TECHNICAL EVALUATION
&
PRELIMINARY DETERMINATION

APPLICANT

RockTenn CP, LLC
North 8th Street
Fernandina Beach, FL 32034

Fernandina Beach Kraft Pulp Mill
ARMS Facility ID No. 0890003

PROJECT

Project No. 0890003-045-AC
Application for Air Construction Permit
Modification of No. 7 Power Boiler Flue Gas Oxygen Set Point for NO_x emissions in Permit Nos. 0890003-034-AC, PSD-FL-062, PSD-FL-062A/0890003-007-AC, PSD-FL-062B/0890003-019-AC, AC45-35532

COUNTY

Nassau, Florida

PERMITTING AUTHORITY

Florida Department of Environmental Protection
Northeast District Office
Waste and Air Resource Management Program
8800 Baymeadows Way West, Suite 100
Jacksonville, Florida 32256

COMPLIANCE AUTHORITY

Florida Department of Environmental Protection
Northeast District Office
Compliance Assurance
8800 Baymeadows Way West, Suite 100
Jacksonville, Florida 32256

July 2, 2014

DRAFT

1. GENERAL PROJECT INFORMATION

Air Pollution Regulations

Projects with the potential to emit air pollution are subject to the applicable environmental laws specified in Section 403 of the Florida Statutes (F.S.). The statutes authorize the Department of Environmental Protection (Department) to establish regulations regarding air quality as part of the Florida Administrative Code (F.A.C.), which includes the following chapters: 62-4 (Permits); 62-204 (Air Pollution Control – General Provisions); 62-210 (Stationary Sources – General Requirements); 62-212 (Stationary Sources – Preconstruction Review); 62-213 (Operation Permits for Major Sources of Air Pollution); 62-296 (Stationary Sources - Emission Standards); and 62-297 (Stationary Sources – Emissions Monitoring). Specifically, air construction permits are required pursuant to Rules 62-4, 62-210 and 62-212, F.A.C.

In addition, the U. S. Environmental Protection Agency (EPA) establishes air quality regulations in Title 40 of the Code of Federal Regulations (CFR). Part 60 specifies New Source Performance Standards (NSPS) for numerous industrial activities. Part 61 specifies National Emission Standards for Hazardous Air Pollutants (NESHAP) based on specific pollutants. Part 63 specifies NESHAP based on the Maximum Achievable Control Technology (MACT) for numerous industrial categories. The Department adopts these federal regulations on a quarterly basis in Rule 62-204.800, F.A.C.

Facility Description and Location

The applicant operates an existing Kraft Pulp Mill (SIC No. 2611) in Fernandina Beach at 8th Street North in Nassau County, Florida 32304. The UTM coordinates are zone 17, 456.2 km East, and 3394.2 km North. This site is an area that is in attainment (or designated as unclassifiable) for all pollutants subject to a National Ambient Air Quality Standard (NAAQA).

This facility is a fully integrated Kraft linerboard mill that consists of major activities areas such as: wood yard, pulp mill, recycle plant, chemical recovery, power house and paper mill. A corrugated containers plant is also located at the site.

Facility Regulatory Categories

- The facility is a major source of hazardous air pollutants (HAP).
- The facility does not operate units subject to the acid rain provisions of the Clean Air Act.
- The facility is a Title V major source of air pollution in accordance with Chapter 213, F.A.C.
- The facility is a major stationary source in accordance with Rule 62-212.400, F.A.C. for the Prevention of Significant Deterioration (PSD) of Air Quality.

Processing Schedule

04/10/14	Department received the Application for Air Permit for the modification of the No. 7 Power Boiler Flue Gas Oxygen Set Point for NOx emissions
06/06/14	Draft permit issued
06/09/14	Draft permit reissued

07/02/14 Draft permit reissued

Glossary of Common Terms

Because of the technical nature of the project, the permit contains numerous acronyms and abbreviations, which are defined in Appendix A of the draft permit distributed with this evaluation.

Project Description

The No. 7 Power Boiler is an existing unit with a permitted capacity of 1021 MMBtu of heat input per hour. The boiler was constructed in accordance with the following air construction permits: No. AC45-35532 issued by the Department on March 12, 1981 and PSD-FL-062 issued by EPA Region 4 on April 13, 1981. EPA Region 4, at that time, was processing PSD permits under the federal program for the State of Florida.

The applicant requested a modification of previously issued Air Permit Nos. PSD-FL-062, and 0890003-034-AC to remove the No. 7 Power Boiler maximum flue gas oxygen set point requirement from these underlying air construction permits.

This construction permit will modify previously issued Air Permit Nos. PSD-FL-062, PSD-FL-062A, PSD-FL-062B, AC45-35532, and 0890003-034-AC to remove the requirement from these underlying air construction permits to monitor/maintain a maximum oxygen set point for the minimizing of Nitrogen Oxide (NOx) emissions at the existing No. 7 Power Boiler due to the installation of a required NO_x Continuous Emissions Monitoring System on boiler.

Facility ID No. 0890003

ID No.	Emission Unit Description
015	No. 7 Power Boiler

Comments From Applicant

On June 23, 2014, comments from the applicant were received concerning the draft permit prior to publication of the Public Notice. Based on these comments, the following changes were made to the draft permit:

1. Authorized Representative: Please update to Thomas Sweetser.

Response: The permit documents have been updated to reflect Mr. Thomas Sweetser as the Responsible Official for the facility

2. Pg. 8 of 15. Condition 8(5). As allowed by 40 CFR 60 Subpart D, 60.45(c)(1) and 60.46(d)(5), it is requested that the alternative methods to Method 7 be allowed. Therefore, it is requested that the paragraph not be stricken from the permit.

Response: Pg. 8 of 15, Condition 8.(5) is revised as requested.

3. Pg. 10 of 15. Condition 5. Nitrogen Oxides – Gaseous Fuel. The NOx limit should be 0.20 instead of 0.2 lb/MMBtu, per the NSPS.

Response: Pg. 10 of 15, Condition 5 is revised as requested.

4. Pg. 11 of 15. Condition 6. We believe the wording related to the oxygen set point may be confusing since it uses words CO and oxygen together. To clarify, we suggest the following wording for the second sentence in the paragraph:

   The applicant shall optimize combustion conditions to minimize NOx formation in accordance with the attached provisions, "Use of Flue Gas Oxygen Meter as BACT for Combustion Controls." A 3-hour averaging time shall be used for the ~~CO~~ Oxygen set point ***used to minimize CO formation.***

Response: Pg. 11 of 15, Condition 5 is revised as requested.

5. Pg. 13 of 15. Table 3. The opacity limits for the Coal Handling System should be revised to reflect permit No. -043-AC (limit for Coal Crusher is 10%).

Response: Pg. 13 of 15, Table 3 is revised as requested.

Comments From Applicant

On June 25, 2014, additional comments from the applicant were received concerning the draft permit prior to publication of the Public Notice. Based on these comments, the following changes were made to the draft permit:

1. Pg. 10 of 15. Condition 5. It is requested that the prorated formula and the permitting note be changed to be consistent with condition **F.7.e.** in -044-AV.

   From: Nitrogen Oxides – Combination of Fuels[1]. When different fossil fuels are burned simultaneously in any combination, the applicable standard (in ng/J) is determined by proration using the following formula:

   $$PS_{NOx} = \frac{x(86)+y(130)+z(300)}{x+y+z}$$

   where:

   PS_{NOx} = is the prorated standard for nitrogen oxides when burning different fuels simultaneously, in nanograms per joule heat input derived from all fossil fuels fired or from all fossil fuels and wood residue fired;

   x= is the percentage of total heat input derived from gaseous fossil fuel; and
   y = is the percentage of total heat input derived from liquid fossil fuel; and,
   z = is the percentage of total heat input derived from solid fossil fuel (except lignite).

   [1] Applicable when the boiler is fired with gaseous fossil fuel and/or liquid fossil fuel and/or solid fossil fuel (except lignite) during times other than startup, shutdown, or malfunction.

   {Permitting Note: The NOx BACT standard is to be used in determining a prorated NOx standard due to the firing of a combination of fuels}

   [40 CFR 60.44(a)(1), 40 CFR 60.44(b); Permit No. 0890003-045-AC]

To: Nitrogen Oxides – Combination of Fuels[1]. When different fossil fuels are burned simultaneously in any combination, the applicable standard (in ~~ng/J~~ lb/MMBtu) is determined by proration using the following formula:

$$PS_{NOx} = \frac{x(\cancel{86}0.20)+y(\cancel{130}0.30)+z(\cancel{300}0.6)}{x+y+z}$$

where:

PS_{NOx} = is the prorated standard for nitrogen oxides when burning different fuels simultaneously, in ~~nanograms per joule~~ pounds per MMBTU heat input derived from all fossil fuels fired or from all fossil fuels and wood residue fired;

x= is the percentage of total heat input derived from gaseous fossil fuel; and

y = is the percentage of total heat input derived from liquid fossil fuel or Liquid Fossil Fuel and Wood Residue or Gaseous Fossil Fuel and Wood Residue; and,

z = is the percentage of total heat input derived from solid fossil fuel or Solid Fossil Fuel and Wood Residue (except lignite).

[1] Applicable when the boiler is fired with gaseous fossil fuel and/or liquid fossil fuel and/or solid fossil fuel (except lignite) during times other than startup, shutdown, or malfunction.

{Permitting Note: The most stringent standard applicable when firing Solid Fossil Fuel or Solid Fossil Fuel and Wood Residue (0.6 lb/MMBTU based on the BACT Determination and stated in Condition F.7.b.) is to be used in the above formula when determining a prorated NOx standard due to the firing of a combination of fuels}

[40 CFR 60.44(b), Permit No. 0890003-034-AC]

Response: Condition 5 is revised to be consistent with the language in Condition F.7.e.in Draft/Proposed Title V Revision No. 0890003-044-AV.

2. PSD APPLICABILITY

General PSD Applicability

The Department regulates major stationary sources of air pollution in accordance with Florida's PSD preconstruction review program as defined in Rule 62-212.400, F.A.C. A PSD applicability review is required in areas currently in attainment with the state and federal AAQS or areas otherwise designated as "unclassifiable". A facility is considered a major stationary source with respect to PSD if it emits or has the potential to emit: 5 tons per year or more of lead; 250 tons per year or more of any regulated air pollutant; or 100 tons per year or more of any regulated air pollutant and the facility belongs to one of the 28 PSD-major facility categories (fossil fuel-fired steam electric plants of more than 250 million British thermal units per hour heat input, coal cleaning plants (with thermal dryers), Kraft pulp mills, portland cement plants, primary zinc smelters, iron and steel mill plants, primary aluminum ore reduction plants, primary copper smelters, municipal incinerators capable of charging more than 250 tons of refuse per day, hydrofluoric, sulfuric, and nitric acid plants, petroleum refineries, lime plants, phosphate rock processing plants, coke oven batteries, sulfur recovery plants, carbon black plants (furnace process), primary lead smelters, fuel conversion plants, sintering plants, secondary metal production

plants, chemical process plants, fossil fuel boilers (or combinations thereof) totaling more than 250 million British thermal units per hour heat input, petroleum storage and transfer units
with a total storage capacity exceeding 300,000 barrels, taconite ore processing plants, glass fiber processing plants, and charcoal production plants.). Projects at existing or new major stationary sources are subject to PSD preconstruction review. In addition, proposed projects at existing minor sources are subject to PSD preconstruction review if potential emissions *from the proposed project* will exceed the PSD major stationary source thresholds.

Once a project becomes subject to PSD preconstruction review, each PSD pollutant is reviewed for PSD applicability based on emissions thresholds known as the "significant emission rates" defined in Rule 62-210.200, F.A.C. for the following pollutants: carbon monoxide (CO); nitrogen oxides (NO_X); sulfur dioxide (SO_2); particulate matter (PM); particulate matter with a mean particle diameter of 10 microns or less (PM_{10}); volatile organic compounds (VOC); lead (Pb); Fluorides (F); sulfuric acid mist (SAM); hydrogen sulfide (H_2S); total reduced sulfur (TRS), including H_2S; reduced sulfur compounds, including H_2S; municipal waste combustor organics measured as total tetra- through octa-chlorinated dibenzo-p-dioxins and dibenzofurans; municipal waste combustor metals measured as particulate matter; municipal waste combustor acid gases measured as SO_2 and hydrogen chloride (HCl); municipal solid waste landfills emissions measured as nonmethane organic compounds (NMOC); and mercury (Hg). Pollutant emissions from the project exceeding these rates are considered "significant" and the applicant must employ the Best Available Control Technology (BACT) to minimize emissions of each such pollutant and evaluate the air quality impacts. Although a facility or project may be *major* with respect to PSD for only one regulated pollutant, it may be required to install BACT controls for several "significant" regulated pollutants.

PSD Applicability for Project

The project is located in Nassau County which is in an area that is currently in attainment with the AAQS or is otherwise designated as unclassifiable. The proposed project will not increase emissions for any PSD pollutant; therefore, the project is not subject to a PSD preconstruction review.

3. FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION (FDEP) REVIEW

The EPA permit established a BACT of 0.6 lbs NO_x/ MMBtu heat input (100 percent coal fuel) and combustion conditions are to be optimized to minimize NOx formation in accordance with the provisions of Attachment II, "Use of Flue Gas Oxygen Meter as BACT for Combustion Controls". Attachment II requires CO (EPA Method 10) and NOx (EPA Method 7) testing to establish oxygen set points for the purposes of minimizing these emissions.

After providing written notification to the Department on August 18, 1983, the permittee installed a flue gas oxygen meter in the economizer section of the boiler for the purposes of adjusting combustion air to ensure good combustion. Oxygen set points were established as a minimum of 2.7% to control CO emissions and a maximum of 7.7% to control NOx emissions. The oxygen set points have been specified in the subsequent air operation permits, including the current Title V Operation Permit No. 0890003-038-AV.

In PSD-FL-062A/0890003-007-AC, the Department clarified that the averaging period for the oxygen set points was a 3-hour average. In PSD-FL-062B/0890003-019-AC, the Department removed the requirement for the flue gas oxygen meter to meet Performance Specification 3, required the permittee to conduct annual NO_x testing in accordance with EPA Method 7 to demonstrate compliance with the NOx emissions standard, required CO emissions testing in accordance with EPA Method 10 concurrently with each annual NO_x test, verification that the

oxygen set point (2.7% and 7.7%) continue to represent good combustion practices, and at least monthly calibrations of the oxygen monitor.

The No. 7 Power Boiler is also subject to the applicable provisions of 40 CFR 60 Subpart D. The EPA permit required the mill to install, calibrate, maintain, and operate continuous monitoring systems for measuring opacity, SO_2 emissions, NO_x emissions, either oxygen or carbon dioxide, and fuel input rates of coal and wood waste in accordance with the provisions of 40 CFR 60 Subpart D paragraph 60.45. The EPA permit also required that the mill comply with all other applicable requirements of 40 CFR 60 Subpart D (NSPS).

In accordance with 40 CFR 60.45(a), a CEMS for NO_x is required. However, in accordance with 40 CFR 60.45(a)(3), if initial performance testing demonstrates that the actual NO_x emissions are less than 70% of the applicable Subpart D standard, the requirement to install the NO_x CEMS is not required.

The No. 7 Power Boiler was originally authorized to fire coal and wood as the primary fuel, with No. 6 fuel oil during periods of boiler startup, shutdown, and when coal is not available. The applicable NSPS 40 CFR 60 Subpart D standard for NO_x is 0.70 lb/MMBtu for coal firing (§60.44(a)(3)). The initial performance test conducted December 7, 1984, demonstrated that the NO_x emissions to be less than 70% of the NSPS standard, therefore the mill was not required to install a NO_x CEMS on the boiler.

Permit No. 0890003-034-AC authorized the installation of natural gas burners on the No. 7 Power Boiler. The construction permit required an initial NO_x performance test to be conducted while the boiler fired natural gas at 160-240 MMBtu/hr with the remainder for heat input from to coal. The July 17, 2013 performance test results were NO_x emissions of 0.53 lb/MMBtu, which is greater than 70% of the NO_x emission NSPS 40 CFR 60 Subpart D standard of 0.61 lb/MMBtu (prorated standard based on 0.70 lb/MMBtu for coal and 0.20 lb/MMBtu for natural gas). In accordance with 40 CFR 60.45, the mill is required to install a NO_x CEMS and to comply with all other applicable NO_x monitoring requirements within one year of the July 17, 2013 performance test date.

The mill states that with the installation of the NO_x CEMS on the No. 7 Power Boiler, that there will no longer be a need to maintain compliance with the oxygen set point for NO_x to insure that the allowable NO_x emission rate is not exceeded. The mill requests that the conditions requiring the oxygen set point for NO_x emissions be removed from construction permit No. 0890003-034-AC and PSD-FL-062 along with the Title V Permit.

The Department concurs with the request and establishes the use of the NO_x CEMS as the BACT compliance method instead of Attachment II, "Use of Flue Gas Oxygen Meter as BACT for Combustion Controls". Permit Nos. PSD-FL-062, PSD-FL0962A, PSD-FL-062B, AC45-35532, and 0890003-034-AC are modified through this construction permitting action. Since the installation of the NO_x CEMS will be completed in the future, the maximum oxygen set point for NO_x emissions will remain the applicable BACT compliance method until the installation of the NO_x CEMS. Upon installation, certification, and operation of the NO_x CEMS, the BACT compliance method will be the use of the NO_x CEMS.

4. PRELIMINARY DETERMINATION

The Department makes a preliminary determination that the proposed project will comply with all applicable state and federal air pollution regulations as conditioned by the draft permit. This determination is based on a technical review of the complete application, reasonable assurances provided by the applicant, and the conditions specified in the draft permit. No air quality modeling analysis is required because the project does not result in a significant increase in emissions. Rita Felton-Smith is the project engineer responsible for reviewing the application and drafting the permit. Additional details of this analysis may be obtained by contacting the project engineer at the Florida Department of Environmental Protection, Northeast District Office, 8800 Baymeadows Way, Suite 100, Jacksonville, FL 32256, Phone: 904/256-1700.