

Air Permit Review

Region: Raleigh Regional Office
County: Halifax
NC Facility ID: 4200007
Inspector's Name: Will Wike
Date of Last Inspection: 03/28/2011
Compliance Code: 3 / Compliance - inspection

Permit Issue Date:

Facility Data			Permit Applicability (this application only)
Applicant (Facility's Name): KapStone Kraft Paper Corporation Facility Address: KapStone Kraft Paper Corporation 100 Gaston Road Roanoke Rapids, NC 27870 SIC: 2621 / Paper Mills Exc Building Paper NAICS: 322121 / Paper (except Newsprint) Mills Facility Classification: Before: Title V After: Title V Fee Classification: Before: Title V After: Title V			SIP: NSPS: Subpart Db NESHAP: 2D .1109; Case-by-Case MACT PSD: PSD Avoidance: 2Q .0317 NC Toxics: 2D .1100 and 2Q .0711 112(r): Other:
Contact Data			Application Data
Facility Contact	Authorized Contact	Technical Contact	Application Number: 4200007.11B Date Received: 09/01/2011 Application Type: Modification Application Schedule: TV-Sign-501(c)(2) Existing Permit Data Existing Permit Number: 01649/T48 Existing Permit Issue Date: 12/21/2011 Existing Permit Expiration Date: 03/31/2012
Mike Knudson Senior Environmental Engineer (252) 533-6280 100 Gaston Road Roanoke Rapids, NC 27870	Anitra Collins Mill Manager (252) 533-6213 100 Gaston Road Roanoke Rapids, NC 27870	Mike Knudson Senior Environmental Engineer (252) 533-6280 100 Gaston Road Roanoke Rapids, NC 27870	
Review Engineer: Jenny Kelvington Review Engineer's Signature: _____ Date: _____		Comments / Recommendations: Issue 01649/T50 Permit Issue Date: Permit Expiration Date:	

1. Purpose of Application

KapStone Kraft Paper Corporation (KapStone) located in Roanoke Rapids, Halifax County North Carolina has submitted an application for a significant modification to their Title V air quality permit to add one natural gas/distillate fuel-fired boiler with a maximum heat input of 245 million Btu per hour to produce steam for energy generation and provide heat for the pulp and paper processes. NC DAQ received the application on September 1, 2011 but it was not deemed complete for processing until October 8, 2011 when the appropriate number of copies was submitted.

2. Facility Description [inserted from last review]

KapStone operates an integrated unbleached Kraft pulp and paper mill in Roanoke Rapids, North Carolina. The primary activities are pulp production (Standard Industrial Classification [SIC] code 2611) and paper production (SIC code 2621). Primary operations at the mill include multiple fuel-fired boilers, chemical recovery operations, wood pulping operations, unbleached papermaking, and additional operations and equipment necessary to support these operations. The Mill started up in 1907, has approximately 500 employees, and produces a nominal 534,000 tons per year of grocery bag paper, multiwall, and linerboard.

3. Compliance Status

During the most recent inspection performed by Will Wike, RRO, on March 28, 2011, the facility appeared to be operating in compliance with all permit requirements. There have been no Notices of Violation (NOVs) issued to this facility in the past five years.

4. Application Chronology

September 1, 2011 – Two copies of the application received in Raleigh Central Office (RCO)

October 8, 2011 – Third copy of the application received in RCO and forwarded to EPA.

October 18, 2011 – NC DAQ requested additional technical information regarding toxics modeling.

November 7, 2011 – KapStone resubmitted the compliance modeling for additional toxic pollutants and emission sources

5. New Emission Source Description, Emissions, and Regulatory Review

Equipment to be Added

The proposed No. 4 Package Boiler is natural gas/low sulfur distillate oil industrial boiler equipped with low NOx burners and having a maximum heat input of 245 million Btu per hour. It is manufactured by Babcock and Wilcox in 2011. Onsite construction is planned to begin in March 2012 and the unit is expected to be operational in May 2012. KapStone plans limit fuel oil firing in the boiler to periods of gas curtailment, gas supply emergencies, and periodic liquid fuel testing in such a manner that the boiler is classified as a gas-fired boiler and is not subject to any emissions limits associated with hazardous air pollutant emissions.



Photograph of a Babcock and Wilcox package boiler from the B&W website.

Emissions Summary

Criteria Pollutant	Emission Factor Reference	Potential Emissions (tpy)	PSD Significant Emissions Rate (tpy)	PSD Significant Increase
Particulates	AP-42	25.3	25	Yes
PM ₁₀	AP-42	17.6	15	Yes
PM _{2.5}	AP-42	11.8	10	Yes
SO ₂	AP-42	54.4	40	Yes
NO _x	NSPS Limit	107	40	Yes
CO	Vendor	40.2	100	No
VOC as propane	Vendor	4.3	40	No
Lead (& cmpds)	AP-42	0.01	0.6	No
H ₂ SO ₄	AP-42	0.94	7	No
CO ₂ e	GHG MRR	176,500	75,000	Yes

Regulatory Review

The new natural gas/low sulfur distillate fuel-fired boiler will be subject to the following requirements:

- 15A NCAC 2D .0503, "Particulates from Fuel Burning Indirect Heat Exchangers"
- 15A NCAC 2D .0516, "Sulfur Dioxide Emissions from Combustion Sources"
- 15A NCAC 2D .0521, "Control Of Visible Emissions"
- 15A NCAC 2D .0524, "New Source Performance Standards (40 CFR Part 60, Subpart Db)"
- 15A NCAC 2D .0530, "Prevention of Significant Deterioration"
- 15A NCAC 2D .1109, "Case-by-Case MACT for Boilers and Process Heaters"
- 15A NCAC 2D .1100, "Control of Toxic Air Pollutants"
- 15A NCAC 2Q .0711, "Emission Rates Requiring a Permit"

- A. 15A NCAC 2D .0503 – "PARTICULATES FROM FUEL BURNING INDIRECT HEAT EXCHANGERS"
This regulation applies to particulate matter emissions from the combustion of a fuel that are discharged from any stack. This regulation sets an emission standard based on the maximum rated heat input as follows:

$$E = 1.090 * Q^{-0.2594} \quad \text{where, } E = \text{allowable emissions (lb/million Btu)} = \mathbf{0.198 \text{ lbs/mmBtu}}$$
$$Q = \text{maximum heat input (million Btu/hr)} = \mathbf{714.04 \text{ mmBtu/hr}}$$

The permitted fuel burning indirect heat exchangers include the No. 1 Power Boiler rated at 550 MMBtu/hr, the No. 2 and No. 3 Package Boilers both rated at 185 MMBtu/hr, and four temporary boilers each rated at 96 MMBtu/hr. Because the temporary boilers are only brought onsite as a backup, the application proposes excluding these boilers in the calculation of the particulate emission limit for the new boiler. This approach establishes the emission limit as follows:

$$E = 1.090(1165)^{-0.2594} = \mathbf{0.17 \text{ lb/mmBtu}}$$

Based on AP-42 factors, the maximum particulate matter emission rate expected from the new Package Boiler is **0.02 lbs/mmBtu**. Therefore, compliance is clearly indicated. No monitoring or recordkeeping is required to demonstrate compliance with this regulation since particulate emissions from firing natural gas and low sulfur distillate oil are inherently low.

The particulate emissions limit for the temporary boilers has been recalculated to include the heat input from the new boiler. Particulates from each temporary boiler will be limited to **0.16 lb/mmBtu** instead of the **0.17 lb/mmBtu** limit they previously had.

- B. 15A NCAC 2D .0516 – "SULFUR DIOXIDE EMISSIONS FROM COMBUSTION SOURCES"
This regulation applies to sulfur dioxide emissions from any source of combustion that is discharged from any stack. The allowable sulfur dioxide emission rate is **2.3 lb/million Btu**. Based on AP-42 factors, the SO₂ emission rate from natural gas combustion is **0.001 lbs/million Btu** and from low sulfur distillate combustion is **0.011 lbs/million Btu**. Therefore, compliance is clearly indicated. No monitoring or recordkeeping is required to demonstrate compliance with this regulation since SO₂ emissions from firing both natural gas and low sulfur distillate oil are inherently low.
- C. 15A NCAC 2D .0521 – "CONTROL OF VISIBLE EMISSIONS"
This regulation applies to all fuel burning sources. The proposed package boiler will be subject to the 20% opacity limit. Visible emissions from the combustion of natural gas and distillate oil are inherently low. Therefore, compliance is indicated and no monitoring or recordkeeping is required to demonstrate compliance with this regulation.
- D. 15A NCAC 2D .0524 – "NEW SOURCE PERFORMANCE STANDARDS – Subpart Db"
40 CFR Part 60, Subpart Db applies to boilers that are constructed, modified, or reconstructed after June 19, 1984 and have a maximum design heat input capacity greater than 100 MMBtu/hr. Additional restrictions apply to boilers constructed, modified, or reconstructed after February 28, 2005. Because the package boiler is constructed in 2011 and has a maximum design heat input capacity of 245 MMBtu/hr, NSPS Db applies. The

NSPS Db requirements include initial notification, compliance with applicable emission limitations, performance monitoring, and recordkeeping. NSPS Db regulates particulate matter (PM), sulfur dioxide (SO₂), and nitrogen oxide (NO_x) emissions.

PM: §60.43b (h)(5) exempts new natural gas/distillate oil-fired boilers not using post combustion control for SO₂ from the PM emission limit if the boiler combusts oil that has no more than a 0.3 weight % sulfur content. KapStone intends to burn only low sulfur distillate oil and provide no SO₂ control. Thus, they are exempt from the PM emissions limit. The permit will require KapStone to maintain fuel records demonstrating the low sulfur content.

VE: §60.43b(f) limits visible emissions (VE) from oil-fired boilers to 20 percent opacity (6-minute average), except for one 6-minute period per hour of not more than 27 percent opacity. The opacity standard apply at all times, except during periods of startup, shutdown, or malfunction.

SO₂: §60.42b (k)(2) exempts new natural gas/distillate oil-fired boilers from a SO₂ limit if the boiler combusts oil that has no more than a 0.3 weight % sulfur content and if it has no more than 0.32 lbs/MMBtu of potential SO₂ emissions. KapStone intends to burn only fuels that meet this criteria. The permit will require KapStone to maintain fuel records demonstrating the low sulfur content of the fuel.

NO_x: §60.44b(a)(1)(i) limits NO_x emissions from natural gas/distillate oil-fired boilers with a low heat release rate to **0.10 lb/MMBtu**. The emission limit applies at all times including during startup, shutdown, and malfunction. Compliance will be determined using the 30 consecutive day rolling average of continuous emission monitoring system (CEMS) data.

To demonstrate compliance with the NO_x limit, KapStone shall install, calibrate, maintain, and operate a CEMS for measuring NO_x and O₂ (or CO₂) emissions discharged from the boiler and conduct an initial performance test. To show visible emissions comply with the opacity limit, KapStone may either install a continuous opacity monitoring system (COMS) or conduct a performance test using Method 9 of appendix A-4 within 180 days after initial boiler startup and periodic testing in accordance with the schedule in §60.48b(a). KapStone has chosen to perform the Method 9 VE observations in lieu of COMS. The monitoring results shall be recorded, maintained for a minimum of two years, and made available to the NC DAQ upon request. Compliance is expected.

E. 15A NCAC 2D .0530, PREVENTION OF SIGNIFICANT DETERIORATION (PSD)

KapStone's Roanoke Rapids Mill is considered a major stationary source belonging to one of the 28 source categories considered major with the potential to emit more than 100 tpy of several PSD regulated pollutants. Potential particulate matter (PM), PM₁₀, PM_{2.5}, NO_x, SO₂, and CO₂e emissions from the proposed package boiler exceed their respective PSD significant emissions rate (SER) as shown below:

Criteria Pollutant	Potential No. 4 Package Boiler Emissions (tpy)	PSD Significant Emissions Rate (tpy)
Particulate Matter (PM)	25.3	25
PM ₁₀	17.6	15
PM _{2.5}	11.8	10
SO ₂	54.4	40
NO _x	107	40
CO ₂ e	176,000	75,000

However, PSD regulations are not applicable to the new gas-fired boiler because KapStone has requested that emissions from all three of their package boilers (ID Nos. ES-11-CU-033, ES-11-CU-034, and ES-11-CU-035) combined be limited each 12-month period to less than half the 24-month baseline emission rates for the two existing package boilers plus the PSD SER. The application states the 10-year look back period used for the PSD analysis is more representative of normal operations due to a downturn in the paper market experienced during the past five years. Consequently, recent steam demands from the boilers are not indicative of normal operations. The selected baseline period is 2002-2003, during which time 2,208,146 gallons of residual oil (No.

6) with an average heating value of 152,759 Btu's per gallon were combusted in 2002 and 3,851,381 gallons of residual oil (No. 6) with an average heating value of 150,9111 Btu's per gallon were combusted in 2003. The average baseline fuel consumption is 3,029,765 gallons and the average baseline heat input is 459,265 MMBtu's. The application includes baseline emission calculations for the Nos. 2 and 3 package boilers based on these rates. The table below lists the potential emissions from the three package boilers, the baseline emissions by themselves and with SER added to them, and the PSD avoidance limit. Each criteria pollutant whose potential emission rate exceeds the baseline plus SER rate is limited in the permit under the 2Q .0317 PSD avoidance condition.

Criteria Pollutant	Nos. 2, 3, and 4 PB Potential Emissions (tpy)	Nos. 2 and 3 PB Baseline Emissions (tpy)	Baseline + SER (tpy)	PSD Avoidance Limit (tpy)
PM	284.8	38.8	63.3	63.2
PM ₁₀	228.5	27.2	42.2	42.1
PM _{2.5}	149.1	19.9	29.9	29.8
SO ₂	3,616	448.3	488.3	488.2
NO _x	615	83.3	123.3	123.2
CO	440	56.1	156.1	156.0
VOC	7.3	1.7	41.7	No limit needed
Lead	0.026	0.0023	0.6	No limit needed
H ₂ SO ₄	53.1	7.31	14.31	14.2
CO _{2e}	287,142	37,468	112,468	112,467

Therefore, in order to avoid applicability of 15A NCAC 2D .0530(g) for major sources and major modifications, the combined emissions from Nos. 2, 3, and 4 package boilers (**ID Nos. ES-11-033, ES-11-034, and ES-11-035**) into the atmosphere per each consecutive 12-month period shall not exceed any of the following emission limits:

Pollutant	Emission Limit (tons/12-month period)
Particulate matter (PM)	63.2
PM ₁₀	42.1
PM _{2.5}	29.8
Sulfur dioxide (SO ₂)	488.2
Nitrogen oxides (NO _x)	123.2
Carbon monoxide (CO)	156.0
Sulfuric acid	14.2
CO ₂ equivalent	112,467

The Permittee shall keep monthly fuel record records including the sulfur content certification and submit semiannual reports of the PM, PM₁₀, PM_{2.5}, SO₂, NO_x, CO, H₂SO₄, and CO₂ equivalent emissions for each of the six 12-month periods over the previous 17 months; the quantities of natural gas, No. 2 fuel oil, and No. 6 fuel oil consumed in each boiler, and the average sulfur content of the No. 2 fuel oil and the No. 6 fuel oil fired. Compliance is expected.

F. 15A NCAC 2D .1111 NATIONAL EMISSION STANDARD FOR HAZARDOUS AIR POLLUTANTS, 40 CFR 63, Subpart DDDDD – Industrial Boilers and Process Heaters at Major Facilities.

On March 21, 2011, National Emission Standards for Hazardous Air Pollutants (NESHAP) from New and Existing Industrial, Commercial, and Institutional Boilers and Process Heaters at Major Sources under 40 CFR 63, Subpart DDDDD were published in the Federal Register with an effective date of May 21, 2011. EPA issued an administrative stay on May 13, 2011 to delay the effective date of the standards for major source

boilers and proposed a revised rule on December 2, 2011. In January of this year, the DC Circuit Court of Appeals reinstated the March 21, 2011 rule by rejecting EPA's stay. Therefore, the boiler MACT rule became effective May 21, 2011 and applies to the proposed new package boiler.

In their application, KapStone stated that they plan to limit No. 2 fuel oil combustion in the package boiler in such a manner that the boiler meets the definition of "unit designed to burn gas 1 subcategory" in 40 CFR 63.7575. KapStone will only fire No. 2 fuel oil in the boiler during periods of gas curtailment, gas supply emergencies, or periodic testing of liquid fuel. The boiler MACT rule currently restricts periodic liquid fuel testing to 48 hours during any calendar year under the gas 1 subcategory.

No emissions limits apply to natural gas-fired boilers. Instead, the boiler is subject to work practice standards that include operation in a manner consistent with safety and good combustion practices for minimizing emissions and an annual tune-up. The first tune-up is required within 12 months of initial startup. For each tune-up, the Permittee shall perform the following::

- a. Inspect the burner, and clean or replace any components of the burner as necessary;
- b. Inspect the flame pattern and make any adjustments to the burner necessary to optimize the flame pattern consistent with the manufacturer's specifications;
- c. Inspect the system controlling the air-to-fuel ratio, and ensure that it is correctly calibrated and functioning properly;
- d. Optimize the total emissions of carbon monoxide consistent with the manufacturer's specifications; and
- e. Measure in the effluent stream the concentration of carbon monoxide in parts per million volume dry (ppmvd) and the percent oxygen on a volume basis before and after the adjustments are made.

Annual boiler tune-ups must be performed no more than 13 months from the previous tune-up. If the boiler is not in operation during the time of the required tune-up, the tune-up may be delayed, provided the Permittee conducts the tune-up within one week of the boiler resuming operations. The Permittee will be required to record the results of the annual tune-ups in a logbook (written or electronic format), which shall be retained on-site and made available to an authorized representative upon request and annually report the amount of CO and O₂ in boiler effluent and the corrective measures taken during the boiler tune-up. Compliance is anticipated.

G. 15A NCAC 2D .1100, CONTROL OF AIR TOXICS; 15A NCAC 2Q .0705 EXISTING FACILITIES AND SIC CALLS, AND 15A NCAC 2Q .0711, EMISSION RATES REQUIRING A PERMIT

As of July 10, 2010 any new or modified combustion source triggers toxics if there is a net emissions increase. If a new or modified toxics source triggers review, then the evaluation includes all existing combustion sources along with all other sources that emit a common pollutant. Thus if an increase in the emissions of any toxic air pollutant occurs as a result of adding the proposed boiler, the compliance determination shall also include toxic emissions from all other common toxic sources for each TAP with facility wide emissions exceeding the toxic permit emission rate (TPER).

The proposed package boiler is expected to emit thirteen TAPs with facility wide emissions exceeding the TPERs, including arsenic, benzene, beryllium, cadmium, chlorine, fluorides, formaldehyde, hydrogen chloride, hydrogen fluoride, manganese, mercury, nickel, and sulfuric acid, and four TAPs with facility wide emissions below the TPERs, including benzo(a)pyrene, n-hexane, methyl chloroform, and toluene. With the application, KapStone included AERMOD (version 07026) modeling demonstrating compliance on a source-by-source basis for each of the thirteen TAPs exceeding the TPERs and for six additional TAPs not emitted from the package boiler but released from other sources above the TPERs. Emission rates were optimized to equate to no more than 98% of the respective acceptable ambient level (AAL) for each toxic. With this optimization, the maximum actual emissions from the No. 4 package boiler range from < 1 to 72.3% of the modeled rates. The six other TAPs not associated with the No. 4 package boiler that were modeled include ammonia, cresol, hydrogen sulfide, methyl mercaptan, phenol, and soluble chromate compounds.

On December 1, 2011, Mr. Tom Anderson, Meteorologist with the NC DAQ Air Quality Analysis Branch, completed the review of KapStone's dispersion modeling analysis and found it adequately demonstrates compliance, on a source-by-source basis, for all toxics modeled. The dispersion modeling satisfies the existing permit condition, Condition 2.2.E, requiring KapStone to submit an air permit application to demonstrate

compliance with 15A NCAC 2D .1100 “Control of Toxic Air Pollutants” at the same time the facility submits an air permit application to comply with the last MACT standard (*excluding the MACT for combustion sources*); or on or before the last MACT standard (*excluding the MACT for combustion sources*) compliance deadline date , in accordance with 15A NCAC 2Q .0705(b). The permit is revised to show KapStone has met this condition.

For the compliance demonstration, KapStone included all toxic emission sources with the exception of the portable bark grinder (ES-01-PU-015), the four temporary boilers (ES-11-CU-044 to 047), and No. 3 package boiler (ES-11-PU-034). The facility plans to operate these sources only when other modeled sources, with modeled rates above the toxic emissions levels from these sources, are not in service. Since KapStone plans to limit bark grinding to periods when the portable log chipper is not in use, the two portable sources share the modeled toxic emission rates for the log chipper as their permit limits. The permit will limit the use of these portable engines to one at a time since the unlimited operation of both engines would exceed modeled emission rates. No operational restriction is needed under 15A NCAC 2D .1100 for the temporary boilers which serve as a backup to the No. 1 power boiler. The combined potential emissions from the temporary boilers and power boiler are less than the modeled rates for the power boiler. As shown below, KapStone’s potential emissions from all five boilers comply with the limit for arsenic and benzene, the two TAP modeled closest to their potential emission rate:

**Combined Unlimited Potential Emissions From:
Power Boiler (ES-11-CU-001) and No. 1 to No. 4 Temporary Boilers (ES-11-CU-044 to 047)**

Toxic Air Pollutant	Permit Limit for all Five Boilers	Power Boiler Potential	Nos. 1-5 Temp Boilers Potential	Total Potential	Limit Needed?
Arsenic	94.6 lb/yr	68.4 lb/yr	13.6 lb/yr	82.0 lb/yr	No
Benzene	921 lb/yr	252 lb/yr	66 lb/yr	318 lb/yr	No

Therefore, the temporary boilers are limited in the permit along with the No. 1 power boiler to the modeled rates for the power boiler with no additional permit restrictions.

KapStone intends to operate the No. 3 package boiler as a backup to the No. 2 and No. 4 package boilers. The modeled emission rates for the No. 2 and No. 4 package boilers have been added together and are the permit limits for the three package boilers combined. The operation of the No. 3 package boiler will not be restricted under air toxics because the PSD avoidance condition for the three boilers limit toxic emissions from all three boilers combined to less than the permit limit.

The permit will continue to allow KapStone to combust recycled No. 4 fuel oil generated on site or supplied by a DAQ-approved vendor in the No. 1 power boiler, the No. 7 recovery boiler, and the lime kiln provided that the recycled oil is equivalent to unadulterated fossil fuel. The Permittee shall ensure the recycled No. 4 fuel oil meets the following criteria for unadulterated fuel prior to burning the fuel:

Constituent/Property	Maximum Allowable Level
Arsenic	1 ppm
Cadmium	2 ppm
Chromium	5 ppm
Lead	100 ppm
Total Halogens	1000 ppm
Flash Point	130 degrees F
Sulfur	2.0% by weight
Ash	1.0%

The revised 2D .1100 permit limits for air toxics based upon the approved modeled emission rates in the compliance demonstration are as follows:

EMISSION SOURCE(S)	TOXIC AIR POLLUTANT(S)	EMISSION LIMIT(S)
Log Chipper (ES-01-PU-014) or Bark Grinder (ES-01-PU-015)	Acrolein	3.59E-04 pounds per hour
	Benzene	1.81E+01 pounds per year
	Formaldehyde	9.79E-03 pounds per hour
A-Line Brownstock Washer (ES-03-PU-003 to ES-03-PU-006)	Acrolein	3.48E-01 pounds per hour
	Benzene	7.34E+01 pounds per year
	Cresol	1.09E+02 pounds per hour
	Formaldehyde	9.87E-02 pounds per hour
	Hydrogen Sulfide	2.16E+02 pounds per day
	Methyl Mercaptan	6.98E-01 pounds per hour
Combined Screen Rejects Tank (ES-03-TK-SRT)	Benzene	8.97E+00 pounds per year
	Formaldehyde	4.77E-01 pounds per hour
A Line Foam Tower (ES-03-TK-031)	Hydrogen Sulfide	1.35E+01 pounds per day
B/C Foam Tank (ES-03-TK)	Hydrogen Sulfide	3.18E+00 pounds per day
	Methyl Mercaptan	3.78E-02 pounds per hour
#7 Recovery Furnace (ES-08-PU-012)	Arsenic	1.36E+00 pounds per year
	Benzene	1.13E+03 pounds per year
	Beryllium	3.45E+00 pounds per year
	Cadmium	7.52E-05 pounds per year
	Chlorine 24-Hour	1.97E+03 pounds per day
	Chlorine 1-Hour	9.03E+02 pounds per hour
	Soluble Chromate Compounds	2.79E+00 pounds per day
	Fluorides 24-Hour	1.47E+03 pounds per day
	Fluorides 1-Hour	3.42E+02 pounds per hour
	Formaldehyde	2.51E+01 pounds per hour
	Hydrogen Chloride	4.44E+02 pounds per hour
	Hydrogen Fluoride 24-Hour	2.75E+03 pounds per hour
	Hydrogen Fluoride 1-Hour	3.42E+02 pounds per hour
	Hydrogen Sulfide	1.32E+02 pounds per day
	Manganese	2.52E+02 pounds per day
	Mercury	3.85E+01 pounds per day
Nickel	1.00E+03 pounds per day	
Sulfuric Acid 24-Hour	2.86E+03 pounds per day	

EMISSION SOURCE(S)	TOXIC AIR POLLUTANT(S)	EMISSION LIMIT(S)
	Sulfuric Acid 1-Hour	2.86E+02 pounds per hour
#7 Smelt Dissolver (ES-08-PU-013)	Ammonia	2.60E+02 pounds per hour
	Arsenic	7.12E-01 pounds per year
	Benzene	1.10E+01 pounds per year
	Beryllium	1.01E+01 pounds per year
	Cadmium	2.92E+02 pounds per year
	Soluble cromate compounds	1.37E+00 pounds per day
	Formaldehyde	8.53E-01 pounds per hour
	Hydrogen Sulfide	9.94E+01 pounds per day
	Manganese	6.61E+01 pounds per day
	Mercury	1.77E-01 pounds per day
	Methyl Mercaptan	2.44E-01 pounds per hour
	Nickel	3.95E+00 pounds per day
Lime Kiln (ES-09-PU-004)	Arsenic	3.39E-01 pounds per year
	Benzene	1.86E+02 pounds per year
	Beryllium	1.48E+02 pounds per year
	Cadmium	2.45E+02 pounds per year
	Chlorine 24-Hour	3.60E+02 pounds per day
	Chlorine 1-Hour	1.65E+01 pounds per hour
	Soluble cromate compounds	7.46E+00 pounds per day
	Hydrogen Chloride	4.34E+01 pounds per hour
	Hydrogen Sulfide	5.76E+01 pounds per day
	Manganese	3.75E+02 pounds per day
	Mercury	6.41E-01 pounds per day
	Nickel	9.04E+00 pounds per day
Phenol	5.92E-02 pounds per hour	
Lime Kiln Precoat Filter (ES-09-PU-010)	Acrolein	7.95E-03 pounds per hour
	Benzene	2.97E+00 pounds per year
	Formaldehyde	7.11E-02 pounds per hour
Lime Kiln Vacuum Pump (ES-09-PU-016)	Benzene	9.41E+00 pounds per year
Lime Kiln Pony Motor (ES-09-PU-017)	Acrolein	1.13E-04 pounds per hour
	Benzene	1.08E-01 pounds per year

EMISSION SOURCE(S)	TOXIC AIR POLLUTANT(S)	EMISSION LIMIT(S)
	Formaldehyde	3.91E-03 pounds per hour
Green Liquor Clarifier (ES-10-PU-001 and ES-10-PU-002)	Benzene	7.01E+00 pounds per year
	Methyl Mercaptan	1.53E-02 pounds per hour
Primary Causticizer (ES-10-PU-023)	Ammonia	5.85E+01 pounds per hour
Primary Clarifier (ES-10-PU-WLC)	Cresol	8.65E-02 pounds per hour
	Formaldehyde	1.42E-01 pounds per hour
	Phenol	8.52E-01 pounds per hour
Combined Emissions From: Power Boiler (ES-11-CU-001) -and- No. 1 to No. 4 Temporary Boilers (ES-11-CU-044 to 047)	Acrolein	3.13E-01 pounds per hour
	Arsenic	9.46E+01 pounds per year
	Benzene	9.21E+02 pounds per year
	Beryllium	9.72E+02 pounds per year
	Cadmium	3.26E+02 pounds per year
	Chlorine 24-Hour	2.49E+03 pounds per day
	Chlorine 1-Hour	1.14E+03 pounds per hour
	Fluorides 24-Hour	6.92E+02 pounds per day
	Fluorides 1-Hour	1.61E+02 pounds per hour
	Formaldehyde	3.05E+00 pounds per hour
	Hydrogen Chloride	3.76E+02 pounds per hour
	Hydrogen Fluoride 24-Hour	1.30E+03 pounds per hour
	Hydrogen Fluoride 1-Hour	1.61E+02 pounds per hour
	Manganese	1.03E+03 pounds per day
	Mercury	3.85E+01 pounds per day
	Methyl Mercaptan	8.04E-03 pounds per hour
	Nickel	2.57E+02 pounds per day
	Phenol	4.82E-01 pounds per hour
	Soluble cromate compounds	2.28E+01 pounds per day
	Sulfuric Acid 24-Hour	6.05E+02 pounds per day
Sulfuric Acid 1-Hour	6.03E+01 pounds per hour	
Combined Emissions From: No. 2 Package Boiler (ES-11-CU-033)	Arsenic	3.14E+01 pounds per year
	Benzene	1.89+01 pounds per year
	Beryllium	1.07E+03 pounds per year

EMISSION SOURCE(S)	TOXIC AIR POLLUTANT(S)	EMISSION LIMIT(S)
No. 3 Package Boiler (ES-11-CU-034); -and- No. 4 Package Boiler (ES-11-CU-035)	Cadmium	2.72E+02 pounds per year
	Chlorine 24-Hour	3.60E+02 pounds per day
	Chlorine 1-Hour	1.65E+01 pounds per hour
	Fluorides 24-Hour	1.31E+03 pounds per day
	Fluorides 1-Hour	3.06E+02 pounds per hour
	Formaldehyde	2.35E+00 pounds per hour
	Hydrogen Chloride	9.62E+02 pounds per hour
	Hydrogen Fluoride 24-Hour	2.46E+03 pounds per hour
	Hydrogen Fluoride 1-Hour	3.06E+02 pounds per hour
	Manganese	8.61E+01 pounds per day
	Mercury	1.52E+01 pounds per day
	Nickel	3.71E+02 pounds per day
	Sulfuric Acid 24-Hour	3.89E+02 pounds per day
	Sulfuric Acid 1-Hour	3.88E+01 pounds per hour
No.3 and 4 Paper Machine (ES-12-PU-002 and ES-12-PU-003)	Acrolein	2.20E-00 pounds per hour
	Benzene	1.40E+03 pounds per year
	Formaldehyde	4.06E+00 pounds per hour
	Methyl Mercaptan	1.34+00 pounds per hour
HD Storage (ES-12-TK-001 to ES-12-TK-003)	Acrolein	1.97E-02 pounds per hour
	Benzene	1.73E+00 pounds per year
	Methyl Mercaptan	3.35E-02 pounds per hour
	Phenol	5.07E+00 pounds per hour
Aerated Stabilization Basin (ES-16-AS-020)	Cresol	1.72E-02 pounds per hour
	Formaldehyde	2.13E-01 pounds per hour
	Phenol	1.70E-01 pounds per hour
Tall Oil Plant (ES-21)	Acrolein	3.67E-01 pounds per hour
	Benzene	4.68+01 pounds per year
	Hydrogen Sulfide	4.30E+02 pounds per day
	Methyl Mercaptan	1.37E+00 pounds per hour
	Phenol	7.02E+01 pounds per hour
Recovery/Utility Emergency Generator (ES-EG-001)	Acrolein	3.53E-04 pounds per hour
	Benzene	3.38E-01 pounds per year
	Formaldehyde	1.23E-02 pounds per hour

EMISSION SOURCE(S)	TOXIC AIR POLLUTANT(S)	EMISSION LIMIT(S)
RB7 Emergency Lighting Generator (ES-EG-002)	Acrolein	5.65E-05 pounds per hour
	Benzene	5.40E-02 pounds per year
	Formaldehyde	1.96E-03 pounds per hour
PB1 Emergency Lighting Generator (ES-EG-003)	Acrolein	5.65E-05 pounds per hour
	Benzene	5.40E-02 pounds per year
	Formaldehyde	1.96E-03 pounds per hour
Diesel Fire Water Pump Engine (ES-FP-001)	Acrolein	1.31E-03 pounds per hour
	Benzene	1.26E+00 pounds per year
	Formaldehyde	4.56E-02 pounds per hour

Compliance with the above emission limits is anticipated.

Several toxic emissions sources now subject to permit limits have been moved from the list of insignificant activities to the list of permitted sources. They include the combined screen rejects tank, the lime kiln vacuum pump vent and pony motor, high density storage, emergency generators and a fire water pump. Sections 2.1.N and 2.1.O have been added to the permit as the applicable conditions for affected combustion sources.

STATE-ONLY REQUIREMENT

2. TOXIC AIR POLLUTANT EMISSIONS LIMITATION AND REPORTING REQUIREMENTS

With their toxics compliance demonstration, KapStone showed that several toxics are emitted on a facility wide bases below the rate for which a permit is required (TPER). They include the following:

TPERs Limitations				
Pollutant (CAS Number)	Carcinogens (lb/yr)	Chronic Toxicants (lb/day)	Acute Systemic Toxicants (lb/hr)	Acute Irritants (lb/hr)
Acetaldehyde (108-31-6)				
Benzo(a)pyrene (50-32-8)	2.2			
1,3-Butadiene (106-99-0)	12			
Carbon disulfide (75-152-0)		3.9		
Carbon tetrachloride (56-23-5)	460			
Chlorobenzene (141-78-6)		46		
Chloroform (67-66-3)	290			
n-Hexane (110-54-3)		23		
Methyl chloroform (71-55-6)		250		64
Methylene chloride (75-09-2)	1600		0.39	
Methyl ethyl ketone (78-93-3)		78		22.4
Methyl isobutyl ketone (108-10-1)		52		7.6
Styrene (100-42-5)			2.7	
Toluene (108-88-3)		98		14.4
Xylene (1330-20-7)		57		16.4

KapStone is required to obtain a permit prior to exceeding any of the above emissions rates. Compliance is expected.

6. NSPS, NESHAPS, PSD, Attainment Status, 112(r), and CAM:

NSPS

New Source Performance Standards (NSPS) apply to the proposed package boiler (**ES-01-PU-014**) as discussed in Section 5 above.

NESHAP/MACT

2D .1109 Case-by-Case MACT applies to the proposed package boiler (**ES-01-PU-014**) as discussed in Section 5 above.

PSD

The facility is currently classified as a *major* stationary source for the purpose of the Prevention of Significant Deterioration (PSD) permitting program (see 15A NCAC 2D .0530). Halifax County triggered PSD minor source base line date for PSD increment tracking was December 27, 1978 for particulate matter (PM-10) and May 2, 1989 for nitrogen oxides (NOx) sulfur dioxide (SO₂) emissions. Potential emission increases from the proposed modification calculated in Section 5 or taken from the application submittal are provided in the table below:

Pollutant	Before Control Potential lbs/hr rate	After Permit Limits Actual lbs/hr rate
Particulate Matter (total)	4.36	0
PM-10 (71% PM)	1.72	0
Sulfur Dioxide	56.3	0
Nitrogen Oxides	13.2	0

Attainment

Based on the EPA's boundary designation for 8-hour ozone standards, EPA region 4, for North Carolina (as of May 6, 2008), Halifax County has been designated as "**unclassifiable/attainment;**" therefore, this minor modification will follow PSD regulations as discussed above.

112(r)

This facility is **NOT** subject to Section 112(r) of the Clean Air Act requirements because it does not store or process any of the regulated substances in quantities above the thresholds in the Rule.

CAM

A Compliance Assurance Monitoring (CAM) (40 CFR Part 64) determination is **NOT** required for this modification because the proposed equipment does not require add on control devices to comply with the emission limitations.

7. Facility Wide Air Toxics

This modification triggered a toxics review as discussed in Section 5 above.

8. Review of Permit Changes Recommended by Facility and Region

The draft permit and review were sent to the facility and the region (Dean Carroll) for review on January 6, 2012.

9. Public Notice/EPA and Affected State(s) Review

Public notice will be provided consistent with the requirements of 15A NCAC 2Q .0521. The notice will provide for a 30-day comment period, with an opportunity for a public hearing. Copies of the public notice shall be sent to persons on the Title V mailing list and EPA. Pursuant to 15A NCAC 2Q .0522, a copy of each permit application, each proposed permit and each final permit pursuant shall be provided to EPA. Also pursuant to 2Q .0522, a notice

of the DRAFT Title V Permit shall be provided to each affected State at or before the time notice provided to the public under 2Q .0521 above.

10. Conclusions, Comments, and Recommendations

Recommend Permit Issuance.