TECHNICAL EVALUATION
&
PRELIMINARY DETERMINATION

APPLICANT

Georgia Pacific Consumer Operations, LLC
Post Office Box 919
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Palatka Mill
Facility ID No. 1070005

PROJECT

Project No. 1070005-078-AC
Application for Minor Source Air Construction Permit
No. 4 Combination Boiler, Electrostatic Precipitator Replacement

COUNTY

Putnam County, Florida

PERMITTING AUTHORITY

Florida Department of Environmental Protection
Division of Air Resource Management
Office of Permitting and Compliance
2600 Blair Stone Road, MS#5505
Tallahassee, Florida 32399-2400

January 3, 2013

1. GENERAL PROJECT INFORMATION

1.1. Air Pollution Regulations

Projects at stationary sources 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 applicable 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 categories. 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.

1.2. Facility Description and Location

The Palatka Mill is an existing Kraft pulp and paper mill, which is categorized under Standard Industrial Classification Code No. 2611. The existing Palatka Mill is located in Putnam County at 215 County Road 216 in Palatka, Florida. The UTM coordinates of the existing facility are Zone 17, 434.00 kilometers (km) East and 3,283.4 km North. This site is in an area that is in attainment (or designated as unclassifiable) for all air pollutants subject to state and federal Ambient Air Quality Standards (AAQS).

1.3. 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.

1.4. Project Description

This project involves the revision of existing Air Construction Permit Nos. 1070005-066-AC and 1070005-070-AC for the No. 4 combination boiler at the Palatka Mill. The No. 4 combination boiler is emission unit 016 (EU 016) at the facility. Permit No. 1070005-066-AC authorized the applicant to perform the following modifications to the No. 4 combination boiler: replace the fuel oil burners with natural gas burners; upgrade of the existing mechanical dust collection system; and replace 28 continuous tube sections in the No. 4 combination boiler superheater section. Permit No. 1070005-070-AC authorized the replacement of approximately 1,400 air preheater tubes out of a total of 2,320 tubes in the No. 4 Combination Boiler. Approximately 400 tubes required prompt replacement due to corrosion or ash buildup, while approximately 1,000 tubes were replaced to minimize future failures and plugging.

This project (Permit No. 1070005-078-AC) involves replacing the current ESP used to control particulate matter (PM) emissions from the No. 4 combination boiler with an ESP previously used to control PM emission from the No. 5 power boiler. The ESP for the No. 5 power boiler is no longer used since the boiler was converted to natural gas firing. The replacement is necessary, because the original ESP was damaged by fire in November 2012. According to the applicant, the power boiler ESP is nearly identical in size, design and configuration to the original ESP and should provide equivalent PM control efficiency. In addition, this project incorporates a permit exemption letter dated December 12, 2012, wherein the Department granted the permittee the authority to plug off 14 dust collector tubes in the No 4 Combination Boiler dust collection system. After plugging these tubes, 34

active tubes will remain in the dust collection system. The result of plugging the tubes will be an increase in flue gas velocity through the dust collection system (cyclones), which should increase the efficiency of the mechanical dust collection system. This work is also included in this permitting action for completeness even through no permit is required to conduct the work

1.5. Processing Schedule

- December 19, 2012:Received complete application for a minor source air pollution construction permit.
- January 3, 2013: Issued draft permit package.

2. PSD APPLICABILITY

2.1. General PSD Applicability

The Department regulates major stationary sources in accordance with Florida's PSD program pursuant to Rule 62-212.400, F.A.C. PSD preconstruction review is required in areas that are currently in attainment with the state and federal ambient air quality standards (AAQS) or areas designated as "unclassifiable" for these regulated pollutants. Commonly addressed PSD pollutants for Kraft pulp mills such as the Palatka Mill include: carbon monoxide (CO), nitrogen oxide (NO_X), PM, PM with a mean diameter of 10 microns or less (PM_{10}), PM with a mean diameter of 2.5 microns or less ($PM_{2.5}$), sulfur dioxide (SO_2), volatile organic compounds (VOC) and sulfuric acid mist (SAM).

Additional PSD pollutants that are more common to certain other industries include: lead (Pb), mercury (Hg), hydrogen sulfide (H_2S), TRS including H_2S, reduced sulfur compounds (RSC) including H_2S, municipal waste combustor (MWC) organics measured as total tetra- through octa-chlorinated dibenzo-p-dioxins and dibenzofurans (dioxin/furan), MWC metals measured as PM; MWC acid gases measured as SO_2 and HCl, and municipal solid waste (MSW) landfill emissions as non-methane organic compounds (NMOC).

As defined in Rule 62-210.200(Definitions), F.A.C., a stationary source is a "major stationary source" (major PSD source) if it emits or has the potential to emit (PTE):

- 250 tons per year (tons/year) or more of any PSD pollutant; <u>or</u>
- 100 tons/year or more of any PSD pollutant <u>and</u> the facility belongs to one of the 28 listed PSD major facility categories.

The list given in the citation includes the category of "Kraft pulp mills". The given category applies to the facility before and after the proposed project. The Palatka Mill is a major stationary source based on actual emissions of and potential to emit 100 tons/year or more of several individual PSD pollutants.

For major stationary sources such as the Palatka Mill, PSD applicability for modification projects is based on thresholds known as the significant emission rates (SER) as defined in Rule 62-210.200(Definitions), F.A.C. Any "net emissions increase" as defined in Rule 62-210.200(Definitions), F.A.C. of a PSD pollutant from the project that equals or exceeds the respective SER is considered "significant". SER also means any emissions rate or any net emissions increase of a PSD pollutant associated with a major stationary source or major modification which would construct within 10 km of a Class I area and have an impact on such area equal to or greater than 1 gram per cubic meter, 24-hour average.

Although a facility may be "major" (i.e. emits or has the potential to emit 100 or 250 TPY as applicable) for only one PSD pollutant, a project must include BACT controls for any PSD pollutant that exceeds the corresponding significant emission rates given in the **Table** 1 below.

Table 1 - List of SER by PSD-Pollutant. [1, 3]

Pollutant	SER (TPY)	Pollutant	SER (TPY)
CO	100	NO_X	40
$PM/PM_{10}/PM_{2.5}$	25/15/10	Ozone (VOC) [2]	40
$PM_{2.5}$ (NO_X)	40	$PM_{2.5}$ (SO_2)	40
Ozone (NO_X) [2]	40	SAM	7
SO_2	40	Pb	0.6

Pollutant	SER (TPY)	Pollutant	SER (TPY)
Hg	0.1	GHG (CO_2e)	75,000 [3]

1. Excluding fluoride and those pollutants defined for Pulp and Paper, MWC, MSW landfills.
2. Ozone (O_3) is regulated by its precursors (VOC and NO_X). PSD for $PM_{2.5}$ can be triggered by its precursors (NO_X and SO_2).
3. Federal SER of 75,000 TPY for GHG (as CO_2e) for PSD sources and has not been incorporated into Department rules.

According to 40 CFR 52.21, six greenhouse gases (GHG), are also be subject to regulation at new stationary sources that will emit or have the potential to emit 100,000 tons/year (SER equal to 75,000 tons/year) expressed as the carbon dioxide equivalent emissions (CO_2e). This requirement has not been incorporated into Department rules but is a separate requirement of the EPA.

2.2. PSD Applicability for Project

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

3. DEPARTMENT REVIEW

The No. 4 combination boiler that operates at the Palatka Mill is permitted to burn wood/bark and natural gas. ` Modifications to this boiler were authorized to be performed by the final Air Construction Permit Nos. 1070005-066-AC and 1070005-070-AC that were issued on April, 7, 2011 and January 11, 2012, respectively. These permitted modifications include the following changes or improvements:

- Replace the fuel oil burners with natural gas burners;
- Upgrade of the existing mechanical dust collection system;
- Replace the existing steam induced draft fan-drive with an electric motor;
- Partially replace 28 continuous superheater tube sections; and
- Replace approximately 1,400 tubes in the boiler air preheater section.

The applicant is proposing to replace the existing damaged ESP on the No. 4 combination boiler with an ESP previously used to control PM emission from the No. 5 power boiler. The applicant submitted specification sheets comparing the No. 5 power boiler ESP to the No. 4 combination boiler ESP to show that they have very similar characteristics and should provide the same level of PM emissions control. In addition, the applicant sent an email to the Department dated December 10, 2012 comparing the characteristics of the two ESP. The information from this email is summarized below.

1) *The two precipitator chambers are identical (size, structure, etc.)*
2) *The main difference between the two precipitators originally was that the Power Boiler inlet field was empty; an inlet field was added to the PB unit in 2007 under permit 1070005-036-AC issued October 11, 2006.*
3) *Both Precipitators have (3) Fields, all of them have (21) collecting plates, (20) gas passages with 12" spacing*
   a. *The collecting plates are 41' high and 11'2" wide.*
4) *Each field has (120) electrodes, (6) in each gas passage.*
5) *Each Precipitator has (49) Rappers*
   a. *(12) collecting plate rappers per field*
   b. *(3) discharge electrode rappers per field*
   c. *(2) inlet and (2) outlet distribution plate rappers*
6) *The fields are individually energized by five (6) transformer/rectifier (T/R) sets (three per Precipitator). Each T/R is connected full wave through a single output bushing. The power supply is 480 volts, 60 Hz, 3 Phase.*
   a. *T/R Set Ratings*

Primary Volts AC	*Primary Amps AC*	*Secondary Volts DC*	*Secondary Amps DC*	*KVA*
480 V	*84 Amps*	*55 kV*	*500 mA*	*38.6 kVA*

7) *Both utilize BHA SQ300 Controls for the Rappers and T/R Sets.*
8) *There are a few subtle differences that overall should not impact dust removal performance. These differences are in the style of electrodes and plates in various fields.*

Based on the Departments review of these specifications and correspondence, it has reasonable assurance that PM emissions will not increase as a result of this project. The Department will require that a PM emissions rate stack test be conducted within 90 days of replacement ESP becoming operational on the No. 4 combination boiler to verify that the permitted PM emission rates contained in the current Title V Air Operation permit No. 1070005-074-AV are not exceeded. The test methods and conditions specified in the Title V permit shall be utilized for this stack testing. Results shall be reported to the Compliance Authority with 30 days of the completion of the stack testing. In addition, the Department will require that the applicant submit annual reports for five years to verify PM emission rates.

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. David Read is the project engineer responsible for reviewing the application and drafting the permit. Additional details of this analysis may be obtained by contacting Mr. Read at 850-717-9075, by email at david.read@dep.state.fl.us or by mail at the Department's Office of Permitting and Compliance at Mail Station #5505, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400.