



**STATEMENT OF BASIS**  
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 BAQ Engineering Services Division

**Company Name:** Piedmont Wood Pellet Johnston, LLC  
**Permit Number:** 0980-0047-CA

**Permit Writer:** Michael G. Daugherty  
**Date:** May 6, 2014

**DATE APPLICATION RECEIVED:** January 17, 2014

**FACILITY DESCRIPTION** The facility when constructed will process trees and convert them into pellets which will be shipped overseas and used as fuel. The facility will be capable of producing 545,644 US short tons of pellets a year.

**PROJECT DESCRIPTION** The facility is requesting a synthetic minor construction permit to construct a new facility which will produce wood pellets for fuel. The project will have wet wood handling which will include the unloading and stacking of trees, debarking, and chipping of trees. Two rotary dryers will be used to dry the chips each having a direct fired reciprocating grate wood burners rated at  $84.3 \times 10^6$  Btu/hr supplying the heat. The dried chips will then go to the dry wood handling where it will be processed in six dry grind hammer mills and then stored in two large silos. The last stage in the production line is processing in eighteen pellet mills where the pellets are formed and cooled through four pellet coolers and then conveyed to four large storage silos where the final product is stored until being withdrawn through two 300 tph load out systems for shipment. The facility will use baghouses, cyclones, wet electrostatic precipitator, caustic soda injection, and regenerative thermal oxidizers to control emissions.

On July 20, 2011 the EPA issued a final rule "Deferral for CO<sub>2</sub> Emissions from Bioenergy and Other Biogenic Sources under the Prevention of Significant Deterioration (PSD) and Title V Programs." The action deferred for a period of three (3) years the application of the PSD and Title V permitting requirements to biogenic carbon dioxide emissions from bioenergy and other biogenic stationary sources. The deferral rule was litigated and on July 12, 2013 the United States Court of Appeals for the District of Columbia Circuit issued a decision to vacate the rule. As a matter of law the decision to vacate is not final until the court issues a mandate on the decision. At this time the court has not issued a mandate, therefore the rule is still effective and available for the facility to use in permitting. The applicability of the PSD requirements in this permit will consider the exclusion of the biogenic CO<sub>2</sub> emission. However the nonbiogenic CO<sub>2</sub> and all other GHG emissions will be considered.

**SOURCE TEST REQUIREMENTS** The Regenerative Thermal Oxidizers (RTO-01 & RTO-02) are required to source test to show compliance with destruction efficiencies, to establish operating ranges, and to establish emission factors for VOCs, PM, PM<sub>10</sub>, PM<sub>2.5</sub>, NO<sub>x</sub>, CO, Acetaldehyde, Formaldehyde, HCL, and Methanol. The Wet Electrostatic Precipitator (WESP) will source test to establish operating ranges. Emission factors from the WESP will not be required since the WESP exhausts through RTO-01. The cyclones CYC-01 – CYC03 will be required to test for PM, PM<sub>10</sub>, and PM<sub>2.5</sub> to establish emission factors. All pounds per oven dried ton emission factors determined from source tests shall be based on US short tons.

**SPECIAL CONDITIONS, MONITORING, LIMITS** The facility is requesting synthetic minor limits for PM, PM<sub>10</sub>, PM<sub>2.5</sub>, NO<sub>x</sub>, CO, and VOC of less than 250 TPY. The potential emissions of Non-Biogenic Green House Gases (GHGs) reported as CO<sub>2e</sub> is less than 100,000 TPY so no limit is included for those emissions. The facility will be limited to less than 10 TPY of a single HAP and less than 25 TPY of total HAPs to remain a minor source of HAPs to avoid major source MACTS.

<b>FACILITY WIDE EMISSIONS</b>		
<b>Pollutant</b>	<b>Uncontrolled Emissions</b>	<b>Controlled/Limited Emissions</b>
	<b>TPY</b>	<b>TPY</b>
PM	887.01	123.76
PM <sub>10</sub>	887.01	88.92
PM <sub>2.5</sub>	887.01	47.7
VOC	2,147.97	157.19
SO <sub>2</sub>	36.9	18.01
NO <sub>x</sub>	313.01	161.29
CO	641.38	79.58
CO <sub>2e</sub> (Bio Mass)	156,327.01	N/A
CO <sub>2e</sub> (Non-Biogenic GHG)	45,885.83	N/A
Acetaldehyde	49.9	4.99
Formaldehyde	49.9	4.99
HCL	79.7	7.97
Methanol	38.9	3.98



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<b>Pollutant</b>	<b>Uncontrolled Emissions</b>	<b>Controlled/Limited Emissions</b>
	<b>TPY</b>	<b>TPY</b>
Acrolein	23.28	1.06
Cumene	18.03	0.90
Phenol	4.91	0.24
Single HAP	79.7	4.99
Total HAPs	264.62	24.13

**OPERATING PERMIT STATUS** Once the facility is constructed the facility will be required to submit a Title V application within twelve months of start up.

**REGULATORY APPLICABILITY REVIEW**

<b>Regulation</b>	<b>Comments/Periodic Monitoring Requirements</b>
Section II.E - Synthetic Minor	The facility is requesting a Synthetic Minor Construction Permit. Limits will be established for criteria pollutants so the facility will remain minor for PSD. The facility is also requesting limits of less than 10 tons and 25 tons of HAPs to remain a minor source of HAPs to avoid major source MACTs.
Standard No. 1	The construction permit does not have any fuel burning sources subject to the standard.
Standard No. 3 (state only)	The two RTOs are subject to the standard.
Standard No. 4	Equipment subject to the standard will have an opacity of less than 20% and will also be subject to the PM limits as set by the standard.
Standard No. 5	The facility was not in existence in 1979 and 1980.
Standard No. 5.1 (state only)	The facility will be subject to the standard and has gone through BACT analysis in order to determine the best achievable control technology. It was determined that BACT for the equipment being installed is a Regenerative Thermal Oxidizers to control VOC emissions. The facility will be installing two RTOs which will control VOCs. RTO-01 will control VOCs from the pellet mills and the dryers. RTO-02 will control VOCs from the dry hammer mills and the pellet coolers.
Standard No. 5.2	The burners on the dryers are subject to the standard and as such must utilize Low-NO <sub>x</sub> burners or equivalent technology capable of achieving 30 percent reduction from uncontrolled levels. Using the uncontrolled NO <sub>x</sub> emissions from the application the NO <sub>x</sub> emissions per dryer are 0.198 lb/10 <sup>6</sup> Btu and the 30% reduction will equate to a limit for Standard 5 of 0.139 lb/MMBtu per dryer. The RTOs are not subject to the standard because they are acting as a control device.
Standard No. 7	The project is for a synthetic minor construction permit and as such federally enforceable limits for PM, PM <sub>10</sub> , PM <sub>2.5</sub> , NO <sub>x</sub> , CO, and VOC emissions of less than 250 tpy in order to remain minor for PSD. This determination relies on the Biomass deferral discussed in the project description above.
61-62.6	Fugitive PM emissions are controlled in a manner that should not produce undesirable levels of PM emissions.
40 CFR 60 and 61-62.60	40 CFR 60 Subpart Dc is not applicable to the dryers because they do not meet the definition of a steam generating unit (steam generating unit means a device that combusts any fuel or byproduct/waste and produces steam or heats water or heats any heat transfer medium). 40CFR60 Subparts IIII & JJJJ will apply to the emergency fire pump and generator.
40 CFR 61 and 61-62.61	This facility does not emit pollutants subject to this standard (asbestos, benzene, beryllium, coke oven emissions, arsenic, mercury, radio nuclide, radon, or vinyl chloride).
40 CFR 63 and 61-62.63	The facility has the potential to be a major source for HAPs and is taking federally enforceable limits to become a synthetic minor source of HAPs and will avoid the dryers being subject to 40 CFR 63 Subpart DDDD National Emission Standards For Hazardous Air Pollutants: Plywood And Composite Wood Products. The facility will be an area source and will not be subject to 40 CFR 63 Subpart JJJJJ (area source boiler MACT) because the dryers do not meet the definition of a boiler as defined in Subpart JJJJJJ. The facility does have an emergency generator and fire pump which will be subject to Subpart ZZZZ.



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Regulation	Comments/Periodic Monitoring Requirements
61-62.68	The project will not use or store any chemicals subject to 112(r).
40 CFR 64	Dryers #1 and Dryer#2 will be subject to CAM for PM as an other than large unit because: The dryers pre-control PM <sub>10</sub> emissions are greater than 100 tpy and their post control emissions are less than 100 tpy. The dryers are subject to Standard 4 which is federally enforceable because it is in the South Carolina Implementation Plan (SIP) The dryers use a control device (WESP) to meet the Standard 4 emission limit.  CAM will not be applicable for VOCs even though they exceed 100 tpy, and they are controlled by a RTO, the dryers are subject to Standard 5.1 which is a state only regulation.

**MODELING REVIEW**

Regulation	Comments/Periodic Monitoring Requirements
Standard No. 2	The facility has shown compliance through modeling dated February 21, 2014.
Standard No. 7.c	There are no baselines set for Edgefield County.
Standard No. 8 (state only)	The facility has shown compliance through modeling dated February 21, 2014.

**Standard 5.1 BACT Determination.**

The facility submitted a Best Available Control Technology (BACT) determination for the wood fired burners on the dryers, dry grid hammer mills, pellet mills, pellet coolers and pellet storage.

The facility reviewed the RBLC to identify control technologies for controlling VOC emissions and identified the following technologies:

1. Spray Tower/ Packed Bed Scrubber
2. Flare
3. Regenerative Thermal Oxidizer

The facility went through the Top Down BACT Analysis of the identified control technology and arrived at Regenerative Thermal Oxidizer as BACT for the process with a DRE of 95%. The facility will be installing two RTOs to control VOC emission from the equipment.

**PUBLIC NOTICE**

This construction permit will undergo a 30-day public notice period to establish synthetic minor limits in accordance with SC Regulation 61-62.1, Section II(N). This permit was placed in the *Edgefield Advertiser* newspaper on April 2, 2014. The comment period was open from April 2, 2014 to May 1, 2014 and was placed on the BAQ website during that time period. Comments were received during the comment period and were addressed in the Response to Comment document as part of the Department Decision.

**ADDITIONAL PUBLIC PARTICIPATION**

A public meeting will be held on Tuesday, April 15, 2014 at the County Chamber's office.

**SUMMARY AND CONCLUSIONS**

It has been determined that this source, if operated in accordance with the submitted application, will meet all applicable requirements and emission standards.