A	lb/MM ft³	1.5E-04	6.6E-04	lb/MM ft3	1.5E-04	6.6E-04
EP0016	CO	NO	N/A	lb/MM ft³	3.0E-05	1.3E-04	lb/MM ft3	3.0E-05	1.3E-04
EP0016	PM	NO	N/A	lb/MM ft³	4.5E-06	2.0E-05	lb/MM ft3	4.5E-06	2.0E-05
EP0016	PM-10	NO	N/A	lb/MM ft³	4.5E-06	2.0E-05	lb/MM ft3	4.5E-06	2.0E-05
EP0016	VOCs	NO	N/A	lb/MM ft³	7.9E-06	3.5E-05	lb/MM ft3	7.9E-06	3.5E-05

x 4

for 3 mos.

MM/ft³ - million cubic feet burned

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.

JOB 0302

SHEET NO. 1 OF 2

CALCULATED BY LDB DATE 11-8-95

CHECKED BY WVW DATE 11-8-95

SCALE

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The space heaters burn natural gas.
The heat content of the gas is 1,000 BTU/cu ft

∴ 2 space heaters - maintenance shop
(400,000 BTU)

$$\frac{400{,}000 \text{ BTU}}{\text{hr}} * \frac{1 \text{ cu ft}}{1{,}000 \text{ BTU}} = 400 \text{ cu ft/hr}$$

then

$$\frac{400 \text{ cu ft}}{\text{hr}} * \frac{24 \text{ hrs}}{\text{day}} * \frac{7 \text{ days}}{\text{wk}} * \frac{3 \text{ months}}{\text{yr}} =$$

201,600 cu ft/yr

201,600 cu ft/yr * 2 heaters = 403,200 cu ft/yr

AIRS Emission Factors

$$\frac{0.4032 \text{ million cu ft}}{\text{yr}} * 3.0 \text{ lbs/mm cu ft}$$ Particulate

= 1.2096 lbs/yr

$$\frac{0.4032 \text{ mm cu ft}}{\text{yr}} * \frac{3.0 \text{ lbs}}{\text{mm cu ft}}$$ PM-10

= 1.2096 lbs/yr

$$\frac{0.4032 \text{ mm cu ft}}{\text{yr}} * \frac{0.6 \text{ lbs}}{\text{mm cu ft}}$$ SO_x

= 0.2419 lbs/yr

$$\frac{0.4032 \text{ mm cu ft}}{\text{yr}} * \frac{100 \text{ lbs}}{\text{mm cu ft}}$$ NO_x

= 40.32 lbs/yr

SUPPORT CALCULATIONS

AquAeTer
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Brentwood, TN 37027
(615) 373-8532 FAX (615) 373-8512

JOB: OCWA
SHEET NO.: 1 OF 2
CALCULATED BY: LDB DATE: 11-8-95
CHECKED BY: WVW DATE: 11-8-95
SCALE:

The space heaters burn natural gas.
The heat content of the gas is 1,000 BTU/cu ft

∴ 2 space heaters (maintenance shop) (400,000 BTU)

$$\frac{400{,}000\ \text{BTU}}{\text{hr}} * \frac{1\ \text{cu ft}}{1{,}000\ \text{BTU}} = 400\ \text{cu ft/hr}$$

Then

$$\frac{400\ \text{cu ft}}{\text{hr}} - \frac{24\ \text{hrs}}{\text{day}} * \frac{7\ \text{days}}{\text{wk}} * \frac{3\ \text{months}}{\text{yr}} =$$

201,600 cu ft/yr

201,600 cu ft/yr * 2 heaters = 403,200 cu ft/yr

AIRS Emission Factors

$$\frac{0.4032\ \text{million cu ft}}{\text{yr}} * 3.0\ \text{lbs/mm cu ft.}$$ Particulate

= 1.2096 lbs/yr

$$\frac{0.4032\ \text{mm cu ft}}{\text{yr}} * \frac{3.0\ \text{lbs}}{\text{mm cu ft}}$$ PM-10

= 1.2096 lbs/yr

$$\frac{0.4032\ \text{mm cu ft}}{\text{yr}} * \frac{0.6\ \text{lbs}}{\text{mm cu ft}}$$ SO_x

= 0.2419 lbs/yr

$$\frac{0.4032\ \text{mm cu ft}}{\text{yr}} * \frac{100\ \text{lbs}}{\text{mm cu ft}}$$ NO_x

= 40.32 lbs/yr

JOB	[illegible]
SHEET NO.	2 OF 2
CALCULATED BY	LDB DATE 11-8-95
CHECKED BY	WVW DATE 11-8-95
SCALE	

AquAeTer

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∴ 2 space heaters ([illegible]0,000 BTU) (con't)

$\frac{0.4032 \text{ mm cu ft}}{\text{yr}} \times \frac{5.3 \text{ lbs}}{\text{mm cu ft}}$ VOC

$= 2.1370$ lbs/yr

$\frac{0.4032 \text{ mm cu ft}}{\text{yr}} \times \frac{20.0 \text{ lbs}}{}$ CO

$= 8.064$ lbs/yr

Summary:

pm	1.2096	lbs/yr ;	6.0×10^{-4} tpy
pm-10	1.2096	lbs/yr ;	6.0×10^{-4} tpy
SOx	0.2419	lbs/yr ;	1.2×10^{-4} tpy
NOx	40.32	lbs/yr ;	0.02 tpy
VOC	2.1370	lbs/yr ;	0.001 tpy
CO	8.064	lbs/yr ;	0.004 tpy

JOB 0362

SHEET NO. 1 OF 2

CALCULATED BY LDB DATE 11-8-95

CHECKED BY WVW DATE 11-8-95

SCALE

AquAeTer
215 Jamestown Park, Suite 204
Brentwood, TN 37027
(615) 373-8532 FAX (615) 373-8512

Columbus

The space heaters burn natural gas.
the heat content of the gas is 1,000 BTU/cu ft.

∴ 4 small (6,500 BTU) space heaters in the framing mill

$$\frac{6{,}500\ BTU}{hr} * \frac{1\ cu\ ft}{1{,}000\ BTU} = 6.5\ cu\ ft/hr$$

then

$$\frac{6.5\ cu\ ft}{hr} * \frac{24\ hrs}{day} * \frac{7\ days}{wk} * \frac{3\ mons}{yr} = 3{,}276\ cu\ ft/yr$$

3,276 cu ft/yr * 4 heaters = 13,104 cu ft/yr

AIRS Emission Factors

$$\frac{0.0131\ mm\ cu\ ft}{yr} * \frac{3.0\ lbs}{mm\ cu\ ft}$$ Particulate

$$= 0.0393\ lbs/yr$$

$$\frac{0.0131\ mm\ cu\ ft}{yr} * \frac{3.0\ lbs}{mm\ cu\ ft}$$ PM-10

$$= 0.0393\ lbs/yr$$

$$\frac{0.0131\ mm\ cu\ ft}{yr} * \frac{0.6\ lbs}{mm\ cu\ ft}$$ SOx

$$= 0.0079\ lbs/yr$$

JOB 03[illegible]

SHEET NO. 2 OF 2

CALCULATED BY LDB DATE 11-8-95

CHECKED BY WVW DATE 11-8-95

SCALE

AquAeTer
215 Jamestown Park, Suite 204
Brentwood, TN 37027
(615) 373-8532 FAX (615) 373-8512

∴ 4 small (6500 BTU) Space heaters (cont)

$\frac{0.0131 \text{ mm cu ft}}{\text{yr}} * \frac{100 \text{ lbs}}{\text{mm cu ft}}$ NOx

$= 1.31$ lbs/yr

$\frac{0.0131 \text{ mm cu ft}}{\text{yr}} * \frac{5.3 \text{ lbs}}{\text{mm cu ft}}$ VOC

$= 0.0694$ lbs/yr

$\frac{0.0131 \text{ mm cu ft}}{\text{yr}} * \frac{20.0 \text{ lbs}}{\text{mm cu ft}}$ CO

$= 0.262$ lbs/yr

Summary:

PM	0.0393 lbs/yr ;	2.0×10^{-5} tpy
PM-10	0.0393 lbs/yr ;	2.0×10^{-5} tpy
SOx	0.0079 lbs/yr ;	3.9×10^{-6} tpy
NOx	1.31 lbs/yr ;	6.6×10^{-4} tpy
VOC	0.0694 lbs/yr ;	3.5×10^{-5} tpy
CO	0.262 lbs/yr ;	1.3×10^{-4} tpy

JOB 0168/3

SHEET NO. 1 OF 1

CALCULATED BY RFB DATE

CHECKED BY DATE

SCALE

AquAeTer

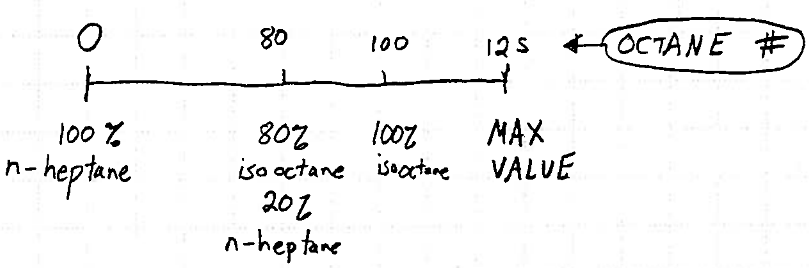
215 Jamestown Park, Suite 204
Brentwood, TN 37027
(615) 373-8532 FAX (615) 373-8512

Diesel Fuels

$C_{16}H_{34}$

Cetane Number – amt. of n-hexadecane in fuel (ignition standard for diesel fuels)

Ignition Improver – amyl nitrate added to improve fuel ignition & raise cetane number.



Premium Leaded = 100
" Unleaded = 85-90

MBTE added to raise octane

B E X

Benzene – 1990 Industry avg = 1.53 % summer (Vol Percent)
1.64 % winter

- Simple Model for CAAA 1990 state max of 1 %
- Complex " to be developed (as of 1993)

Xylene – Used in aviation gasoline (Octane enhancer?)

JOB 94016319

SHEET NO. 1 OF 1

CALCULATED BY STM DATE 10-18-95

CHECKED BY ______ DATE ______

SCALE ______

AquAeTer
215 Jamestown Park, Suite 204
Brentwood, TN 37027
(615) 373-8532 FAX (615) 373-8512

KMCC AVOCA

FUEL TANK THROUGHPUT RATE/TURNOVERS CALCULATION

Consumption of No. 2 Fuel Oil

Mobile sources consume 1,200 gallons of fuel oil per month

Therefore,

$\frac{\text{~~1,200~~ 5,010 gals fuel oil}}{\text{month}} * \frac{\text{12 months}}{\text{year}} = $ ~~14,400~~ 60,120 gals/yr

The capacity of the boiler is 105 gallons of fuel oil per hour.

Therefore, for 3 months operation with fuel oil,

$\frac{\text{105 gals fuel oil}}{\text{hour}} * \frac{\text{24 hrs}}{\text{day}} * \frac{\text{90 days}}{\text{year}} = $ 226,800 gals/yr

The total volume of fuel oil consumed plant-wide is equivalent to:

$\frac{\text{~~14,400~~ 60,120 gals}}{\text{year}}$ (from vehicle consumption) + $\frac{\text{226,800 gals}}{\text{year}}$ (from boiler consumption) = ~~241,200~~ 286,920 gals fuel oil/year

≈ ~~242,000~~ 287,000 gals fuel oil/year

Tank turnovers for 1 25,000 gallon capacity tank:

$\frac{\text{~~242,000~~ 287,000 gals fuel oil}}{\text{25,000 gal capacity}} = $ ~~9.68~~ 11.48

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

RECEIVED
APR -6 1995
DEQ-OPC

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

DATA CODED

Data Coded

TYPE OF PERMIT

____New Source
__X_Modification
____Renewal of Operating Permit
____Existing Source Operating Permit

Name Kerr-McGee Chemical Corporation, Forest Products Division

Location: City Columbus County Lowndes

Facility No. (if known) Operating Permit No. 1680-00020

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

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

   A. Name Kerr-McGee Chemical Corporation, Forest Products Division

   B. Mailing Address

      1. Street Address or P.O. Box Kerr-McGee Center; P.O. Box 25861
      2. City Oklahoma City 3. State Oklahoma
      4. Zip Code 73125 5. Telephone No. (405) 270-2402

   C. Contact

      1. Name Nicholas E. Bock 2. Title Manager, Environmenatl Affairs Forest Products Division

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

   A. Name Kerr-McGee Chemical Corporation - Forest Products Division

   B. Mailing Address

      1. Street Address or P.O. Box P.O. Box 906
      2. City Columbus 3.State Mississippi
      4. Zip Code 39701 5.Telephone No. (601) 328-7551

   C. Site Location

      1. Street 2300 14th Avenue & 20th Street
      2. City Columbus 3. County Lowndes
      4. State Mississippi 5 Zip Code 39703
      6. Telephone No. (601) 328-7551

   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 Anthony N. Helms 2. Title Plant Manager

3. SIC Code 2491

4. Number of Employees 85

5. Principal Process(es) Wood Preserving

6. Principal Product(s) and maximum amount produced per day Creosote Treated Wood Products, 9,922 ft^3/day

7. Principal Raw Materials and maximum amount consumed per day. 1.6 x 10^6 lbs/day; wood 238,000 lbs/day; creosote.

8. 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: Jan-Dec.

9. 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 ___No If yes, give year(s) in which modification(s) occurred and explain.
N/A

10. If after August 7, 1977, provide the date construction commenced. N/A

11. If after August 7, 1977, provide the date operation began. N/A

12. Please list the dates of any modifications or emissions increases since August 7, 1977. N/A

13. 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.

Anthony N. Helms
Printed Name of Person Signing

Plant Manager
Title

3/29/95
Date Application Signed

Anthony N. Helms
Signature of Applicant

PLEASE COMPLETE THE FOLLOWING PAGES WHERE APPLICABLE

EMISSIONS SUMMARY SECTION

PART I

STACK PARAMETERS								
Reference Number	Stack Height (feet) tank	Inside Exit Dia. (feet)	Exit Gas Velocity (ft/sec)	Exit Gas Volume (acfm)	Exit Gas Temperature (oF)	Moisture Content (%)	U.T.M. Coordinates Zone 16 East	
							East	North
EU006	30	18	NA	NA	180	23	629168.56	1397853.69
EU007	30	18	NA	NA	180	23	629138.43	1397851.34

EU006 = Work Tank 1
EU007 = Work Tank 2

EMISSIONS SUMMARY SECTION
PART II

Reference Number	Pollutant	PROPOSED EMISSION RATE			POTENTIAL UNCONTROLLED EMISSIONS	
		See Footnote (1)	(lbs/day)	(TPY)	(lbs/day)	(TPY)
EU006	Creosote*	lbs/day	1.0	0.20	4.0	0.80
EU007	Creosote*	lbs/day	1.0	0.20	4.0	0.80

(1) Provide emission rate in units of applicable emission standard, e.g., lb/MMBTU, gr/dscf at 12% CO_2, etc. This may not apply to every emission point or every pollutant from an emission point.

(2) Please provide the total emissions from the facility by pollutant.

* Emissions based on tank throughput in gallons, calculations for emissions and HAPs are attached to tank data sheets.

EMISSIONS SUMMARY SECTION
PART III

CAS NO.	HAP	Proposed Emission Rate		Potential Uncontrolled Emission Rate	
		lbs/day	TPY	lbs/day	TPY
75070	Acetaldehyde				
60355	Acetamide				
75058	Acetonitrile				
98862	Acetophenone				
53963	Acetylaminofluorene(2)				
107028	Acrolein				
79061	Acrylamide				
79107	Acrylic Acid				
107131	Acrylonitrile				
107051	Allyl Chloride				
92671	Aminodipheyl(4)				
62533	Aniline				
90040	Anisidine(o)				
7440360	Antimony Compounds				
7440382	Arsenic Compounds (inorganic including arsine)				
1332214	Asbestos				
71432	Benzene				
92875	Benzidine				
98077	Benzotrichloride				

CAS NO.	HAP	Proposed Emission Rate		Potential Uncontrolled Emission Rate	
		lbs/day	TPY	lbs/day	TPY
98077	Benzotrichloride				
100447	Benzyl Chloride				
7440417	Beryllium Compounds				
192524	Biphenyl	0.0004	0.00007	0.002	0.0003
117817	Bis(2-ethhylhexyl)phthalate (DEHP) (Dioctyl Phthalate)				
542881	Bis(chloromethyl)ether				
75252	Bromoform				
106990	Butadiene(1,3)				
7440439	Cadmium Compounds				
156627	Calcium Cyanamide				
105602	Caprolactam				
133062	Captan				
63252	Carbaryl				
75150	Carbon Disulfide				
56235	Carbon Tetrachloride				
463581	Carbonyl Sulfide				
120809	Catechol				
133904	Chloramben				
57749	Chlordane				
7782505	Chlorine				

CAS NO.	HAP	Proposed Emission Rate		Potential Uncontrolled Emission Rate	
		lbs/day	TPY	lbs/day	TPY
532274	Chloroacetophenone(2)				
108907	Chlorobenzene				
510156	Chlorobenzinate				
67663	Chloroform				
107302	Chloromethyl methyl ether				
126998	Chloroprene (Neoprene; 2-Chloro-1,3-Butadiene)				
7440473	Chromium Compounds (IV)				
10210681	Cobalt Carbonyl (as Co)				
7440484	Cobalt Compounds (metal, dust, and fumes as Co)				
16842038	Cobalt Hydrocarbonyl (as Co)				
65996818A	Coke Oven Emissions				
1319773	Cresols/Cresylic acid				
108394	Cresol(m)				
95487	Cresol(o)				
106445	Cresol(p)				
98828	Cumene (Isopropylbenzene)				
---	Cyanide Compounds (NOTE # 1)				
3547044	DDE				

CAS NO.	HAP	Proposed Emission Rate		Potential Uncontrolled Emission Rate	
		lbs/day	TPY	lbs/day	TPY
334883	Diazomethane				
132649	Dibenzofurans	0.06	0.01	0.24	0.04
96128	Dibromo-3-chloropropane(1,2)				
84742	Dibutylphthalate				
106467	Dichlorobenzene(1,4)(p)				
91941	Dichlorobenzidene(3,3)				
111444	Dichloroethyl ether (Bis(2-chloroehtyl)ether)				
542756	Dichloropropene(1,3)				
62737	Dichlorvos				
111422	Diethanolamine				
121697	Diethyl aniline (N,N) (dimethylaniline (N,N))				
64675	Diethyl Sulfate				
119904	Dimethoxybenzidine(3,3')				
60117	4 - Dimethyl aminoazobenzene				
119937	Dimethyl benzidine (3,3')				
79447	Dimethyl carbamoyl chloride				
68122	Dimethyl formamide				
57147	Dimethyl hydrazine(1,1)				
131113	Dimethyl phthalate				

* See spreadsheet attached to Section H, Tanks Form, for calculations

CAS NO.	HAP	Proposed Emission Rate		Potential Uncontrolled Emission Rate	
		lbs/day	TPY	lbs/day	TPY
77781	Dimethyl sulfate				
534521	Dinitro-o-cresol(4,6), and salts				
51285	Dinitrophenol(2,4)				
121142	Dinitrotoluene(2,4)				
123911	Dioxane(1,4) (1,4-diethyleneoxide)				
122667	Diphenylhydrazine(1,2)				
94757	d(2,4), salts and esters				
106898	Epichlorohydrin (Chloro-2,3-epoxypropane(1))				
106887	Epoxybutane(1,2) (1,2-Butylene oxide)				
140885	Ethyl acrylate				
100414	Ethyl benzene				
51796	Ethyl carbamate (Urethane)				
75003	Ethyl chloride (Chloroethane)				
106934	Ethylene dibromide (1,2-Dibromoethane)				
107062	Ethylene dichloride (1,2-Dichloroethane)				
107211	Ethylene glycol				
151564	Ethylene imine (Azridine)				
75218	Ethylene oxide				

R. For External Floating Roof Tanks NOT APPLICABLE

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 NOT APPLICABLE

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

	HAPs	VOCs		HAPs	VOCs	
1. Breathing Loss:	0.004	0.008	lb/day	0.001	0.002	TPY
2. Working Loss:	0.020	0.030	lb/day	0.004	0.006	TPY
3. Rueping Loss:	0.160	0.300	lb/day	0.029	0.055	TPY
4. Total Emissions:	0.180	0.340	lb/day	0.034	0.063	TPY

6. UTM Coordinates:
A. Zone 16 East B. North 1397853.69 C. East 629168.56

NOTE: Th e supporting calculations show uncontrolled emissions. Controlled emissions were asssumed to be reduced by 75%.

* See spreadsheet attached to Section H, Tanks Form, for calculations

TANK SUMMARY (page 2 of 2) — SECTION H

R. For External Floating Roof Tanks NOT APPLICABLE

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 NOT APPLICABLE

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

	HAPs	VOCs		HAPs	VOCs	
1. Breathing Loss:	0.004	0.008	lb/day	0.001	0.002	TPY
2. Working Loss:	0.020	0.030	lb/day	0.004	0.006	TPY
3. Rueping Loss:	0.160	0.300	lb/day	0.029	0.055	TPY
4. Total Emissions:	0.180	0.340	lb/day	0.034	0.063	TPY

6. UTM Coordinates:
A. Zone 16 East B. North 1397853.69 C. East 629168.56

NOTE: Th e supporting calculations show uncontrolled emissions. Controlled emissions were asssumed to be reduced by 75%.

* See spreadsheet attached to Section H, Tanks Form, for calculations

TANK SUMMARY (page 1 of 2) SECTION H

1. Emission Point No./Name: EU006 Work Tank 3 (New) - EP001

2. Was this tank constructed or modified after August 7, 1977? ____X____ yes __________no

   If yes please give date and explain. Construction of tank will begin upon receipt of a permit to construct

3. Product Stored: Creosote

   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: 0.068 psia/°F
   B. Reid Vapor Pressure at storage temperature: NA psia/°F
   C. Density of product at storage temperature: 9.3 lb/gal
   D. Molecular Weight of product vapor at storage temperature: 128 lb/lbmol
   E. Throughput for most recent calendar year: 1.23×10^7 gal/yr
   F. Tank Capacity: 57,000 gal
   G. Tank Diameter: 18 feet
   H. Tank Height / Length: 30 feet
   I. Average Vapor Space Height: 3 feet
   J. Tank Orientation: V Vertical or Horizontal
   K. Type of Roof: D Dome or Cone
   L. Is the Tank Equipped with a Vapor Recovery System? ___X___Yes _______No

      If Yes, describe on separate sheet of paper and attach. Indicate efficiency.

   M. Check the Type of Tank:
      - X Fixed Roof
      - _______ Pressure
      - _______ Variable Vapor Space
      - _______ Other, describe: _______
      - _______ External Floating Roof
      - _______ Internal Floating Roof
   N. Check the Closest City:
      - X Jackson, Ms.
      - _______ Memphis, Tn.
      - _______ New Orleans, La.
      - _______ Birmingham, Al.
      - _______ Montgomery, Al.
      - _______ Baton Rouge, La.
   O. Check the Tank Paint Color:
      - _______ Aluminum Specular
      - _______ Aluminum Diffuse
      - _______ Red
      - X Other, describe: Black
      - _______ Gray Light
      - _______ Gray Medium
      - _______ White
   P. Tank Paint Condition: G Good or Poor
   Q. Check Type of Tank Loading
      1. Trucks and Rail Cars
         - _______ Submerged Loading of clean cargo tank
         - X 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 - NOT APPLICABLE
         - _______ Submerged Loading: Ships
         - _______ Submerged Loading: Barges

* See spreadsheet attached to Section H, Tanks Form, for calculations

TANK SUMMARY (page 1 of 2) SECTION H

1. Emission Point No./Name: EU007 Work Tank 4 (New) - EP001

2. Was this tank constructed or modified after August 7, 1977? X yes ____ no

If yes please give date and explain. Construction of tank will begin upon receipt of a permit to construct

3. Product Stored: Creosote
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: 0.068 psia/°F
B. Reid Vapor Pressure at storage temperature: NA psia/°F
C. Density of product at storage temperature: 9.3 lb/gal
D. Molecular Weight of product vapor at storage temperature: 128 lb/lbmol
E. Throughput for most recent calendar year: 1.23×10^7 gal/yr
F. Tank Capacity: 57,000 gal
G. Tank Diameter: 18 feet
H. Tank Height / Length: 30 feet
I. Average Vapor Space Height: 3 feet
J. Tank Orientation: V Vertical or Horizontal
K. Type of Roof: D Dome or Cone
L. Is the Tank Equipped with a Vapor Recovery System? X Yes ____ No
If Yes, describe on separate sheet of paper and attach. Indicate efficiency.

M. Check the Type of Tank:
- X Fixed Roof
- ____ Pressure
- ____ Variable Vapor Space
- ____ Other, describe:
- ____ External Floating Roof
- ____ Internal Floating Roof

N. Check the Closest City:
- X Jackson, Ms.
- ____ Memphis, Tn.
- ____ New Orleans, La.
- ____ Birmingham, Al.
- ____ Montgomery, Al.
- ____ Baton Rouge, La.

O. Check the Tank Paint Color:
- ____ Aluminum Specular
- ____ Aluminum Diffuse
- ____ Red
- X Other, describe: Black
- ____ Gray Light
- ____ Gray Medium
- ____ White

P. Tank Paint Condition: G Good or Poor

Q. Check Type of Tank Loading

1. Trucks and Rail Cars
   - ____ Submerged Loading of clean cargo tank
   - X 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 - NOT APPLICABLE
   - ____ Submerged Loading: Ships
   - ____ Submerged Loading: Barges

* See spreadsheet attached to Section H, Tanks Form, for calculations

ATTACHMENT 1

NEW SOURCE PERFORMANCE STANDARDS
EXEMPTION DETERMINATION

NEW SOURCE PERFORMANCE STANDARDS EXEMPTION DETERMINATION

The two new work tanks that KMCC-Columbus would like to install will hold creosote at an approximate temperature of 180 °F or 82.2 °C. The creosote has a vapor pressure at this temperature of between 0.47 and 2.00 kPa as calculated from the information supplied by Allied in Figure 1. The calculations are as follows:

1. Temperature conversion to °K = °C + 273.16 = 82.22 + 273.16 = 355.38 °K;

2. 1/°K = 1/355.38 = 0.002814;

3. From Figure 1, pressure of 3 different creosote mixtures at 180 °F ranges from 3.5 to 15 mm Hg;

4. Convert mm Hg to psia and then to kPa

   - for low volatility creosote

     3.5 mm Hg * 0.01934 psia/mm Hg * kPa/0.14504 psia = 0.467 kPa (low naphthalene)

   - to a maximum for maximum volatility creosote (solution)

     15 mm Hg * 0.01934 psia/mm Hg * kPa/0.14504 psia = 2.00 kPa

5. These tanks are regulated under 40 CFR Part 60, Subpart Kb - Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984.

6. As given in Subpart Kb, 60.110b(c)

   ... vessels with a capacity greater than or equal to 151 m^3 (40,000 gallons) storing a liquid with a maximum true vapor pressure less than 3.5 kPa... are exempt from the general provisions (part 60, subpart A) and from the provisions of this subpart.

7. These tanks are therefore exempt from the 95 percent reduction of emissions required under 60.112b(3)(ii).

8. These are therefore exempt under NSPS requirements.

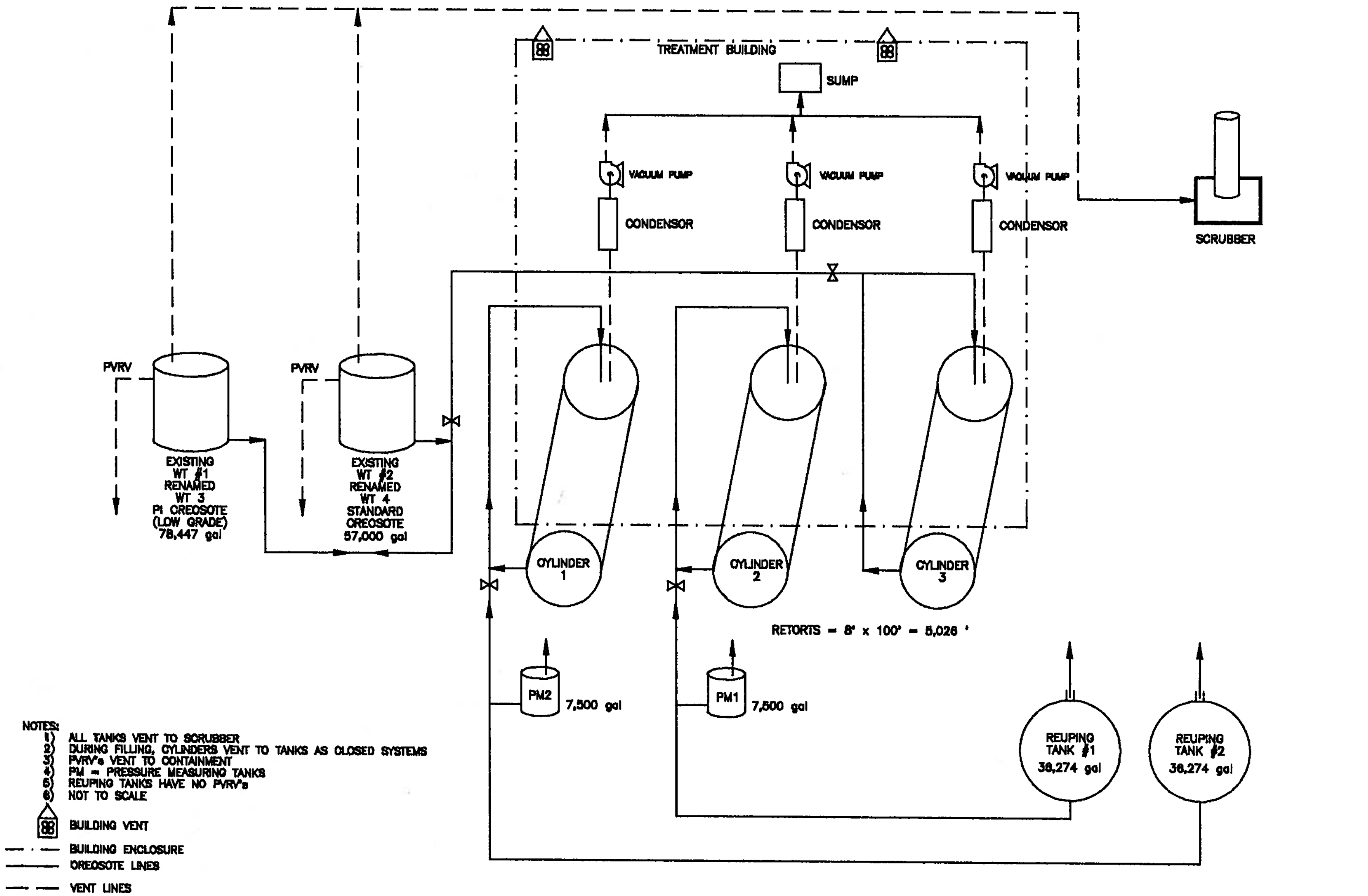
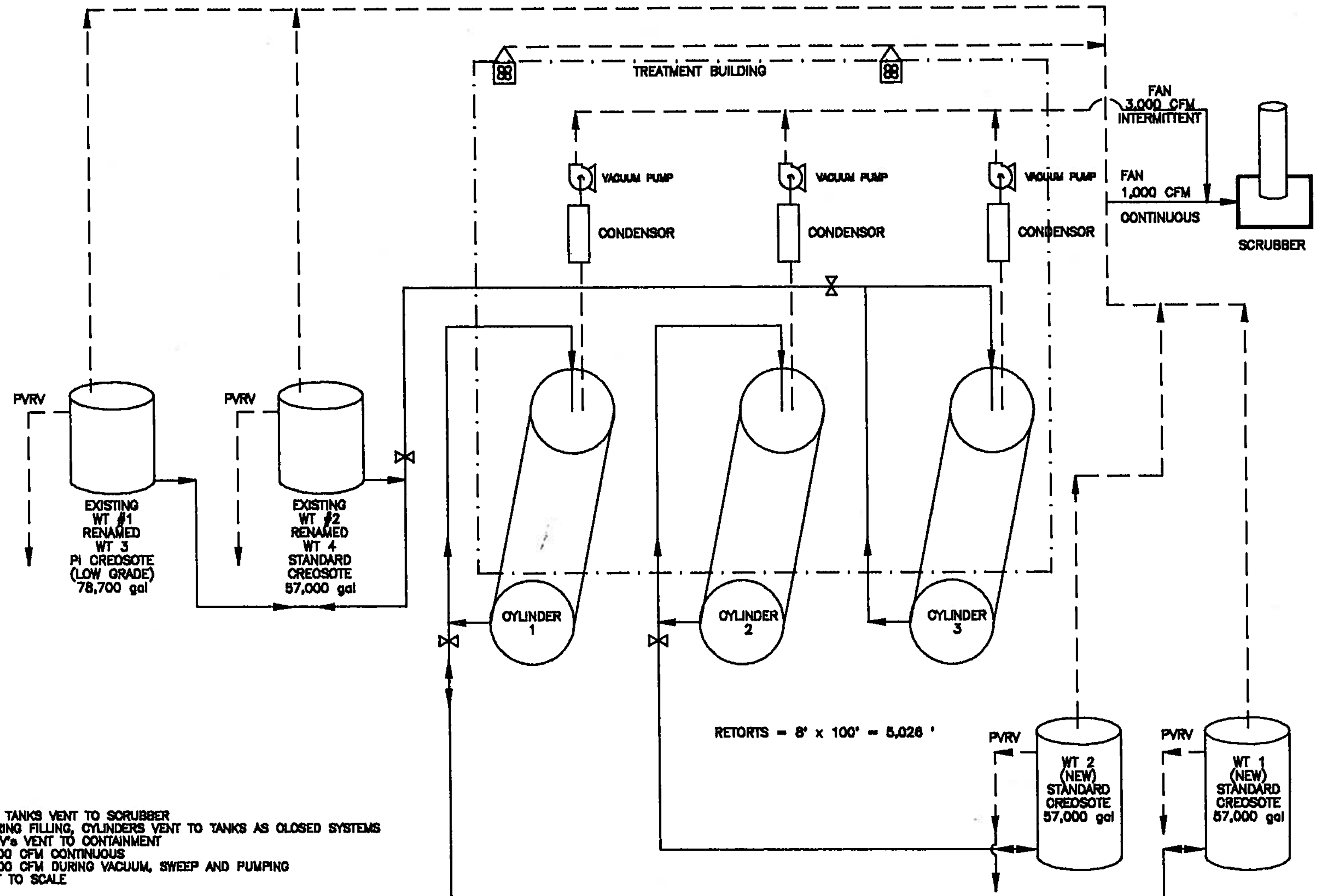


FIGURE 1
PROCESS DIAGRAM – EXISTING TANK SYSTEM
KERR–McGEE CHEMICAL CORP. – COLUMBUS, MISSISSIPPI

ATTACHMENT 2

SECTION H
TANK EMISSION CALCULATIONS



NOTES:
1) ALL TANKS VENT TO SCRUBBER
2) DURING FILLING, CYLINDERS VENT TO TANKS AS CLOSED SYSTEMS
3) PVRV's VENT TO CONTAINMENT
4) 1,000 CFM CONTINUOUS
5) 3,000 CFM DURING VACUUM, SWEEP AND PUMPING
6) NOT TO SCALE

BUILDING VENT

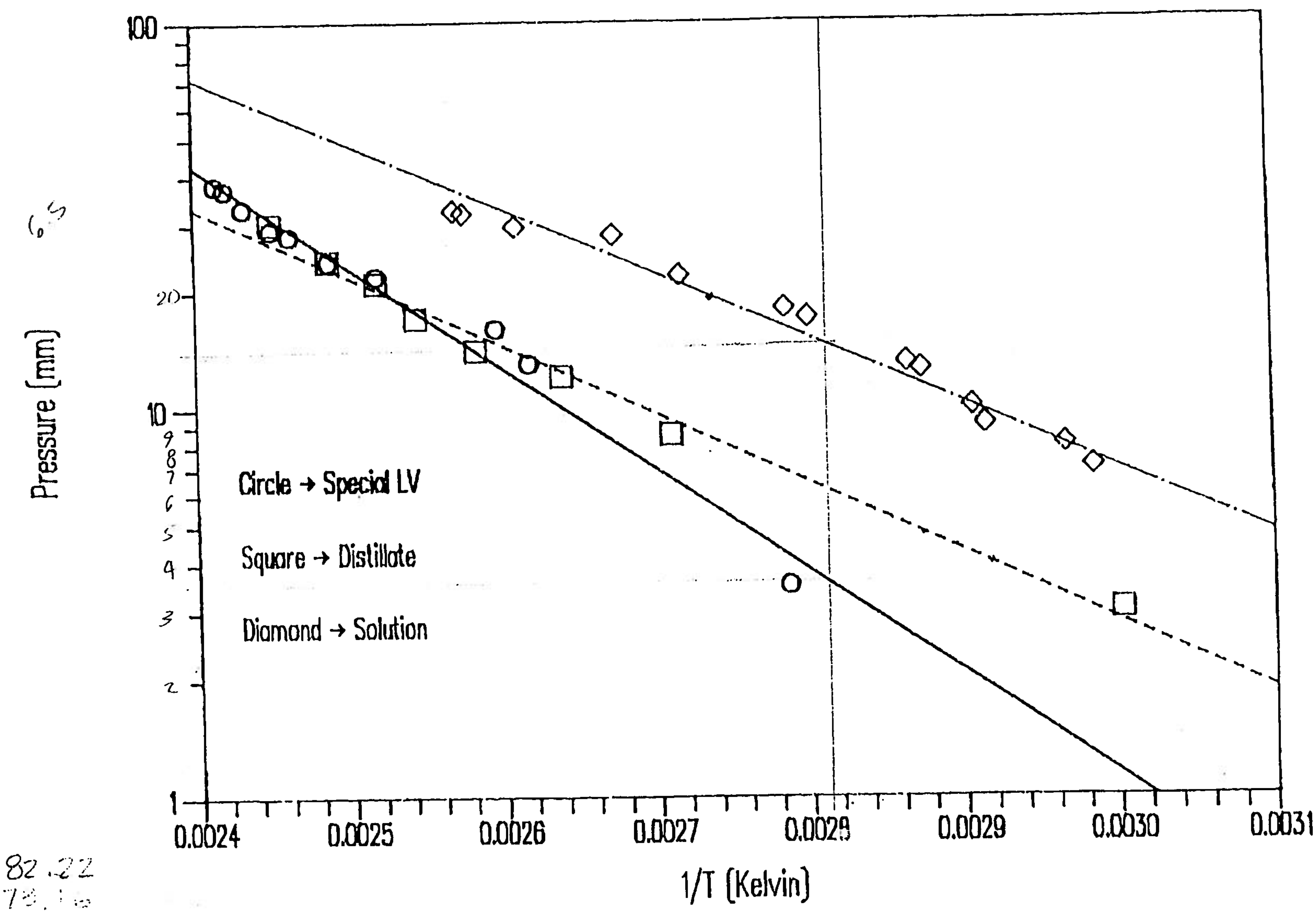
— · — BUILDING ENCLOSURE
——— CREOSOTE LINES
— — VENT LINES

FIGURE 2
PROCESS DIAGRAM – NEW TANK SYSTEM
KERR–McGEE CHEMICAL CORP. – COLUMBUS, MISSISSIPPI

FIGURE 3

Creosote Oils

(Vapor Pressure Plot)



82.22
278.16
355.38 inverse = 0.002814
°K 1/°K

ATTACHMENT TO SECTION H TANK SUMMARY

The tank emission calculations were calculated using two methods: **1)** the compilation of Air Pollutant Emission Factors (AP-42), U.S. Environmental Protection Agency (USEPA) equations for breathing and working losses; and **2)** the USEPA TANKS 2.0 program. The emissions calculations are based on naphthalene emissions due to this constituent being the highest hazardous air pollutant (HAP) concentration in creosote. The creosote vapors are assumed to be 42 percent naphthalene based on the analytical results of creosote composites taken by AWPI Creosote Counsel. These results are attached as Table H-1.

The emissions from the AP-42 equations were used in the permit application because these calculations gave higher emissions than the USEPA TANKS 2.0 program. The total emissions for each tank were 0.443 tons per year total VOCs from AP-42. The total emissions from each tank from the TANKS 2.0 program were 0.033 tons per year. A copy of both the AP-42 equation calculations and the TANKS 2.0 program emissions report are attached to this permit application. In both the AP-42 and TANKS 2.0 programs, a product factor of 0.1 was used due to the low volatility of creosote as per the American Wood Preserving Industry (AWPI). The low volatility of creosote is displayed by Figure 1, vapor pressure graph supplied by the creosote manufacturer, Allied Signal, and Table H-1.

Table H-1. Composite Creosote GC/MS Component Identity Determination - P1/P13 and
Calculation of Partial (Pp) and Total (Pt) Vapor Pressures and Molecular Weight of Vapor (MV)

MW Calculation Basis: 76.5 lb creosote

A			B			B = GERG	C = B/A	D=Ci/Csum*100	F=Di/100*A	G =given	H = given	I=H*D	J=A(I/Pt)	K=A*D*H	L=Ki*100/SumK	M=MVi/SumMVi
MW (lb/lb-mole)	Identity	CAS No	Mean Weight (%)	STD	% Var	Mass of Componant (lb)	Moles of Component (lb-moles)	Mole % in Creosote (%) (Xi)	Contribution to MW (lb/lb-mole)	Pure VPi @ 180 mmHg	Pure VP @ 180 psia	Partial Press. Ppi @ 180 F psia	Component MVi @ Pp Sum	Equil Vapor Mole Mass	Vapor Mass Fraction %	%MVi of Creosote on MV 128
18	Water		1.10			1.1	0.061	11.8	2.1	40.0000	7.73E-01	9.10E-02	30.9174			
128	naphthalene - HAP	91-20-3	10.44	1.06	10.10	10.44	0.082	15.7	20.1	7.2900	1.41E-01	2.21E-02	53.4785	2.83E+00	4.18E+01	41.77
116	indene	95-13-6	1.20	0.17	14.50	1.2	0.010	2.0	2.3	30.0000	5.80E-01	1.15E-02	25.2961	1.34E+00	1.98E+01	19.76
142	2-methyl naphthalene	91-57-6	3.81	0.53	13.90	3.81	0.027	5.2	7.3	5.0000	9.67E-02	4.99E-03	13.3858	7.09E-01	1.05E+01	10.46
118	dihydroindene (indan)	496-11-7	0.59	0.06	10.50	0.59	0.005	1.0	1.1	30.0000	5.80E-01	5.58E-03	12.4372	6.59E-01	9.72E+00	9.72
142	1-methyl naphthalene	90-12-0	2.42	0.27	11.00	2.42	0.017	3.3	4.7	4.0000	7.73E-02	2.54E-03	6.8018	3.60E-01	5.31E+00	5.31
129	quinoline - HAP	91-22-5	1.08	0.17	16.20	1.06	0.008	1.6	2.0	6.0000	1.16E-01	1.83E-03	4.4690	2.37E-01	3.49E+00	3.49
156	C2- naphthalenes		1.13	0.11	9.50	1.13	0.007	1.4	2.2	5.0000	9.67E-02	1.35E-03	3.9701	2.10E-01	3.10E+00	3.10
134	benzo(b)thiophene (Thianaphthalene)	95-15-8	0.51	0.03	6.60	0.51	0.004	0.7	1.0	7.2900	1.41E-01	1.03E-03	2.6125	1.38E-01	2.04E+00	2.04
156	1,3-dimethyl naphthalene	575-41-7	0.62	0.07	11.40	0.62	0.004	0.8	1.2	5.0000	9.67E-02	7.39E-04	2.1783	1.15E-01	1.70E+00	1.70
168	dibenzofuran - HAP	132-64-9	3.85	0.47	12.80	3.65	0.022	4.2	7.0	0.7000	1.35E-02	5.66E-04	1.7953	9.51E-02	1.40E+00	1.40
117	indole	120-72-9	0.76	0.08	11.10	0.76	0.006	1.3	1.5	2.0000	3.87E-02	4.83E-04	1.0681	5.66E-02	8.34E-01	0.83
154	acenaphthene	83-32-9	5.45	0.83	15.20	5.45	0.035	6.8	10.5	0.0527	1.02E-03	6.94E-05	0.2018	1.07E-02	1.58E-01	0.16
178	phenanthrene	85-01-8	11.78	1.15	9.80	11.78	0.066	12.7	22.7	0.0171	3.31E-04	4.21E-05	0.1415	7.50E-03	1.11E-01	0.11
166	fluorene	86-73-7	3.29	0.31	9.50	3.29	0.020	3.6	6.3	0.0504	9.74E-04	3.72E-05	0.1165	6.17E-03	9.10E-02	0.09
178	anthracene	120-12-7	1.26	0.24	16.90	1.26	0.007	1.4	2.4	0.0443	8.57E-04	1.17E-05	0.0392	2.08E-03	3.06E-02	0.03
167	carbazole	86-74-8	0.73	0.09	12.90	0.73	0.004	0.8	1.4	0.0400	7.73E-04	6.51E-06	0.0205	1.09E-03	1.60E-02	0.02
202	fluoranthene	206-44-0	6.16	1.20	19.40	6.16	0.030	5.9	11.9	0.0004	7.97E-06	4.67E-07	0.0018	9.44E-05	1.39E-03	0.00
190	4H-cyclopenta(def)phenanthrene	203-64-5	1.78	0.41	23.20	1.78	0.009	1.8	3.4	0.0010	1.93E-05	3.49E-07	0.0013	6.62E-05	9.77E-04	0.00
192	2-methyl phenanthrene	2531-84-2	1.10	0.18	15.90	1.1	0.006	1.1	2.1	0.0010	1.93E-05	2.13E-07	0.0008	4.09E-05	6.04E-04	0.00
192	C1-phenanthrenes		1.00	0.10	10.40	1	0.005	1.0	1.9	0.0010	1.93E-05	1.94E-07	0.0007	3.72E-05	5.49E-04	0.00
182	C1-dibenzofurans		0.95	0.11	11.60	0.95	0.005	1.0	1.8	0.0010	1.93E-05	1.94E-07	0.0007	3.53E-05	5.21E-04	0.00
184	dibenzothiophene	132-65-0	0.82	0.17	20.30	0.82	0.004	0.9	1.6	0.0010	1.93E-05	1.66E-07	0.0006	3.05E-05	4.50E-04	0.00
188	C1-acenaphthenes		0.73	0.11	14.50	0.73	0.004	0.8	1.4	0.0010	1.93E-05	1.62E-07	0.0005	2.72E-05	4.01E-04	0.00
202	pyrene (benzo(def)phenanthrene)	129-00-00	3.49	0.73	21.00	3.49	0.017	3.3	6.7	0.0002	3.98E-06	1.32E-07	0.0005	2.68E-05	3.95E-04	0.00
179	benzoquinoline-1 (7,8-benzoquinoline)	230-27-3	0.67	0.11	16.40	0.67	0.004	0.7	1.3	0.0010	1.93E-05	1.39E-07	0.0005	2.49E-05	3.68E-04	0.00
154	biphenyl - HAP	92-52-4	0.68	0.08	8.30	0.66	0.004	0.8	1.3	0.0010	1.93E-05	1.59E-07	0.0005	2.46E-05	3.62E-04	0.00
180	C1-fluorenes		0.49	0.07	14.60	0.49	0.003	0.5	0.9	0.0010	1.93E-05	1.01E-07	0.0003	1.82E-05	2.69E-04	0.00
218	trihydrobenzoanthracenes (m/z 216)		1.94	0.31	16.20	1.94	0.009	1.7	3.7	0.0001	1.93E-06	3.31E-08	0.0001	7.22E-06	1.06E-04	0.00
218	C1-fluoranthrene/pyrenes		1.30	0.13	10.00	1.3	0.006	1.2	2.5	0.0001	1.93E-06	2.24E-08	0.0001	4.84E-06	7.14E-05	0.00
216	1,2-benzofluorene (benzo(a)fluorene)		0.83	0.13	15.20	0.83	0.004	0.7	1.6	0.0001	1.93E-06	1.43E-08	0.0001	3.09E-06	4.56E-05	0.00
216	2,3-benzofluorene	243-17-4	0.76	0.15	19.60	0.76	0.004	0.7	1.5	0.0001	1.93E-06	1.31E-08	0.0001	2.83E-06	4.17E-05	0.00
193	C1-benzoquinolines		0.54	0.08	15.30	0.54	0.003	0.5	1.0	0.0001	1.93E-06	1.04E-08	3.79E-05	2.01E-06	2.96E-05	0.00
204	2-phenyl naphthalene		0.50	0.09	18.50	0.5	0.002	0.5	1.0	0.0001	1.93E-06	9.12E-09	3.51E-05	1.86E-06	2.74E-05	0.00
206	C2-phenanthrenes		0.47	0.07	15.50	0.47	0.002	0.4	0.9	0.0001	1.93E-06	8.49E-09	3.30E-05	1.75E-06	2.58E-05	0.00
252	benzo(b)fluoranthene	205-99-2	0.55	0.08	15.00	0.55	0.002	0.4	1.1	4.12E-05	7.97E-07	3.35E-09	1.59E-05	8.43E-07	1.24E-05	0.00
228	benz(a)anthracene	56-55-3	1.10	0.16	14.70	1.1	0.005	0.9	2.1	1.80E-06	3.48E-08	3.23E-10	1.39E-06	7.37E-08	1.09E-06	0.00
228	chrysene (benz(a)phenanthrene)	218-01-9	0.86	0.11	12.40	0.86	0.004	0.7	1.7	5.19E-07	1.00E-08	7.28E-11	3.14E-07	1.66E-08	2.45E-07	0.00
Totals			76.50				0.5196	100	145.1			0.0530	128.0208	6.7791	100.00	100.00

Calculation of Molecular Weight of Vapor for Whole Creosote at Bulk Liquid Conditions

Molecular Weight of Vapor, MV = MWi(VPiXi)/Pt + MWii(VPiiXii)/Pt + MWiii(VPiiiXiii)/Pt
= MVi+MVii+MViii Where MVi = MWi(Pi*Xi/Pt)

Vapor Pressure of Whole Creosote (100% of Partial Pressures) at Bulk Liquid Conditions (Allied Signal) = 0.068 psia
Vapor Pressure of Composite Creosote (Sum of Ppi) at Bulk Liquid Conditions (GERG) = 0.053 psia
Molecular Weight of Vapor of Creosote given by Vapor Pressure of Composite Creosote, 0.053 psia = 128.021 psia
Emissions of HAPs from whole creosote are equivalent to 46.67% of total emissions.
* = Vapor Pressures for pure components are not registered and have not been determined and therefore were guestimated.
36 components comprising 0.5% or more mean weight account for 76.5% of whole creosote.
Only 77% of Creosote distills below 330C; the remaining 23% constituents cannot achieve the vapor phase and cannot contribute to Creosote Vapor Pressure; Ref. OHMTADS attached.
Only 0.4% of the AWPI samples distilled below 210 F, see attached data.
The 22% differences in vapor pressures between the measured and the calculated could be due to underestimating the nonregistered(documented) VP.

Therefore, HAP emissions can be derived from the component-specific percent contribution to the molecular weight of vapor of whole creosote or the mole mass.

In every 100.00 lb of Creosote (VOC) Vapor there will be
41.77 lbs of Naphthalene
1.40 lbs of Dibenzofuran
3.49 lbs of Quinoline
0.00 lbs of Biphenyl
46.87 lb/lb*mole of Total HAPS for Creosote Vapor
53.33 lb/lb*mole Remaining as VOCs

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Work Tank No. 3 Naphthalene Emissions

Breathing Loss, Lb, Emissions

	Unit	Symbol
1. Molecular Weight of Vapor	41.66 lb/lb mole	Mv
2. Average Atmospheric Pressure	14.09 psia	Pa
3. True Vapor Pressure at Bulk Liquid Conditions	0.07 psia	P
4. Tank Diameter	18.00 ft	D
5. Average Vapor Space Height	3.00 ft	H
6. Average Ambient Diurnal Temperature Change	23.10 oF	T
7. Paint Factor	1.58 NA	Fp
8. Adjustment Factor for Small Tanks	1.00 NA	C
9. Product Factor	0.10 NA	Kc

Lb (lb/yr) = (2.26x10^-2) x (Mv) x ((P/Pa-P)^0.68) x (D^1.73) x (H^0.51) x (T^0.50) x Fp x C x Kc

Therefore, the Lb = 4.96 lb/yr
0.0025 ton/yr

Working Loss, Lw, Emissions

	Unit	Symbol
1. Molecular Weight of Vapor	41.66 lb/lb mole	Mv
2. True Vapor Pressure at Bulk Liquid Conditions	0.07 psia	P
3. Tank Capacity	57,000.00 gal	V
4. Number of Turnovers per Year	216.58 NA	N
5. Turnover Factor	0.24 NA	Kn
6. Product Factor	0.10 NA	Kc

Lw (lb/yr) = (2.40x10^-5) x Mv x P x V x N x Kn x Kc

Therefore, the Lw = 20.14 lb/yr
0.0101 ton/yr

Molecular Weight of Vapor Determination

	Unit	Symbol
1. Molecular Weight of Pure Component	128 lb/lb mole	Ma
2. Vapor Pressure of Pure Component	0.1410 psia	Pa
3. Mole Fraction of Pure Component	0.157	Xa
4. Vapor Pressure of Bulk Liquid	0.068 psia	Pt

Mv (lb/lb mole) = Ma(PaXa)/Pt + Mb(PbXb)/Pt

Therefore the Mv for Naphthalene = 41.656 lb/lb mole

Process Equipment Data for Turn Over Calculations

Cylinder Length	100	
Diameter	8	
Cylinder Volume	5,024.00	
Volume per tie (ft3)	3.72 i	
No. Ties/tram	59 ii	
No. Trams/charge	11 iii	
Wood Volume (ft3)/Charge	2,414.28	Ap = iii*ii*i
Cylinder Void Volume (ft3)/Charge	2,609.72	Bp
Gals. Creosote to Cylinder/Charge based on cylinder void	19,523.32	Cp = Bp*7.481
Lbs Creosote/ft3 of Wood	8.00	Dp
Lbs Creosote Retained in Wood	19,314.24	Ep = Dp*Ap
Gals. Creosote Retained in Wood (@ d = 9.3 lbs/gal)	2,080.55	Fp = Ep/8.3lbs/gal
Gals. of Creosote Pumped Back to Work Tank	17,442.77	Gp = Cp-Fp
Average No. of Cycles	1,105	Hp
Maximum No. of Cycles	1,500	lp

Number of Turnovers

Annual Purchases of Creosote	1,600,000	a
Maximum No. of Cycles; Assume all Boulton	1,500	lp
No. of Pump Backs per Cycle	2	b
No. of Total Annual Pump Backs	3,000	c = b*lp
Gals. of Creosote Pumped Back per Cycle	17,442.77	Gp
Annual Gals. Creosote Pumped Back	52,328,306.98	d = Gp*c
Total Annual Gals Creosote Throughput	53,928,306.98	e = a+d
Total Work Tank Capacity	249,000	
Annual Tank Turnovers	216.58	

Tank Capacities (gal)

Tank 1,2, and 3	57,000
Tank 4	78,000
Total Tank Capacity	249,000

Assumptions
1. Cylinders and tanks are interconnected as a closed loop vapor recovery system.
2. The calculation of a turnover factor for working losses considers the volume of creosote recycled as pumpbacks.
   Additionally, the total throughput per year for a work tank considers the volume of creosote recycled as pumpbacks.
3. Evaporative emissions as loading losses are incorporated into the breathing and working losses for large storate tanks.
   (Section 4.4, Transportation and Marketing of Petroleum Liquids, refers to Section 4.3, Storage of Organic Liquids, for large storage tanks.)

References
1. AP-42 4.3
2. GERG
3. Allied Signal

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Work Tank No. 3 HAP and VOC Emissions

For emissions in terms of naphthalene, there are		15.0 lbs Dibenzofuran
		7.5 lbs Quinoline
		0.1 lbs Biphenyl
	for every	77.4 lbs Naphthalene

Therefore, for AP-42 derived Naphthalene breathing losses of 4.96 lbs/yr

Dibenzofuran losses = (15 lbs of Dibenzofuran x 4.96 lbs/yr Naphthalene) / (77.4 lbs Naphthalene)

= 0.96 lbs/yr

Quinolina losses = (7.5 lbs of Quinoline x 4.96 lbs/yr Naphthalene) / (77.4 lbs Naphthalene)

= 0.48 lbs/yr

Biphenyl losses = (0.1 lbs of Biphenyl x 4.96 lbs/yr Naphthalene) / (77.4 lbs Naphthalene)

= 0.01 lbs/yr

Summary,

Total losses	Naphthalene	25.10 lbs/yr
	Dibenzofuran	4.86 lbs/yr
	Quinoline	2.43 lbs/yr
	Biphenyl	0.03 lbs/yr
	HAPS	32.43 lbs/yr
Short-term emissions	Naphthalene	0.07 lbs/day
	Dibenzofuran	0.01 lbs/day
	Quinoline	0.01 lbs/day
	Biphenyl	0.0001 lbs/day
	HAPS	0.09 lbs/day
Long-term emissions	Naphthalene	0.01 tons/yr
	Dibenzofuran	0.00 tons/yr
	Quinoline	0.00 tons/yr
	Biphenyl	0.0000 tons/yr
	HAPS	0.02 tons/yr

Therefore, for AP-42 derived Naphthalene working losses of 20.14 lbs/yr

Dibenzofuran losses = (15 lbs of Dibenzofuran x 20.14 lbs/yr Naphthalene) / (77.4 lbs Naphthalene)

= 3.90 lbs/yr

Quinoline losses = (7.5 lbs of Quinoline x 20.14 lbs/yr Naphthalene) / (77.4 lbs Naphthalene)

= 1.95 lbs/yr

Biphenyl losses = (0.1 lbs of Biphenyl x 20.14 lbs/yr Naphthalene) / (77.4 lbs Naphthalene)

= 0.03 lbs/yr

Naphthalene emissions are equivalent to 42 percent of creosote emissions as determined by the EPA tests at the Avoca, PA facility. Creosote emissions are considered as VOCs.

Therefore,

Short-term creosote/VOC emissions = 0.0687 lbs/day Naphthalene / 0.42

= 0.16 lbs/day creosote/VOCs

Long-term creosote/VOC emissions = 0.0125 tons/yr Naphthalene / 0.42

= 0.03 tons/yr creosote/VOCs

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Work Tank No. 3 Naphthalene Emissions

Process Unit Data

No. of Cylinders	1
No. of rueping cycles per cylinder	2
No. of total annual rueping cycles	167
Cylinder length (ft)	100
Diameter (ft)	8
Wood Charge Volume (ft^3)	5,036.48
Cylinder Volume (ft^3)	2,414.28
Cylinder Void Volume (ft^3)	2,622.20
Cylinder Void Volume (liters)	74,260.70 V
Operating Temperature K	355.37 K
Venting Temperature K'	293.15 K'
Operating Pressure P (atm)	5.00 P
Venting Pressure P' (atm)	1.00 P'
Rueping Air (Venting) Volume	V'
PV=nRT	
PV/T = nR	
P'V'/T' = nR	
V' = (PV/T)(T'/P')	306,293.80 liters
Rueping (venting) Air	10,818.30 ft^3

Air is 8% Naphthalene	
MW Naphthalene (g/mole)	128.00
density of air g/mole	28.96
density of 8% Naphthalene Air (g/mole)	36.88
density of Naphthalene (lb/ft^3)	0.0001

Naphthalene Rueping Air Emissions	1.11 lb/cycle
	185.83 lb/yr
	0.09 ton/yr

Summary,

Total losses	Naphthalene	185.83 lbs/yr
	Dibenzofuran	36.01 lbs/yr
	Quinoline	18.01 lbs/yr
	Biphenyl	0.24 lbs/yr
	HAPs	240.09 lbs/yr
Short-term emissions	Naphthalene	0.0212 lbs/hr
	Dibenzofuran	0.0041 lbs/hr
	Quinoline	0.0021 lbs/hr
	Biphenyl	0.0000 lbs/hr
	HAPs	0.0274 lbs/hr
Long-term emissions	Naphthalene	0.0929 tons/yr
	Dibenzofuran	0.0180 tons/yr
	Quinoline	0.0090 tons/yr
	Biphenyl	0.0001 tons/yr
	HAPs	0.1200 tons/yr

HAP Emissions

For emissions in terms of Naphthalene, there are 15.0 lbs Dibenzofuran, 7.5 lbs Quinoline, 0.1 lbs Biphenyl for every 77.4 lbs Naphthalene

Therefore, for Naphthalene Rueping losses of 185.83 lbs/yr

Dibenzofuran losses = (15 lbs Dibenzofuran x 185.83 lbs/yr Naphthalene) / (77.4 lbs Naphthalene)

= 36.01 lbs/yr

Quinoline losses = (7.5 lbs Quinoline x 185.83 lbs/yr Naphthalene) / (77.4 lbs Naphthalene)

= 18.01 lbs/yr

Biphenyl losses = (0.1 lbs Quinoline x 185.83 lbs/yr Naphthalene) / (77.4 lbs Naphthalene)

= 0.24 lbs/yr

Naphthalene emissions are equivalent to 42 percent of creosote emissions as determined by analytical measurements. Creosote emissions are considered as VOCs.

Therefore,
Short-term creosote/VOC emissions = 0.02 lbs/hr Naphthalene / 0.42

= 0.05 lbs/hr creosote/VOCs

Long-term creosote/VOC emissions = 0.09 tons/yr Naphthalene / 0.42

= 0.22 tons/yr creosote/VOCs

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Work Tank No. 4 Naphthalene Emissions

Breathing Loss, Lb, Emissions

	Unit	Symbol
1. Molecular Weight of Vapor	41.66 lb/lb mole	Mv
2. Average Atmospheric Pressure	14.09 psia	Pa
3. True Vapor Pressure at Bulk Liquid Conditions	0.07 psia	P
4. Tank Diameter	18.00 ft	D
5. Average Vapor Space Height	3.00 ft	H
6. Average Ambient Diurnal Temperature Change	23.10 oF	T
7. Paint Factor	1.58 NA	Fp
8. Adjustment Factor for Small Tanks	1.00 NA	C
9. Product Factor	0.10 NA	Kc

Lb (lb/yr) = (2.26x10^-2) x (Mv) x ((P/Pa-P)^0.68) x (D^1.73) x (H^0.51) x (T^0.50) x Fp x C x Kc

Therefore, the Lb = 4.96 lb/yr
0.0025 ton/yr

Working Loss, Lw, Emissions

	Unit	Symbol
1. Molecular Weight of Vapor	41.66 lb/lb mole	Mv
2. True Vapor Pressure at Bulk Liquid Conditions	0.07 psia	P
3. Tank Capacity	57,000.00 gal	V
4. Number of Turnovers per Year	216.58 NA	N
5. Turnover Factor	0.24 NA	Kn
6. Product Factor	0.10 NA	Kc

Lw (lb/yr) = (2.40x10^-5) x Mv x P x V x N x Kn x Kc

Therefore, the Lw = 20.14 lb/yr
0.0101 ton/yr

Molecular Weight of Vapor Determination

	Unit	Symbol
1. Molecular Weight of Pure Component	128 lb/lb mole	Ma
2. Vapor Pressure of Pure Component	0.1410 psia	Pa
3. Mole Fraction of Pure Component	0.167	Xa
4. Vapor Pressure of Bulk Liquid	0.068 psia	Pt

Mv (lb/lb mole) = Ma(PaXa)/Pt + Mb(PbXb)/Pt

Therefore the Mv for Naphthalene = 41.655 lb/lb mole

Process Equipment Data for Turn Over Calculations

Cylinder Length	100	
Diameter	8	
Cylinder Volume	5,024.00	
Volume per tie (ft3)	3.72 i	
No. Ties/tram	58 ii	
No. Trams/charge	11 iii	
Wood Volume (ft3)/Charge	2,414.28	Ap = iii*ii*i
Cylinder Void Volume (ft3)/Charge	2,608.72	Bp
Gals. Creosote to Cylinder/Charge based on cylinder void	18,523.32	Cp = Bp*7.481
Lbs Creosote/ft3 of Wood	8.00	Dp
Lbs Creosote Retained in Wood	19,314.24	Ep = Dp*Ap
Gals. Creosote Retained in Wood (@ d = 9.3 lbs/gal)	2,080.56	Fp = Ep/9.3lbs/gal
Gals. of Creosote Pumped Back to Work Tank	17,442.77	Gp = Cp-Fp
Average No. of Cycles	1,106 Hp	
Maximum No. of Cycles	1,500 lp	

Number of Turnovers

Annual Purchases of Creosote	1,600,000 a
Maximum No. of Cycles; Assume all Boulton	1,500 lp
No. of Pump Backs per Cycle	2 b
No. of Total Annual Pump Backs	3,000 c = b*lp
Gals. of Creosote Pumped Back per Cycle	17,442.77 Gp
Annual Gals. Creosote Pumped Back	52,328,306.88 d = Gp*c
Total Annual Gals Creosote Throughput	53,928,306.98 e = a+d
Total Work Tank Capacity	249,000
Annual Tank Turnovers	216.58

Tank Capacities (gal)

Tank 1,2, and 3	57,000
Tank 4	78,000
Total Tank Capacity	249,000

Assumptions
1. Cylinders and tanks are interconnected as a closed loop vapor recovery system.
2. The calculation of a turnover factor for working losses considers the volume of creosote recycled as pumpbacks.
   Additionally, the total throughput per year for a work tank considers the volume of creosote recycled as pumpbacks.
3. Evaporative emissions as loading losses are incorporated into the breathing and working losses for large storate tanks.
   (Section 4.4, Transportation and Marketing of Petroleum Liquids, refers to Section 4.3, Storage of Organic Liquids, for large storage tanks.)

References
1. AP-42 4.3
2. GERG
3. Allied Signal

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COLUMBUS

Work Tank No. 4 HAP and VOC Emissions

For emissions in terms of naphthalene, there are

15.0 lbs Dibenzofuran
7.5 lbs Quinoline
0.1 lbs Biphenyl

for every 77.4 lbs Naphthalene

Therefore, for AP-42 derived Naphthalene breathing losses of 4.96 lbs/yr

Dibenzofuran losses = (15 lbs of Dibenzofuran x 4.96 lbs/yr Naphthalene) / (77.4 lbs Naphthalene)

= 0.96 lbs/yr

Quinoline losses = (7.5 lbs of Quinoline x 4.96 lbs/yr Naphthalene) / (77.4 lbs Naphthalene)

= 0.48 lbs/yr

Biphenyl losses = (0.1 lbs of Biphenyl x 4.96 lbs/yr Naphthalene) / (77.4 lbs Naphthalene)

= 0.01 lbs/yr

Summary,

Total losses	Naphthalene	25.10 lbs/yr
	Dibenzofuran	4.86 lbs/yr
	Quinoline	2.43 lbs/yr
	Biphenyl	0.03 lbs/yr
	HAPS	32.43 lbs/yr
Short-term emissions	Naphthalene	0.07 lbs/day
	Dibenzofuran	0.01 lbs/day
	Quinoline	0.01 lbs/day
	Biphenyl	0.0001 lbs/day
	HAPS	0.09 lbs/day
Long-term emissions	Naphthalene	0.01 tons/yr
	Dibenzofuran	0.00 tons/yr
	Quinoline	0.00 tons/yr
	Biphenyl	0.0000 tons/yr
	HAPS	0.02 tons/yr

Therefore, for AP-42 derived Naphthalene working losses of 20.14 lbs/yr

Dibenzofuran losses = (15 lbs of Dibenzofuran x 20.14 lbs/yr Naphthalene) / (77.4 lbs Naphthalene)

= 3.90 lbs/yr

Quinoline losses = (7.5 lbs of Quinoline x 20.14 lbs/yr Naphthalene) / (77.4 lbs Naphthalene)

= 1.95 lbs/yr

Biphenyl losses = (0.1 lbs of Biphenyl x 20.14 lbs/yr Naphthalene) / (77.4 lbs Naphthalene)

= 0.03 lbs/yr

Naphthalene emissions are equivalent to 42 percent of creosote emissions as determined by the EPA tests at the Avoca, PA facility. Creosote emissions are considered as VOCs.

Therefore,

Short-term creosote/VOC emissions = 0.0687 lbs/day Naphthalene / 0.42

= 0.16 lbs/day creosote/VOCs

Long-term creosote/VOC emissions = 0.0125 tons/yr Naphthalene / 0.42

= 0.03 tons/yr creosote/VOCs

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COLUMBUS

Work Tank No. 4 Naphthalene Emissions

Process Unit Data

No. of Cylinders	1
No. of rueping cycles per cylinder	2
No. of total annual rueping cycles	167
Cylinder length (ft)	100
Diameter (ft)	8
Wood Charge Volume (ft^3)	5,036.48
Cylinder Volume (ft^3)	2,414.28
Cylinder Void Volume (ft^3)	2,622.20
Cylinder Void Volume (liters)	74,260.70 V
Operating Temperature K	355.37 K
Venting Temperature K'	293.15 K'
Operating Pressure P (atm)	5.00 P
Venting Pressure P' (atm)	1.00 P'
Rueping Air (Venting) Volume	V'
PV=nRT	
PV/T = nR	
P'V'/T' = nR	
V' = (PV/T)(T'/P')	306,293.80 liters
Rueping (venting) Air	10,818.30 ft^3

Air is 8% Naphthalene	
MW Naphthalene (g/mole)	128.00
density of air g/mole	28.96
density of 8% Naphthalene Air (g/mole)	36.88
density of Naphthalene (lb/ft^3)	0.0001

Naphthalene Rueping Air Emissions	1.11 lb/cycle
	185.83 lb/yr
	0.09 ton/yr

HAP Emissions

For emissions in terms of Naphthalene, there are 15.0 lbs Dibenzofuran, 7.5 lbs Quinoline, 0.1 lbs Biphenyl for every 77.4 lbs Naphthalene

Therefore, for Naphthalene Rueping losses of 185.83 lbs/yr

Dibenzofuran losses = (15 lbs Dibenzofuran x 254.35 lbs/yr Naphthalene) / (77.4 lbs Naphthalene)

= 36.01 lbs/yr

Quinoline losses = (7.5 lbs Quinoline x 254.35 lbs/yr Naphthalene) / (77.4 lbs Naphthalene)

= 18.01 lbs/yr

Biphenyl losses = (0.1 lbs Quinoline x 254.35 lbs/yr Naphthalene) / (77.4 lbs Naphthalene)

= 0.24 lbs/yr

Summary,

Total losses	Naphthalene	185.83 lbs/yr
	Dibenzofuran	36.01 lbs/yr
	Quinoline	18.01 lbs/yr
	Biphenyl	0.24 lbs/yr
	HAPs	240.09 lbs/yr
Short-term emissions	Naphthalene	0.0212 lbs/hr
	Dibenzofuran	0.0041 lbs/hr
	Quinoline	0.0021 lbs/hr
	Biphenyl	0.0000 lbs/hr
	HAPs	0.0274 lbs/hr
Long-term emissions	Naphthalene	0.0929 tons/yr
	Dibenzofuran	0.0180 tons/yr
	Quinoline	0.0090 tons/yr
	Biphenyl	0.0001 tons/yr
	HAPs	0.1200 tons/yr

Naphthalene emissions are equivalent to 42 percent of creosote emissions as determined by analytical measurements. Creosote emissions are considered as VOCs.

Therefore,
Short-term creosote/VOC emissions = 0.03 lbs/hr Naphthalene / 0.42

= 0.05 lbs/hr creosote/VOCs

Long-term creosote/VOC emissions = 0.13 tons/yr Naphthalene / 0.42

= 0.22 tons/yr creosote/VOCs

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ATTACHMENT 3

TANK 2.0
EMISSION REPORT

TANKS PROGRAM 2.0
EMISSIONS REPORT - DETAIL FORMAT
TANK IDENTIFICATION AND PHYSICAL CHARACTERISTICS

lentification	
Identification No.:	WK TANK 1
City:	Columbus
State:	MS
Company:	KERR MCGEE
Type of Tank:	Vertical Fixed Roof
ınk Dimensions	
Shell Height (ft):	30
Diameter (ft):	18
Liquid Height (ft):	30
Avg. Liquid Height (ft):	27
Volume (gallons):	57113
Turnovers:	216
Net Throughput (gal/yr):	12347831
aint Characteristics	
Shell Color/Shade:	Gray/Medium
Shell Condition:	Good
Roof Color/Shade:	Gray/Medium
Roof Condition:	Good
oof Characteristics	
Type:	Dome
Height (ft):	0.50
Radius (ft) (Dome Roof):	9.00
Slope (ft/ft) (Cone Roof):	0.0000
reather Vent Settings	
Vacuum Setting (psig):	-0.03
Pressure Setting (psig):	0.03

ıeteorological Data Used in Emission Calculations: Jackson, Mississippi

TANKS PROGRAM 2.0
EMISSIONS REPORT - DETAIL FORMAT
LIQUID CONTENTS OF STORAGE TANK

ixture/Component	Month	Daily Liquid Surf. Temperatures (deg F) Avg.	Min.	Max.	Liquid Bulk Temp. (deg F)	Vapor Pressures (psia) Avg.	Min.	Max.	Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
APHTHALENE	All	180.00	169.08	190.92	67.68	0.0680	0.0670	0.0681	41.660				

nnual Emission Calculations

tanding Losses (lb):	21.4723
Vapor Space Volume (cu ft):	2290.22
Vapor Density (lb/cu ft):	0.0004
Vapor Space Expansion Factor:	0.064260
Vented Vapor Saturation Factor:	0.968583
ank Vapor Space Volume	
Vapor Space Volume (cu ft):	2290.22
Tank Diameter (ft):	18
Vapor Space Outage (ft):	9.00
Tank Shell Height (ft):	30
Average Liquid Height (ft):	27
Roof Outage (ft):	6.00
oof Outage (Dome Roof)	
Roof Outage (ft):	6.00
Dome Radius (ft):	9
Shell Radius (ft):	9
apor Density	
Vapor Density (lb/cu ft):	0.0004
Vapor Molecular Weight (lb/lb-mole):	41.660000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.068000
Daily Avg. Liquid Surface Temp.(deg. R):	639.67
Daily Average Ambient Temp. (deg. R):	524.27
Ideal Gas Constant R (psia cuft /(lb-mole-deg R)):	10.731
Liquid Bulk Temperature (deg. R):	527.35
Tank Paint Solar Absorptance (Shell):	0.68
Tank Paint Solar Absorptance (Roof):	0.68
Daily Total Solar Insolation Factor (Btu/sqftday):	1409.00
Vapor Space Expansion Factor	
Vapor Space Expansion Factor:	0.064260
Daily Vapor Temperature Range (deg.R):	43.68
Daily Vapor Pressure Range (psia):	0.001100
Breather Vent Press. Setting Range(psia):	0.06
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.068000
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	0.067000
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	0.068100
Daily Avg. Liquid Surface Temp. (deg R):	639.67
Daily Min. Liquid Surface Temp. (deg R):	628.75
Daily Max. Liquid Surface Temp. (deg R):	650.59
Daily Ambient Temp. Range (deg.R):	23.40

TANKS PROGRAM 2.0
EMISSIONS REPORT - DETAIL FORMAT
DETAIL CALCULATIONS (AP-42)

nual Emission Calculations	
nted Vapor Saturation Factor	
Vented Vapor Saturation Factor:	0.968583
Vapor Pressure at Daily Average Liquid	
Surface Temperature (psia):	0.068000
Vapor Space Outage (ft):	9.00
thdrawal Losses (lb):	254.3760
Vapor Molecular Weight (lb/lb-mole):	41.660000
Vapor Pressure at Daily Average Liquid	
Surface Temperature (psia):	0.068000
Annual Net Throughput (gal/yr):	12347831
Turnover Factor:	0.3054
Maximum Liquid Volume (cuft):	7634
Maximum Liquid Height (ft):	30
Tank Diameter (ft):	18
Working Loss Product Factor:	1.00 → use 0.1 due to low volatility
otal Losses (lb):	275.85

nnual Emissions Report As Naphthalene

iquid Contents	Losses (lbs.): Standing	Withdrawal	Total
IAPHTHALENE	21.47	254.38	275.85
otal:	21.47	254.38	275.85

$$275.85 \times 0.1 = 27.58 \text{ lbs/yr}$$

$$\frac{27.58 \frac{lbs}{yr} \text{ Naphthalene}}{0.42\%} = 66.31 \frac{lbs}{yr} \text{ VOCs}$$

$$\frac{66.31 \frac{lbs}{yr}}{2,000 \frac{lbs}{ton}} = 0.033 \text{ tpy VOCs}$$

$$\frac{275.85 \text{ lbs}}{yr} \times \frac{1 \text{ Tons}}{2000 \text{ lbs}}$$

CAS NO.	HAP	Proposed Emission Rate		Potential Uncontrolled Emission Rate	
		lbs/day	TPY	lbs/day	TPY
96457	Ethylene thiourea				
75343	Ethylidene dichloride (1,1-Dichloroethane)				
50000	Formaldehyde				
---	Glycol ethers (NOTE #2)				
76448	Heptachlor				
118741	Hexachlorobenzene				
87683	Hexachlorocyclopentadiene				
67721	Hexachloroethane				
822060	Hexamethylene-1,6-diisocyanate				
680319	Hexamethylphosphoramide				
110543	Hexane				
302012	Hydrazine				
7647010	Hydrochloric acid				
7664393	Hydrogen Fluoride (Hydrofluoric acid)				
123319	Hydroquinone				
78591	Isophorone				
7439921	Lead Compounds				
58899	Lindane (all isomers)				
108316	Maleic anhydride				
7439965	Manganese Compounds				

CAS NO.	HAP	Proposed Emission Rate		Potential Uncontrolled Emission Rate	
		lbs/day	TPY	lbs/day	TPY
7439976	Mercury Compounds				
67561	Methanol				
72435	Methoxychlor				
74839	Methyl bromide (Bromomethane)				
74873	Methyl chloride (Chloromethane)				
71556	Methyl chloroform (1,1,1-Trichloroethane)				
78933	Methyl ehtyl ketone (2-Butanone) (MEK)				
60344	Methyl hydrazine				
74884	Methyl iodide (Iodomethane)				
108101	Methyl isobutyl ketone (Hexone)				
624839	Methyl isocyanate				
80626	Methyl methacrylate				
1634044	Methyl tert butyl ether				
101144	Methylene bis(2-chloroaniline)(4,4) (MOCA)				
75092	Methylene chloride (Dichloromethane)				
101688	Methylene diphenyl diisocynate (MDI)				
101779	Methylenedianiline(4,4')				

CAS NO.	HAP	Proposed Emission Rate		Potential Uncontrolled Emission Rate	
		lbs/day	TPY	lbs/day	TPY
---	Mineral fibers (NOTE #3)				
91203	Naphthalene	0.29	0.05	1.16	0.20
7440020	Nickel Compounds				
7440020	Nickel, refinery dust				
12035722	Nickel, subsulfide				
98953	Nitrobenzene				
92933	Nitrodiphenyl(4)				
100027	Nitrophenol(4)				
79469	Nitropropane(2)				
62759	Nitrosodimethylamine(N) (Dimethylnitrosoamine)				
59892	Nitrosomorpholine(N)				
684935	Nitroso-N-methylurea(N)				
56382	Parathion				
82688	Pentachloronitrobenzene (Quintobenzene)				
87865	Pentachlorophenol				
108952	Phenol				
106503	Phenylenediamine(p)				
75445	Phosgene				
7803512	Phosphine				
7723140	Phosphorus				

CAS NO.	HAP	Proposed Emission Rate		Potential Uncontrolled Emission Rate	
		lbs/day	TPY	lbs/day	TPY
85449	Phthalic anhydride				
1336363	Polychlorinated biphenyls (Arochlors)				
---	Polycylic Organic Matter (NOTE #5)				
1120714	Propane sultone(1,3)				
57578	Propiolactone(beta)				
123386	Propionaldehyde				
114261	Propoxur (Baygon)				
78875	Propylene dichloride (1,2 dichloropropane)				
75558	Propylene imine(1,2) (2-methyl aziridine)				
75569	Propylene oxide				
91225	Quinoline	0.03	0.005	0.12	0.02
106514	Quinone (1,4-Cyclohexadienedione)				
---	Radionuclides (including radon) (NOTE #4)				
7782492	Selenium Compounds				
100425	Styrene				
96093	Styrene oxide				
1746016	Tetrachlorodibenzo-p-dioxin(2,3,7,8) (TCDD) (Dioxin)				
79345	Tetrachloroethane(1,1,2,2)				

CAS NO.	HAP	Proposed Emission Rate		Potential Uncontrolled Emission Rate	
		lbs/day	TPY	lbs/day	TPY
127184	Tetrachloroethylene (Perchloroethylene)				
7550450	Titanium Tetrachloride				
108883	Toluene				
95807	Toluene diamine(2,4) (2,4-diaminotoluene)				
584849	Toluene diisocyanate(2,4)				
95534	Toluidine(o)				
8001352	Toxaphene (Chlorinated camphene)				
120821	Trichlorobenzene(1,2,4)				
79005	Trichloroethane(1,1,2)				
79016	Trichloroethylene				
95954	Trichlorophenol(2,4,5)				
88062	Trichlorophenol(2,4,6)				
121448	Triethylamine				
1582098	Trifluralin				
540841	Trimethylpentane(2,2,4)				
75014	Vinyl Chloride				
108054	Vinyl Acetate				
593602	Vinyl Bromide				

* See spreadsheet attached to Section H, Tanks Form, for calculations

CAS NO.	HAP	Proposed Emission Rate		Potential Uncontrolled Emission Rate	
		lbs/day	TPY	lbs/day	TPY
75354	Vinylidene chloride (1,1-Dichloroethylene)				
1330207	Xylenes (mixed)				
108383	Xylene(m)				
95476	Xylene(o)				
106423	Xylene(p)				

NOTE # 1: X'CN where X = H' or any other group where a formal dissociation may occur, for example: KCN or Ca(CN)2.

NOTE # 2: Includes mono- and di- ethers of ethylene glycol, dietheylene glycol and triethylene glycol R-(OCH2CH2)n-OR' where:

n = 1,2,3
R = alkyl or arl groups
R' = R,H, or group which, when removed, yield glycols ethers with the structure: R-(OCH2CH2)n-OH. Polymers are excluded from the glycol category

NOTE # 3: Includes glass microfibers, glass wool fibers, rock wool fibers, and slag wool fibers, each characterized as "respirable" (fiber diameter less then 3.5 micrometers) and possessing an aspect ratio (fiber length divided by fiber diameter) greater than 3.

NOTE # 4: A type of atom which spontaneously undergoes radioactive decay.

NOTE # 5: Includes organic compounds with more than one benzene ring, and which have a boiling point greater than or equal to 100 Celsius.

* See spreadsheet attached to Section H, Tanks Form, for calculations

APPLICATION SUMMARY SECTION

I. Indicated below which sections have been completed as part of this application. Where applicable, also indicated the number of each section completed.

Administrative Information	X
Emission Summary Section	
Part I	X
Part II	X
Part III	X
Fuel Burning Equipment	
Manufacturing Process Operations	
Refuse Disposal	
Tank Section	X
Incineration Section	
Asphalt Plant Section	
Concrete Plant Section	
Air Pollution Control Devices	
Baghouse	
Cyclone	
Adsorption	
Afterburner	
Scrubber	
Electrostatic Precipitator	
Other Air Pollution Control Equipment/Devices	

II. Please list any other attachments.

Attachment 1. Applicability determination for Subpart Ka and Kb for New Source Performance Standards.

Attachment 2. Emissions Calculations - Spreadsheet, 3 of 3 pages.

Attachment 3. USEPA Tank 2.0 Emissions Summary

We
May 3 9

INTAKE SHEET FOR REQUEST FOR ACCESS TO PUBLIC RECORDS

DATE: APRIL 21, 1995

NAME: MIKE MATTHEWS TELEPHONE NUMBER: 949-4793

COMPANY NAME: WATKINS, LUDLAM, STENNIS

ADDRESS: P. O. BOX 427, JACKSON, MS 39205-0427

DOCUMENT INFORMATION

1. FACILITY: KERR-MCGEE CHEMICAL CORP. - 94-95

COUNTY: LAUDERDALE, LOWNDES, MONROE DIVISION: AIR

2. FACILITY: APAC-MS - 94-95

COUNTY: OKKTEBEHA, LOWNDES DIVISION: AIR

3. FACILITY: GENCORP POLYMER - 94-95

COUNTY: LOWNDES DIVISION: AIR

COUNTY: DIVISION:

APPOINTMENT TIME AND DATE: APRIL 27, 1995

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FRANCES MARIE GRILLO
(601) 961-5666

[signature]

PERSON REVIEWING FILES:

[signature]

COMMENTS:

THIS IS NOT A BILL - DO NOT PAY
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*Admitted to practice
in Alabama and Ohio only

Writer's Direct No.
(601) 949-4793

April 20, 1995

Ms. Frances M. Grillo
Public Records Administrator
Department of Enviromental Quality
P.O. Box 20305
Jackson, MS 39289

Re: Mississippi Public Records Act of 1983

Dear Frances:

Pursuant to the Mississippi Public Records Act of 1983, I request that the Mississippi Department of Enviromental Quality ("DEQ") make available to me the air permit files for the following permit holders.

CNTY CODE	SOURCE NO	FACILITY	LOCATION CITY
1460	00028	Kerr-McGee Chem. Corp.	Meridian
1680	00020	Kerr-McGee Chem. Corp.	Columbus BGH
1840	00035	Kerr-McGee Chem. Corp.	Hamilton JSS
2060	00001	APAC-Mississippi, Inc.	Starkville
1540	00105	APAC-Mississippi, Inc.	Tupelo Chad LA
2060 01	00023	APAC-Mississippi, Inc.	Starkville
1680	00014	Gencorp Polymer Prod.	Columbus BSK

It is my understanding that these files are "public records" as that term is defined in Miss. Code § 25-61-3(b). I request that I be provided an opportunity to inspect and make copies from these files.

104711-1/00712.94868

Thank you for your attention to this matter. If you have any questions please call me.

Sincerely,

WATKINS LUDLAM & STENNIS

Michael D. Mathews
Paralegal

cc: Ernest G. Taylor
Ricky G. Luke

optimizing environmental resources ♦ water, air, earth AquAeTer

March 20, 1995 940183B

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

RE: Submittal of Application for Permit to Construct Two New Work Tanks for Kerr-McGee Chemical Corporation, Forest Products Division, Columbus, Mississippi

Dear Mr. Watts:

Enclosed is the Application for Air Pollution Control Permit to Construct and/or Operate Air Emissions Equipment for Kerr-McGee Chemical Corporation, Forest Products Division in Columbus, Mississippi. The facility is located in Lowndes County and is shown on a location map attached to the permit application. This application is being submitted based on our meeting and discussions on October 26, 1994 for the installation of two new work tanks that will replace the presently existing reuping tanks.

Replacing the two existing reuping tanks with new work tanks will result in four changes from the existing system and will result in an emissions decrease. The new work tanks will have: 1) pressure vacuum relief valves (PVRVs); 2) a "closed loop" vapor recovery system; 3) excess pressures experienced during pump-back operations will be vented to a control device; and 4) the pump transfers will flow directly into the treatment cylinder and not through a pressure measuring tank prior to entering the treatment cylinder. The existing reuping tanks vent directly to the air during pumping operations and transfer the material through pressure measuring tanks prior to the flowing to the treatment cylinder. The existing tank system is presented in Figure 1 and the new work tanks and associated control systems are presented in Figure 2.

In order to preserve air quality, the facility is installing controls on the new work tanks even though they are not regulated under 40 CFR 60, Subpart K, as well as preparation for Title V Permitting. Documentation included as Figure 3, from the creosote manufacturer and supplier, Allied Signal, shows that the vapor pressure for creosote is 0.467 kPa, far below the regulatory level of 3.5 kPa for organic liquid storage tanks. The specifications for the existing scrubber control device can be found in the Kerr-McGee State Permit file correspondence dated June 27, 1989. ✓

P.O. Box 1187 ♦ Brentwood, TN ♦ 37024-1187 ♦ Phone (615) 373-8532 ♦ Fax (615) 373-8512

The emission estimates for these tanks have been developed from the ongoing emissions inventories conducted in preparation for the new permitting requirements under Title V. We anticipate qualifying as a synthetic minor source based on preliminary emissions inventories at our other facilities and recent emissions studies conducted for the U.S. Environmental Protection Agency, under the direction of Mr. Eugene Crumpler, Office of Air Quality Planning and Standards.

In summary, the new work tanks will result in a net air emissions decrease because of the following: 1) pressure-vacuum control equipment on the tanks; 2) a slight negative pressure on the tanks will be applied and this air will be sent through a water scrubber prior to release; and 3) Elimination of pressure measuring tanks. A net emissions reduction of 3 tons/yr VOCs has been estimated using this new system.

Our facility will be contacting you and/or your staff in the near future to discuss this permit application for the two work tanks and Title V permitting requirements. We anticipate submitting our application for synthetic minor status by April 1, 1995. If you have any questions regarding this application or our facility, please contact us at (601) 328-7551 or by FAX at (601) 329-3424. We look forward to working with you and your staff on this important project.

Sincerely,

Anthony N. Helms
Plant Manager

cc: Nick Bock
Mike Corn/John Uptmor, **AquAeTer, Inc.**

TABLE OF CONTENTS

trator will publish in the FEDERAL REGISTER a notice permitting the use of the alternative means for purposes of compliance with that requirement.

(b) Any notice under paragraph (a) of this section will be published only after notice and an opportunity for a hearing.

(c) Any person seeking permission under this section shall submit to the Administrator a written application including:

(1) An actual emissions test that uses a full-sized or scale-model storage vessel that accurately collects and measures all VOC emissions from a given control device and that accurately simulates wind and accounts for other emission variables such as temperature and barometric pressure.

(2) An engineering evaluation that the Administrator determines is an accurate method of determining equivalence.

(d) The Administrator may condition the permission on requirements that may be necessary to ensure operation and maintenance to achieve the same emissions reduction as specified in §60.112a.

(e) The primary vapor-mounted seal in the "Volume-Maximizing Seal" manufactured by R.F.I. Services Corporation is approved as equivalent to the vapor-mounted seal required by §60.112a(a)(1)(i) and must meet the gap criteria specified in §60.112a(a)(1)(i)(B). There shall be no gaps between the tank wall and any secondary seal used in conjunction with the primary seal in the "Volume-Maximizing Seal".

[52 FR 11429, Apr. 8, 1987]

§60.115a Monitoring of operations.

(a) Except as provided in paragraph (d) of this section, the owner or operator subject to this subpart shall maintain a record of the petroleum liquid stored, the period of storage, and the maximum true vapor pressure of that liquid during the respective storage period.

(b) Available data on the typical Reid vapor pressure and the maximum expected storage temperature of the stored product may be used to determine the maximum true vapor pressure from nomographs contained in API Bulletin 2517, unless the Administrator specifically requests that the liquid be sampled, the actual storage temperature determined, and the Reid vapor pressure determined from the sample(s).

(c) The true vapor pressure of each type of crude oil with a Reid vapor pressure less than 13.8 kPa (2.0 psia) or whose physical properties preclude determination by the recommended method is to be determined from available data and recorded if the estimated true vapor pressure is greater than 6.9 kPa (1.0 psia).

(d) The following are exempt from the requirements of this section:

(1) Each owner or operator of each storage vessel storing a petroleum liquid with a Reid vapor pressure of less than 6.9 kPa (1.0 psia) provided the maximum true vapor pressure does not exceed 6.9 kPa (1.0 psia).

(2) Each owner or operator of each storage vessel equipped with a vapor recovery and return or disposal system in accordance with the requirements of §60.112a (a)(3) and (b).

[45 FR 23379, Apr. 4, 1980]

Subpart Kb—Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced after July 23, 1984

SOURCE: 52 FR 11429, Apr. 8, 1987, unless otherwise noted.

§60.110b Applicability and designation of affected facility.

(a) Except as provided in paragraphs (b), (c), and (d) of this section, the affected facility to which this subpart applies is each storage vessel with a capacity greater than or equal to 40 cubic meters (m^3) that is used to store volatile organic liquids (VOL's) for which construction, reconstruction, or modification is commenced after July 23, 1984.

(b) Except as specified in paragraphs (a) and (b) of §60.116b, storage vessels with design capacity less than 75 m^3 are exempt from the General Provi-

DEC 21 '95 09:41AM AQUAETER INC. 615 373 8512 P.4/6

40 CFR 60 Subpart Kb § 110b(c)

Cite specific reference

sions (part 60, subpart A) and from the provisions of this subpart.

(c) Except as specified in paragraphs (a) and (b) of § 60.116b, vessels either with a capacity greater than or equal to 151 m³ storing a liquid with a maximum true vapor pressure less than 3.5 kPa or with a capacity greater than or equal to 75 m³ but less than 151 m³ storing a liquid with a maximum true vapor pressure less than 15.0 kPa are exempt from the General Provisions (part 60, subpart A) and from the provisions of this subpart.

20K gal

Exemption

(d) This subpart does not apply to the following:

(1) Vessels at coke oven by-product plants.

(2) Pressure vessels designed to operate in excess of 204.9 kPa and without emissions to the atmosphere.

(3) Vessels permanently attached to mobile vehicles such as trucks, railcars, barges, or ships.

(4) Vessels with a design capacity less than or equal to 1,589.874 m³ used for petroleum or condensate stored, processed, or treated prior to custody transfer.

(5) Vessels located at bulk gasoline plants.

(6) Storage vessels located at gasoline service stations.

(7) Vessels used to store beverage alcohol.

[52 FR 11429, Apr. 8, 1987, as amended at 54 FR 32973, Aug. 11, 1989]

§ 60.111b Definitions.

Terms used in this subpart are defined in the Act, in subpart A of this part, or in this subpart as follows:

(a) *Bulk gasoline plant* means any gasoline distribution facility that has a gasoline throughput less than or equal to 75,700 liters per day. Gasoline throughput shall be the maximum calculated design throughput as may be limited by compliance with an enforceable condition under Federal requirement or Federal, State or local law, and discoverable by the Administrator and any other person.

(b) *Condensate* means hydrocarbon liquid separated from natural gas that condenses due to changes in the temperature or pressure, or both, and remains liquid at standard conditions.

(c) *Custody transfer* means the transfer of produced petroleum and/or condensate, after processing and/or treatment in the producing operations, from storage vessels or automatic transfer facilities to pipelines or any other forms of transportation.

(d) *Fill* means the introduction of VOL into a storage vessel but not necessarily to complete capacity.

(e) *Gasoline service station* means any site where gasoline is dispensed to motor vehicle fuel tanks from stationary storage tanks.

(f) *Maximum true vapor pressure* means the equilibrium partial pressure exerted by the stored VOL at the temperature equal to the highest calendar-month average of the VOL storage temperature for VOL's stored above or below the ambient temperature or at the local maximum monthly average temperature as reported by the National Weather Service for VOL's stored at the ambient temperature, as determined:

(1) In accordance with methods described in American Petroleum Institute Bulletin 2517, Evaporation Loss From External Floating Roof Tanks, (incorporated by reference—see § 60.17); or

(2) As obtained from standard reference texts; or

(3) As determined by ASTM Method D2879-83 (incorporated by reference—see § 60.17);

(4) Any other method approved by the Administrator.

(g) *Reid vapor pressure* means the absolute vapor pressure of volatile crude oil and volatile nonviscous petroleum liquids except liquified petroleum gases, as determined by ASTM D323-82 (incorporated by reference—see § 60.17).

(h) *Petroleum* means the crude oil removed from the earth and the oils derived from tar sands, shale, and coal.

(i) *Petroleum liquids* means petroleum, condensate, and any finished or intermediate products manufactured in a petroleum refinery.

(j) *Storage vessel* means each tank, reservoir, or container used for the storage of volatile organic liquids but does not include:

(1) Frames, housing, auxiliary supports, or other components that are

(ii) The raw data obtained in the measurement.

(iii) The calculations described in §60.113b (b)(2) and (b)(3).

(4) After each seal gap measurement that detects gaps exceeding the limitations specified by §60.113b(b)(4), submit a report to the Administrator within 30 days of the inspection. The report will identify the vessel and contain the information specified in paragraph (b)(2) of this section and the date the vessel was emptied or the repairs made and date of repair.

(c) After installing control equipment in accordance with §60.112b (a)(3) or (b)(1) (closed vent system and control device other than a flare), the owner or operator shall keep the following records.

(1) A copy of the operating plan.

(2) A record of the measured values of the parameters monitored in accordance with §60.113b(c)(2).

(d) After installing a closed vent system and flare to comply with §60.112b, the owner or operator shall meet the following requirements.

(1) A report containing the measurements required by §60.18(f) (1), (2), (3), (4), (5), and (6) shall be furnished to the Administrator as required by §60.8 of the General Provisions. This report shall be submitted within 6 months of the initial start-up date.

(2) Records shall be kept of all periods of operation during which the flare pilot flame is absent.

(3) Semiannual reports of all periods recorded under §60.115b(d)(2) in which the pilot flame was absent shall be furnished to the Administrator.

§60.116b Monitoring of operations.

(a) The owner or operator shall keep copies of all records required by this section, except for the record required by paragraph (b) of this section, for at least 2 years. The record required by paragraph (b) of this section will be kept for the life of the source.

(b) The owner or operator of each storage vessel as specified in §60.110b(a) shall keep readily accessible records showing the dimension of the storage vessel and an analysis showing the capacity of the storage vessel. Each storage vessel with a design capacity less than 75 m^3 is subject to no provision of this subpart other than those required by this paragraph.

(c) Except as provided in paragraphs (f) and (g) of this section, the owner or operator of each storage vessel either with a design capacity greater than or equal to 151 m^3 storing a liquid with a maximum true vapor pressure greater than or equal to 3.5 kPa or with a design capacity greater than or equal to 75 m^3 but less than 151 m^3 storing a liquid with a maximum true vapor pressure greater than or equal to 15.0 kPa shall maintain a record of the VOL stored, the period of storage, and the maximum true vapor pressure of that VOL during the respective storage period.

(d) Except as provided in paragraph (g) of this section, the owner or operator of each storage vessel either with a design capacity greater than or equal to 151 m^3 storing a liquid with a maximum true vapor pressure that is normally less than 5.2 kPa or with a design capacity greater than or equal to 75 m^3 but less than 151 m^3 storing a liquid with a maximum true vapor pressure that is normally less than 27.6 kPa shall notify the Administrator within 30 days when the maximum true vapor pressure of the liquid exceeds the respective maximum true vapor vapor pressure values for each volume range.

(e) Available data on the storage temperature may be used to determine the maximum true vapor pressure as determined below.

(1) For vessels operated above or below ambient temperatures, the maximum true vapor pressure is calculated based upon the highest expected calendar-month average of the storage temperature. For vessels operated at ambient temperatures, the maximum true vapor pressure is calculated based upon the maximum local monthly average ambient temperature as reported by the National Weather Service.

(2) For crude oil or refined petroleum products the vapor pressure may be obtained by the following:

(i) Available data on the Reid vapor pressure and the maximum expected storage temperature based on the highest expected calendar-month average temperature of the stored product may be used to determine the maximum true vapor pressure from nomographs contained in API Bulletin 2517 (incorporated by reference—see § 60.17), unless the Administrator specifically requests that the liquid be sampled, the actual storage temperature determined, and the Reid vapor pressure determined from the sample(s).

(ii) The true vapor pressure of each type of crude oil with a Reid vapor pressure less than 13.8 kPa or with physical properties that preclude determination by the recommended method is to be determined from available data and recorded if the estimated maximum true vapor pressure is greater than 3.5 kPa.

(3) For other liquids, the vapor pressure:

(i) May be obtained from standard reference texts, or

(ii) Determined by ASTM Method D2879-83 (incorporated by reference—see § 60.17); or

(iii) Measured by an appropriate method approved by the Administrator; or

(iv) Calculated by an appropriate method approved by the Administrator.

(f) The owner or operator of each vessel storing a waste mixture of indeterminate or variable composition shall be subject to the following requirements.

(1) Prior to the initial filling of the vessel, the highest maximum true vapor pressure for the range of anticipated liquid compositions to be stored will be determined using the methods described in paragraph (e) of this section.

(2) For vessels in which the vapor pressure of the anticipated liquid composition is above the cutoff for monitoring but below the cutoff for controls as defined in §60.112b(a), an initial physical test of the vapor pressure is required; and a physical test at least once every 6 months thereafter is required as determined by the following methods:

(i) ASTM Method D2879-83 (incorporated by reference—see § 60.17); or

(ii) ASTM Method D323-82 (incorporated by reference—see §60.17); or

(iii) As measured by an appropriate method as approved by the Administrator.

(g) The owner or operator of each vessel equipped with a closed vent system and control device meeting the specifications of § 60.112b is exempt from the requirements of paragraphs (c) and (d) of this section.

§ 60.117b Delegation of authority.

(a) In delegating implementation and enforcement authority to a State under section 111(c) of the Act, the authorities contained in paragraph (b) of this section shall be retained by the Administrator and not transferred to a State.

(b) Authorities which will not be delegated to States: §§ 60.111b(f)(4), 60.114b, 60.116b(e)(3)(iii), 60.116b(e)(3)(iv), and 60.116b(f)(2)(iii).

[52 FR 11429, Apr. 8, 1987, as amended at 52 FR 22780, June 16, 1987]

Subpart L—Standards of Performance for Secondary Lead Smelters

§ 60.120 Applicability and designation of affected facility.

(a) The provisions of this subpart are applicable to the following affected facilities in secondary lead smelters: Pot furnaces of more than 250 kg (550 lb) charging capacity, blast (cupola) furnaces, and reverberatory furnaces.

(b) Any facility under paragraph (a) of this section that commences construction or modification after June 11, 1973, is subject to the requirements of this subpart.

[42 FR 37937, July 25, 1977]

§ 60.121 Definitions.

As used in this subpart, all terms not defined herein shall have the meaning given them in the Act and in subpart A of this part.

(a) *Reverberatory furnace* includes the following types of reverberatory furnaces: stationary, rotating, rocking, and tilting.

(b) *Secondary lead smelter* means any facility producing lead from a leadbearing scrap material by smelting to the metallic form.

(c) *Lead* means elemental lead or alloys in which the predominant component is lead.

Air Pollution

RULE LIMITS LEVELS OF AIR TOXICS, VOCs CONTAINED IN COATINGS USED AT SHIPYARDS

A final rule announced Nov. 27 by the Environmental Protection Agency will limit the amount of hazardous air pollutants and volatile organic compounds that may be contained in coatings used during shipbuilding and repair operations.

The rule sets specific emissions limits that are derived from an existing California regulation that controls VOC emissions from coatings operations at shipyards, EPA said in a fact sheet on the rule. The rule gives affected sources a handful of options to choose from in complying with emissions limitations.

EPA's final national emissions standard for hazardous air pollutants from shipbuilding and repair operations will be published in the *Federal Register* soon, the agency said.

In addition to requiring the use of coatings with low levels of air toxics and VOCs, the final rule also specifies that shipyards must handle and transfer dilution solvent and paint wastes "in a manner that minimizes evaporative emissions and spills." Containers holding these substances must be free of cracks, holes, and other defects, and must remain covered unless materials are being added or removed, EPA said.

The rule is expected to reduce emissions of hazardous air pollutants by 350 tons per year, or by 24 percent, from current levels, EPA said. It is expected to have an annual operating cost for the industry of about $2 million. "There will be virtually no capital costs associated with the regulation," EPA said.

The rule will cover about 35 shipbuilding and ship repair facilities. It does not apply to major-source shipyards that use less than 1,000 liters of coatings per year. It also does not apply to boatyards that build or repair vessels that are less than 20 meters in length and used for recreational purposes.

EPA proposed hazardous air pollutant emissions standards for shipbuilding and repair operations in November 1994 (25 ER 1503). The agency is required by Section 112 of the Clean Air Act to set maximum achievable control technology standards for several source categories, including shipbuilding and repair operations. MACT is defined as technology capable of meeting emissions limits achieved by the average of the top performing 12 percent of sources.

The final rule will be placed on EPA's Technology Transfer Network electronic bulletin board, and can be found under the Clean Air Act Amendments section. To access the bulletin board, dial (919) 541-5742 through a modem. More information on the rule also can be obtained from Mohamed Serageldin, of EPA's Office of Air Quality Planning and Standards in Research Triangle Park, N.C., at (919) 541-2379.

The rule also will be published in *Environment Reporter-Federal Regulations* and will be included on an upcoming release of *BNA's Environment Library on CD* (ELCD). To find the most recent regulatory changes on ELCD, check the *Federal Register* Updates infobase. From the main menu, choose Federal/*Environment Reporter*, then from the next menu choose *Federal Register* Updates. Also check the What's New in *Environment Reporter* infobase.

Air Pollution

WOOD TREATMENT FACILITIES TO BE REMOVED FROM LIST OF SECTION 112 INDUSTRY CATEGORIES

Wood treatment operations will be removed from a list of sources subject to maximum achievable control technology requirements under Section 112 of the Clean Air Act, an Environmental Protection Agency official said Nov. 29.

Eugene Crumpler, an environmental engineer with EPA's Office of Air Quality Planning and Standards, in Research Triangle Park, N.C., told BNA the agency decided to delist wood treatment facilities earlier this year after concluding these sources do not emit enough hazardous air pollutants to constitute major sources under the Clean Air Act.

He said the agency will publish a notice in the *Federal Register* in coming months announcing the decision.

Sources must emit 10 or more tons of any single hazardous air pollutant, or 25 or more tons of any combination of hazardous air pollutants, to be considered "major" under Section 112 of the Clean Air Act. Section 112 requires major sources to install maximum achievable control technology, which is technology capable of meeting emissions limits achieved by the average of the best performing 12 percent of sources in an industry category.

Crumpler said wood treatment facilities were initially included on a list of industry categories determined to be major sources of air toxics under the Clean Air Act Amendments of 1990. He said this determination was based on data from four companies that indicated emissions from the largest sources may exceed major source levels.

EPA readdressed the issue, however, after determining the data used did not accurately reflect the industry. "We felt they had over-reported their emissions," Crumpler said of the four companies.

Most Facilities Use Chromated Copper Arsenate

Most wood treatment facilities use chromated copper arsenate, a waterborne preservative that is not associated with significant hazardous air pollutant emissions, Crumpler said. As such, the agency focused its investigation on facilities that treat wood with creosote or pentachlorophenol.

Studies of facilities that use creosote focused on naphthalene, which is probably the most volatile component in creosote, Crumpler said. These studies indicated that "worst-case" facilities emitted less than five tons of naphthalene a year, he added.

EPA found worst-case facilities using pentachlorophenol, meanwhile, were unlikely to release more than one ton of pentachlorophenol emissions per year, Crumpler said. The data EPA used included measurements by California in 1990 of emissions from materials both directly after they had gone through the treatment process and three days after they had been sitting in storage facilities, he said.

There are about 500 wood treatment plants in the United States, according to Martin Wikstrom, director of governmental affairs for the American Wood Preservers Institute. Of those about 80 treat wood with creosote, and about 49 treat it with pentachlorophenol. Creosote is used mainly to treat railroad ties and utility poles, while pentachlorophenol is used mainly on utility poles, he said. Most other wood products, such as lumber used in construction, is treated with chromated copper arsenate, he said.

Wikstrom said AWPI worked with EPA on gathering data on emissions from wood treatment facilities. He said the agency's decision reflects a need to focus on "true" major sources of hazardous air pollutants. "I think many of the states will take their lead from that," he added.

Air Pollution

SUPPLEMENTAL EPA NOTICE EXPECTED SOON ON PROPOSAL FOR MARINE ENGINE EMISSIONS

More flexibility would be given to marine engine manufacturers in complying with a pending rule on emission controls

0013-9211/95/$0+$1.00