

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

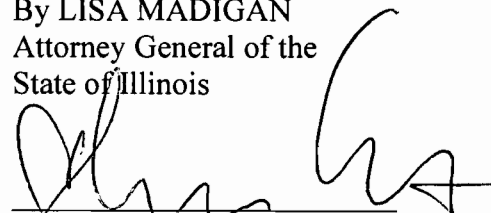
KCBX TERMINALS COMPANY	)	
	)	
Petitioner,	)	PCB No. 10-110
	)	PCB No. 11-43
	)	(Consolidated)
	)	
v.	)	(Permit Appeal-Air)
	)	
	)	
ILLINOIS ENVIRONMENTAL	)	
PROTECTION AGENCY	)	
	)	
Respondent.	)	

**NOTICE OF ELECTRONIC FILING**

PLEASE TAKE NOTICE that on May 11, 2011, the Respondent filed its Motion to Supplement Record, by electronic filing. A true and accurate copy of the document so filed is attached hereto and herewith served upon you.

ILLINOIS ENVIRONMENTAL  
PROTECTION AGENCY

By LISA MADIGAN  
Attorney General of the  
State of Illinois



\_\_\_\_\_  
Christopher J. Grant  
Assistant Attorney General  
Environmental Bureau  
69 W. Washington Street  
Suite 1800  
Chicago Illinois, 60602  
(312)814-5388

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

KCBX TERMINALS COMPANY,	)	
	)	
Petitioner,	)	
	)	
v.	)	PCB No. 11-043
	)	(Permit Appeal-Air)
ILLINOIS ENVIRONMENTAL	)	
PROTECTION AGENCY	)	
	)	
Respondent.	)	

**MOTION TO SUPPLEMENT RECORD.**

Now comes Respondent, ILLINOIS ENVIRONMENTAL PROTECTION AGENCY (“Illinois EPA”), by LISA MADIGAN, Attorney General of the State of Illinois, and requests that the Board allow it to supplement the record in this matter. In support thereof, Respondent states, as follows.

1. This matter was filed by Petitioner KCBX Terminals Company (“KCBX”) filed this Permit appeal on February 1, 2011. Respondent filed the Record of its decision on April 4, 2011.

2. On April 28, 2011, Petitioner filed a separate Motion to Supplement Record, which Respondent has opposed in part and agreed to in part. Petitioner’s Motion is currently with the Board for decision.

3. On April 13, 2011, KCBX deposed retired Illinois EPA Permit Engineer George Kennedy. At his deposition, Mr. Kennedy referred to certain review notes he had created related to the disputed FESOP permit in this matter. Counsel for Petitioner requested copies of any notes so created.

4. After some searching, Mr. Kennedy’s notes were found attached to the back of a

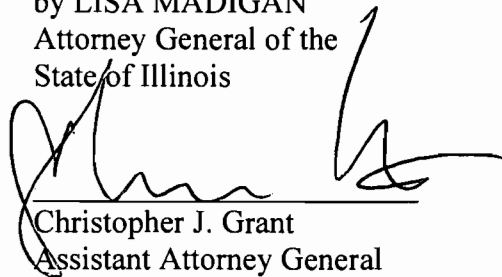
permit which had already been included in the record. Although these notes do not readily fit into the definition of "record" contained in 35 Ill. Adm. Code 105.212 (i.e., they summarize Illinois EPA's decisions but were not 'relied upon' or used in actually making the decision), Respondent has no objection to producing the notes.

5. Accordingly, Respondent moves the Board to allow it to supplement the record in PCB 11-43 with these materials.

Respectfully submitted,

ILLINOIS ENVIRONMENTAL  
PROTECTION AGENCY

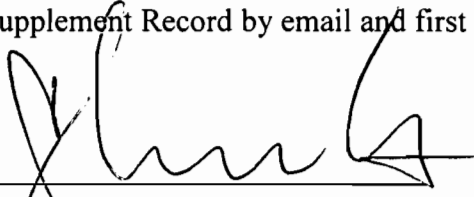
by LISA MADIGAN  
Attorney General of the  
State of Illinois

A handwritten signature in black ink, appearing to read "Chris Grant", is written over a horizontal line. The signature is fluid and cursive.

Christopher J. Grant  
Assistant Attorney General  
Environmental Bureau  
69 West Washington Street  
Suite 1800  
Chicago, Illinois 60602  
(312) 814-5388

**CERTIFICATE OF SERVICE**

I, CHRISTOPHER GRANT, an attorney, do certify that I caused to be served this 11<sup>th</sup> day of May, 2011, Respondent's Motion to Supplement Record by email and first class mail.



CHRISTOPHER GRANT

Ms. Lauren C. Lurkins  
Hodge Dwyer & Driver  
3150 Roland Avenue  
P.O. Box 5776  
Springfield, Illinois 62705-5776  
(by email and first class mail)

Mr. John Therriault  
Assistant Clerk  
Illinois Pollution Control Board  
100 W. Randolph  
Chicago, Illinois 60601  
(by electronic filing)

Mr. Bradley P. Halloran  
Hearing Officer  
Illinois Pollution Control Board  
100 W. Randolph  
Chicago Illinois 60601  
(by hand delivery)

*KCBX Terminals Company v. Illinois EPA, PCB 10-110/11-43 (Consolidated)*

## ANALYSIS SHEET

Rock &amp; Concrete &amp; Bulk &amp; Asphalt

Facility Name:	KCBX Terminals Co.	Analyst Engineer:	George Kennedy
I.D. #:	031600AHI	Initials:	<i>GMK</i> GMK
Permit #:	95050167	Date Received:	01/31/05
Contact:	Kathy Hodge	Date Review Received:	12/01/08
Contact Phone #:	217-523-4900      Ext	Date Review Completed:	12/29/10

**Reason for Opening/Background:**

Facility is requesting Renewal of FESOP and incorporation of Construction Permit 07100090 for 2 portable conveyers. Permittee sent suggested DRAFT in letter January 19, 2009.

**Flag File:**

All flags have expired

**ICEMAN Status:**

The current ICEMAN status for the above mentioned permit number is for FESOP.

**Applicable Regulations:**

212.123 PM opacity 30% other units  
 212.301 PM fugitive  
 212.304 PM storage piles  
 212.305 PM conveyor loading  
 212.306 PM traffic  
 212.307 PM unloading  
 212.308 PM crushers etc  
 212.309 PM operating program  
 212.310 PM program includes  
 212.312 PM operating program  
 212.313 PM 0.03 gr/dscf  
 212.314 spraying and wind speed  
 212.316 PM opacity 10% fugitive  
 212.321 PM process rate  
 212.322 PM process units prior to April 14, 1972  
 212.700 Subpart U additional controls  
 212.324 PM from process units  
 214.122 SO2 0.30 #/mmbtu  
 214.301 SO2 2000 ppm  
 214.304 SO2 Burning fuel in Chicago Area  
 40 CFR 60 Subpart Y – conveyers not subject; conveyers not used to convey coal to machinery at the coal preparation plant

**Description of Facility/Emission Sources:**

Facility is a bulk materials terminal used mainly for coal, coke and salt.

**Existing Equipment:**

Bulk materials terminal (including 2 portable conveyers)  
 1 425 kW diescl – powered generator  
 1 450 kW diesel – powered generator  
 Several fuel combustion units (small non-mobile engines and portable heaters)

K 000908

**Calculations:**

See "Emission Calculations – KCBX Terminals Co. Chicago, IL" dated Dec 8, 2010 for PM10 calculations. For screening calculations based on 7.5% moisture proposed permit was 1.3% and 3%. Also see spread sheets from KCBX Steinert sep 2, 2010, attached.

**Note:**

Limits of proposed permit were requested in letter from KCBX dated January 19, 2009. DRAFT FESOP was sent to KCBX June 24, 2009 – no comment has been received as of May 17, 2010.

**Discussion:**

KCBX states that they are not subject to emission limits other than NOx as all other emissions are below major ie 100 ton/yr. Ill regulation 201.144 says source is to have an operating permit for emission source unless exempt. Being exempt does not relieve obligation to comply with other applicable requirements, including ---.

KCBX believes they are not subject to 212.304 PM for storage piles because their fugitive PM emissions are below 50 ton/yr; however this regulations call for uncontrolled emissions to be below 50, and from all emission units; and their calculations are based on controlled. Calculation based on the spread sheet furnished by KCBX and using uncontrolled emission factors also supplied by KCBX resulted in 61 ton/yr.

In letter of October 13, 2010 KCBS listed conditions which they believe do not apply to their facility and therefore should be deleted. They are as follows:

Condition 2d – refers to 212.304(a) PM fugitive in excess of 50 ton/yr; Using KCBX spread sheet for uncontrolled results in over 50 ton/yr therefore this regulations applies.

Condition 2e – refers to 212.305 conveyor loading and applies via 212.304 applicability.

Condition 2f – refers to 212.306 normal traffic applies via 212.304 applicability.

Condition 2g – refers to 212.307 unloading and transporting operation materials (emission) would be either enclosed or controlled by spraying ect.

Condition 2h.i and 2h.ii – 212.308 crushers--- shall be sprayed ---.

Condition 2l – 212.313 – operation pursuant to 212.304 not exceed 0.03 gr/dscf, or 68 mg/dscm – they are subject to 212.304.

Condition 2t refers to 212.324(b) PM process emission unit – 0.03 gr/dscf or 68 mg/dscm emission for certain areas – they are in the certain area.

Condition 4b refers to 214.301 SO2 for process emission units to 2000 ppm – they do a some coal processing.

Condition 6b and 6c – refers to 205 for season ERMS; the emissions they had earlier requested could cause more than 10 ton VOM in the summer season – cause new ERMS source.

Condition 8f – 212.704(e) PM contingency plan applies when limited to 70 mg/dscm – source is limited to 68 mg/dscm.

Also made changes requested in condition covering 212.321 and added condition covering 212.322 as requested by KCBX.

KCBX has caused delays in processing of FESOP in that they sent reply to letter, dated August 7, 2009, to facility requesting comments on DRAFT FESOP, but then call EPS ie Chris Pressnall saying to disregard that letter and new comments would be forthcoming. Having not received the follow up comment the DRAFT went out for Public comment June 9, 2010.

**Recommendations:**

It is recommended FESOP be Granted as source is not major.

**K 000909**

PERMIT CALCULATION SHEET

<b>Facility:</b> KCBX Terminals Co.	<b>I.D.:</b> 031600AHI
<b>Anal. Eng.:</b> GMK <b>Date:</b> 12/29/2010	<b>P.N.:</b> 95050167
<b>Rev. Eng.:</b> _____ <b>Date:</b> _____	<b>Date Rec.:</b> 1/31/2005

Section 1: Identify noted File Traveler Sheet and ICEMAN source information that may affect permit issuance; if active VN indicate if Compliance is ok with issuance of a permit or NOI/Denial letter:

<b>LEGAL:</b>	none
<b>FOS FLAG:</b>	none
<b>CROPA:</b>	na
<b>Other</b>	na

Section 2: Identify type of permit and brief summary of application/permit history if submitted in response to a NOI/Denial letter or to request revision to an existing permit:

Facility is requesting Renewal of FESOP and incorporation of Construction Permit 07100090 for 2 portable conveyers. Permittee sent suggested DRAFT in letter January 19, 2009.

Section 3: Description of the source with an itemized list of emission units and pollution control equipment included in the application. If for an operating permit, list all existing and proposed units and equipment that the operating permit will need to address:

**Description of Facility/Emission Sources:**

Facility is a bulk materials terminal used mainly for coal, coke and salt.

**Existing Equipment:**

- Bulk materials terminal (including 2 portable conveyers)
- 1 425 kW diesel – powered generator
- 1 450 kW diesel – powered generator
- Several fuel combustion units (small non-mobile engines and portable heaters)

Section 4: Identify the proposed type(s) and maximum actual operating quantities and rates of pollutant containing materials to be used/processed/produced that will be included in permit:

Limits are to be based on total facility emissions no matter what the material.

Section 5: Identify the proposed type(s), quantities and rates of maximum actual operating emissions for the source to be included in the permit including the units/controls proposed. Identify the source(s) of the emission factors used:

WILL NEED TO BE INSERTED

Section 6: Identify the source's potential-to-emit (PTE) including any proposed additions/revisions. Show calculations or reference where in application or file PTE is satisfactorily presented. Emissions from 35 IAC 201.146 exempt units must be included in PTE calculations:

Source is FESOP.

Section 7: List potentially applicable State and Federal (NSPS and NESHAP) regulations and indicate if application demonstrated those regulations would not be violated by construction and/or operation of equipment/units/processes in application:

**Applicable Regulations:**

- 212.123 PM opacity 30% other units
- 212.301 PM fugitive
- 212.304 PM storage piles
- 212.305 PM conveyor loading
- 212.306 PM traffic

Electronic Filing - Received, Clerk's Office, May 11, 2011

212.307 PM unloading  
212.308 PM crushers etc  
212.309 PM operating program  
212.310 PM program includes  
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214.301 SO2 2000 ppm  
214.304 SO2 Burning fuel in Chicago Area  
40 CFR 60 Subpart Y – conveyers not subject; conveyers not used to convey coal to machinery at the coal preparation plant

Section 8: Conclusions and recommendations. Indicate your final recommendation (e.g., NOI, denial, issue permit with conditions, etc.) and indicate reason(s) for that action:

**Calculations:**

See “Emission Calculations – KCBX Terminals Co. Chicago, IL” dated Dec 8, 2010 for PM10 calculations. For screening calculations based on 7.5% moisture proposed permit was 1.3% and 3%. Also see spread sheets from KCBX Steinert sep 2, 2010, attached.

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Condition 2h.i and 2h.ii – 212.308 crushers--- shall be sprayed ---.

**K 000911**



## Electronic Filing - Received, Clerk's Office, May 11, 2011

Condition 2i – 212.313 – operation pursuant to 212.304 not exceed 0.03 gr/dscf, or 68 mg/dscm – they are subject to 212.304.

Condition 2t refers to 212.324(b) PM process emission unit – 0.03 gr/dscf or 68 mg/dscm emission for certain areas – they are in the certain area.

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### **Recommendations:**

It is recommended FESOP be Granted as source is not major.

Dec 8, 2010  
G.M.K.

Emission Calculations - KCBX Terminals Co. Chicago, IL

Screening Emissions (NSPS Y) @1.3% and 3% moisture (proposed FES)

1. Material Handling (from AP-42 13.2.4. "Aggregate Handling and Storage Piles", Equation 1. 11/2006)

$EF = k(0.0032)[(U/5)^{-1.3}]/[(M/2)^{-1.4}]$  where:

	PM <sub>30</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	
k =	0.74	0.35	0.053	
U =	10.3	mph (average wind speed for O'Hare through 2001 - NOAA)		
M =	1.3	1.3% receiving Condition 9a proposed FESOP limit		
EF =	0.01107	0.00524	0.00079	lb pollutant/ton transferred (receiving)
M =	3.0	3% after receiving Condition 9a proposed FESOP limit		
EF =	0.00343	0.00162	0.00025	lb pollutant/ton transferred
	112.8	ton/hr screening rated capacity (from equipment spec sheet)		
	9	maximum drop points in rail unload system to rock chute plus 2 drops for pad transfers		
	11	maximum drop points in ship load system plus 2 drops for pad transfers		

Emissions = Amount Transferred \* Material Handling EF \* No. of Drop Points  
Control is by watering to maintain moisture at or above the value of M

Potential Emissions - unloading @ 1.3% moisture

PM <sub>30</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	
11.2	5.3	0.8	lb/hr
49	23.3	3.5	ton/yr

Potential Emissions - loading @ 3% moisture

PM <sub>30</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	
17.0	8.1	1.2	lb/hr
75	35	5.3	ton/yr

*Handwritten note:*  
2  
3  
5  
8.3

2. Screening (from AP-42. Crushed Stone Processing, Table 11.19.2-2. 08/2004)

	PM	PM <sub>10</sub>	PM <sub>2.5</sub>	
EF =	0.0022	0.00074	0.000050	lb pollutant/ton screened (controlled)
EF =	0.025	0.0087	0.00013	lb pollutant/ton screened (uncontrolled)
	112.8	ton/hr screening rated capacity (from equipment spec sheet)		

Emissions = Amount screened \* Screening EF  
Controlled emissions are those with material moisture content of at least 2.88 %  
(see footnote b to AP42 Table 11.19.2-2)

Potential Controlled Emissions

PM <sub>30</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	
0.2	0.1	0.01	lb/hr
1.1	0.4	0.02	ton/yr

Potential Uncontrolled Emissions

PM <sub>30</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	
2.8	1.0	0.01	lb/hr
12.4	4.3	0.06	ton/yr

Dec 8, 2010  
GMK

3. Storage Piles (AP-42, Chapter 11.9, Western Surface Coal Mining, 1998)

Note: k factors not available for PM<sub>10</sub> & PM<sub>2.5</sub>, so the ratio of Material Handling k factors from Scenario I is applied

Area  acres of total available storage

Active Piles (from AP-42, Table 11.9-1)

EF = 0.72 \* U lb PM<sub>30</sub>/acre/hr (disturbed area)

U =  mph (average wind speed for O'Hare through 2001 - NOAA)

% of storage piles that are active (most conservative estimate)

	PM <sub>30</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	
EF =	1.85	0.88	0.13	lb pollutant/acre/hr (controlled)
EF =	7.42	3.51	0.53	lb pollutant/acre/hr (uncontrolled)

Assume 75% assumed control efficiency from water application  
0% for no control

Potential Controlled Emissions

PM <sub>30</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	
7.4	3.5	0.5	lb/hr
32	15	2.3	ton/yr

Potential Uncontrolled Emission

PM <sub>30</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
29.7	14.0	2.1
130	61	9.3

Assume Pile remains active (no emissions from an inactive pile) because screening occurs 8760 hrs/yr

4. Vehicle Traffic

Unpaved Roads (AP-42 Section 13.2.2 Unpaved Roads, 2003)  
Applicable for 90% of vehicle traffic (estimate)

$$EF = k(s/12)^a * (W/3)^b * [(365-P)/365] \text{ lb/vehicle mile traveled (VMT)}$$

**988,128** tons/yr maximum screener throughput

Assume All screened material is moved by truck and loader (worst case)

$$W = \frac{\sum (\text{VMT} * \text{avg vehicle wt})}{\text{Total VMT}} \quad \text{Mean Vehicle Fleet Weight for all vehicle types}$$

Vehicle Type	Number	Weight (tons)			Operating			VMT (mi/yr)		
		Loaded	Empty	Average	Distance <sup>1</sup> (mi)	Speed (mi/hr)	Time (hrs/yr)	Unpaved	Paved	
End loader/dozer	1	20.0	10.0	15.0	0.03			2,807	0	
Water truck <sup>2</sup>	1	20.0	5.0	12.5		5.0	100	500	0	
Haul truck	39,525	40.0	15.0	27.5	0.8			31,620	0	
								Total =	34,927	0

<sup>1</sup>round trip

<sup>2</sup>100 fills/year @ 1 hr each

Where:

	PM <sub>30</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	
k =	4.9	1.5	0.15	constant for lb/VMT
a =	0.7	0.9	0.9	
b =	0.45	0.45	0.45	
s =	5.1	5.1	5.1	road surface % silt (AP-42 Table 13.2.2.1 for Plant Road)
W =	26.3	26.3	26.3	Mean weight of vehicles, tons
P <sub>uncontrolled</sub> =	120	120	120	Figure 13.2.2-1 for days with > 0.01 inches precipitation
P <sub>controlled</sub> =	215	215	215	1/3 of P <sub>uncontrolled</sub> (non-sprinkling season) + watering days
E <sub>ext</sub> =	4.8	1.2	0.1	lb/VMT Uncontrolled
E <sub>ext</sub> =	2.9	0.8	0.08	lb/VMT Controlled

Emission = Unpaved Road EF (adjusted for local rainfall) \* Fleet Weighted Vehicle Miles Traveled

Control assumes P = 175 days of watering (Apr 1 - Nov 31 ~ 35 wks @ 5 days/wk)

Potential Uncontrolled Emissions

PM <sub>30</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	
19	4.9	0.5	lb/hr
84	22	2.2	ton/yr

Dec 8, 2011  
GMK

5. Non-mobile Fuel Combustion

Large Diesels

PM <sub>10</sub>	1510	total hp	Source: AP-42, "Gasoline and Diesel Engines," Tables 3.3-1 and -2
	0.0007	lb/hp-hr	Source: AP-42, "Gasoline and Diesel Engines," Tables 3.3-1 and -2

Potential Uncontrolled Emissions

PM <sub>30</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	
1.1	1.1	1.1	lb/hr
4.6	4.6	4.6	ton/yr

Small Engines

using AP-42 Tables 1.3-1 and 1.3-3

	Diesels	Gasoline	
Installed capacity	41.5	144	horsepower
BSFC	7000	7000	Btu/hp-hr Source: footnote a of AP-42 Table 3.3-1
PM <sub>10</sub>	0.31	0.10	lb/MMBTU (AP-42 Table 3.3-1)

Potential Uncontrolled Emissions

PM <sub>30</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	
0.2	0.2	0.2	lb/hr
0.8	0.8	0.8	ton/yr

Other Combustion

Fuel Oil Kerosene\*

Installed capacity	1307000	4154000	Btu/hr
heating value	19300	19300	Btu/lb Source: footnote a of AP-42 Table 3.3-1
density	7050	7050	lb/1000 gal Source: AP-42 Appendix A
PM <sub>10</sub>	0.4	0.4	lb/1000 gal Source: AP-42 Table 1.3-1

Potential Uncontrolled Emissions

PM <sub>30</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	
0.02	0.02	0.02	lb/hr
0.07	0.07	0.07	ton/yr

\*Distillate fuel emission factors may be used for kerosene per Residential and Commercial/ Institutional Fuel Oil and Kerosene Combustion in Areas Source Category Abstract-Fuel Oil and Kerosene Combustion, USEPA 4/6/99 at

<http://www.epa.gov/ttn/chieff/aiio/techreport/volume03/fueloil.pdf>

SUMMARY OF UNCONTROLLED EMISSIONS

	Pounds/year			Tons/year		
	PM <sub>30</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	PM <sub>30</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
Transfers	247,819	117,212	17,749	124	59	8.9
Screening	24,703	8,597	124	12.4	4.3	0.1
Storage Piles	259,857	122,905	18,611	130	61	9.3
Vehicle Traffic	167,586	43,233	4,323	84	22	2.2
<b>Site Totals</b>	<b>699,965</b>	<b>291,947</b>	<b>40,807</b>	<b>350</b>	<b>146</b>	<b>20.4</b>

146  
- 61  
-----  
185 > 80

**Fluid Coke Receiving Emissions @ 0.75% moisture**

Material Handling (from AP-42 13.2.4. "Aggregate Handling and Storage Piles")

$EF = k(0.0032)[(U/5)^{-1.3}]/[(M/2)^{-1.4}]$  where.

	PM <sub>30</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	
k =	0.74	0.35	0.053	
U =	10.3	mph (average wind speed for O'Hare through 2001 - NO)		
M =	0.75	Current FESOP limit		
EF =	0.024	0.011	0.0017	lb pollutant/ton transferred

200	10% fluid coke blend on a 2000 tph belt
1	drop points in rail unload system

Emissions = Amount Transferred \* Material Handling EF \* No. of D

Potential Emissions - unloading

	PM <sub>30</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	
	4.78	2.26	0.34	lb/hr
	21.0	9.9	1.5	ton/yr

The ton/year calculation assumes receiving fluid coke 8760 hours per year

In reality, the facility would not receive fluid coke for 8760 hours per year because it cannot bring in that much green delayed coke to use for blend.

200 tpy \* 8760 hr/yr = 1,752,000 t fluid coke \* 9% blend = 157,680 tons green delayed coke

**Kennedy, George**

---

**From:** Steinert, Terry [STEINE3T@KOCHIND.COM]  
**Sent:** Thursday, September 02, 2010 11:16 AM  
**To:** Kennedy, George  
**Subject:** KCBX emissions spreadsheets  
**Attachments:** FESOP Renewal 2010-07-14 fuel combustion PTE.xls; FESOP Renewal 2010-08-27 fugitive particulate PTE.xls

George,

Thanks again for meeting with us last week to discuss the FESOP for KCBX Terminals again in Chicago. I think Chris Presnall summed it up pretty well when he characterized the meeting as productive. We certainly better understand the Agency point of view on some topics that were confusing us.

As we promised, I am attaching the spreadsheets from which the printouts were made (Attachments C and D) from our July 16, 2010 comments on the draft FESOP submitted to Brad Frost of the Agency. For the PM / PM10 PTE spreadsheet, I added the calculations that would show the emissions from offloading low moisture product ( I assumed 0.75% moisture) through 1 drop point on the rail unload system.

Please call me if you have any questions.

<<FESOP Renewal 2010-07-14 fuel combustion PTE.xls>>  
PTE.xls>>

<<FESOP Renewal 2010-08-27 fugitive particulate

*Terry L. Steinert*

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Emission Calculations - KCBX Terminals Co. Chicago, IL

Screening Emissions (NSPS Y) @ 7.5% moisture (current FESOP)

1. Material Handling (from AP-42 13.2.4, "Aggregate Handling and Storage Piles", Equation 1, 11/2006)

$EF = k(0.0032)[(U/5)^{1.3}]/[(M/2)^{1.4}]$  where:

	<b>PM<sub>30</sub></b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>	
k =	0.74	0.35	0.053	
U =	10.3	mph (average wind speed for O'Hare through 2001 - NOAA)		
M =	7.5	Current FESOP limit		
EF =	0.00095	0.00045	0.00007	lb pollutant/ton transferred
	112.8	ton/hr screening rated capacity (from equipment spec sheet)		
	9	maximum drop points in rail unload system to rock chute plus 2 drops for pad transfer		
	11	maximum drop points in ship load system plus 2 drops for pad transfers		

Emissions = Amount Transferred \* Material Handling EF \* No. of Drop Points

Control is by watering to maintain moisture at or above the value of M

Potential Emissions - unloading

	<b>PM<sub>30</sub></b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>	
	1.0	0.5	0.1	lb/hr
	4	2.0	0.3	ton/yr

Potential Emissions - loading

assumes blend of 25% reclaim & 75% virgin

	<b>PM<sub>30</sub></b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>	
	4.7	2.2	0.3	lb/hr
	21	10	1.5	ton/yr

2. Screening (from AP-42, Crushed Stone Processing, Table 11.19.2-2, 08/2004)

	<b>PM</b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>	
EF =	0.0022	0.00074	0.000050	lb pollutant/ton screened (controlled)
EF =	0.025	0.0087	0.00013	lb pollutant/ton screened (uncontrolled)
	112.8	ton/hr screening rated capacity (from equipment spec sheet)		

Emissions = Amount screened \* Screening EF

Controlled emissions are those with material moisture content of at least 2.88 %  
(see footnote b to AP42 Table 11.19.2-2)

Potential Controlled Emissions

	<b>PM<sub>30</sub></b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>	
	0.2	0.1	0.01	lb/hr
	1	0.4	0.02	ton/yr



3. Storage Piles (AP-42, Chapter 11.9, Western Surface Coal Mining, 1998)

Note: k factors not available for PM<sub>10</sub> & PM<sub>2.5</sub>, so the ratio of Material Handling k factors from Scenario 1 is applied

Area **4** acres of total available storage

Active Piles (from AP-42, Table 11.9-1)

EF = 0.72 \* u lb PM<sub>30</sub>/acre/hr (disturbed area)

U = **10.3** mph (average wind speed for O'Hare through 2001 - NOAA)  
**100** % of storage piles that are active (most conservative estimate)

	PM <sub>30</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	
EF =	<b>1.85</b>	<b>0.88</b>	<b>0.13</b>	lb pollutant/acre/hr (controlled)
EF =	<b>7.42</b>	<b>3.51</b>	<b>0.53</b>	lb pollutant/acre/hr (uncontrolled)

Assume 75% assumed control efficiency from water application

Potential Controlled Emissions

PM <sub>30</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	
7.4	3.5	0.5	lb/hr
32	15	2.3	ton/yr

Assume Pile remains active (no emissions from an inactive pile) because screening occurs 8760 hrs/yr

4. Vehicle Traffic

Unpaved Roads (AP-42 Section 13.2.2 Unpaved Roads, 2003)  
 Applicable for 90% of vehicle traffic (estimate)

EF = k(s/12)<sup>a</sup> \* (W/3)<sup>b</sup> \* [(365-P)/365] lb/vehicle mile traveled (VMT)

**988,128** tons/yr maximum screener throughput

Assume All screened material is moved by truck and loader (worst case)

W =  $\frac{\sum (VMT * \text{avg vehicle wt})}{\text{Total VMT}}$  Mean Vehicle Fleet Weight for all vehicle types

Vehicle Type	Number	Weight (tons)			Operating			VMT (mi/yr)	
		Loaded	Empty	Average	Distance <sup>1</sup> (mi)	Speed (mi/hr)	Time (hrs/yr)	Unpaved	Paved
End loader/dozer	1	20.0	10.0	15.0	0.03			2,807	0
Water truck <sup>2</sup>	1	20.0	5.0	12.5		5.0	100	500	0

Haul truck	39,525	40.0	15.0	27.5	0.8		31,620	0	
<sup>1</sup> round trip							Total =	34,927	0

<sup>2</sup>100 fills/year @ 1 hr each

Where:

	PM <sub>30</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	
k =	4.9	1.5	0.15	constant for lb/VMT
a =	0.7	0.9	0.9	
b =	0.45	0.45	0.45	
s =	5.1	5.1	5.1	road surface % silt (AP-42 Table 13.2.2.1 for Plant Road)
W =	26.3	26.3	26.3	Mean weight of vehicles, tons
P <sub>uncontrolled</sub> =	120	120	120	Figure 13.2.2-1 for days with > 0.01 inches precipitation
P <sub>controlled</sub> =	215	215	215	1/3 of P <sub>uncontrolled</sub> (non-sprinkling season) + watering days
E <sub>ext</sub> =	4.8	1.2	0.1	lb/VMT Uncontrolled
E <sub>ext</sub> =	2.9	0.8	0.08	lb/VMT Controlled

**Emission = Unpaved Road EF (adjusted for local rainfall) \* Fleet Weighted Vehicle Miles Traveled**

Control assumes P = 175 days of watering (Apr 1 - Nov 31 ~ 35 wks @ 5 days/wk)

Potential Controlled Emissions

PM <sub>30</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	
12	3.0	0.3	lb/hr
5.1	1.3	1.3	ton/yr

**SUMMARY OF CONTROLLED EMISSIONS**

	Pounds/year			Tons/year		
	PM <sub>30</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	PM <sub>30</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
Transfers	49,872	23,588	3,572	25	12	1.8
Screening	2,174	731	49	1.1	0.4	0.0
Storage Piles	64,964	30,726	4,653	32	15	2.3
Vehicle Traffic	102,604	26,469	2,647	51	13	1.3
<b>Site Totals</b>	<b>219,613</b>	<b>81,514</b>	<b>10,921</b>	<b>110</b>	<b>41</b>	<b>5.5</b>



KCBX Terminals Co. Calculation Sheet

Concrete & Bulk & Asphalt  
 KCBX Terminals Co.  
 031600AHI  
 95050167  
 Rec'd 1/31/2005  
 Analysis: GMK  
 12/8/2010

January 19, 2009  
 Proposed DRAFT from KCBX

	PM10	PM2.5	PM	NOx	Co	SO2	VOM
9a.	95	95	95				
9b.					95	95	66.8 25

August 7, 2009

9a.	88						processing of coal in the coal preparation plant
9c.	23.5			95	92	21.9	40.1 non-mobile fuel combustion units

June 6, 2010

	none	none	none	92	none	none	none non-mobile fuel combustion units
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October 13, 2010

Only believe NOx should be limited

K 000923