

**AIR PERMIT REVIEW FOR TITLE V FACILITY**

<b>APPLICANT</b> Craven County Wood Energy Plant	<b>SITE LOCATION</b> New Bern	<b>COUNTY</b> Craven
<b>CONTACT</b> Ray Bonner	<b>PHONE</b> 252-633-9525 ext 223	
<b>APPLICATION FOR:</b> Significant Modification		<b>Existing P/N</b> 06419T16
<b>APP. NO.</b> 2500158.04A	<b>REVIEWER</b> Michael Brandon	<b>DATE</b> October 1, 2004
<b>RECOMMENDATION</b> Issue Permit 06419T17	<b>SIGNATURE</b>	<b>FEE CLASS</b> Title V

**1. Purpose of Application:**

The applicant is requesting to:

- a. add cotton waste to the list of fuels to be burned in the wood waste boiler (ID No. ES5A),
- b. add a permit shield from acid rain requirements, and
- c. to specify the PSD wood handling and storage sources as insignificant in their permit.

**Cotton Waste Firing**

The applicant has tested emissions of particulate matter, carbon monoxide, nitrogen oxides, and volatile organic compounds from the boiler during periods of firing 50 weight percent cotton waste and periods when cotton waste is not burned (i.e., wood waste). The resultant emissions tests reveal that particulate emissions are not effected, that nitrogen oxide emissions appear to be less, and that carbon monoxide and volatile organic compound emissions appear to be slightly greater.

The differential in CO emissions (at the same excess oxygen) is 0.027 pounds per million Btu. A significant increase (100 tons per year) would occur at 11,112 hours of firing (666 million Btu per hour).

The differential in VOC emissions (at the same excess oxygen) is 0.0036 pounds per million Btu . A significant increase (40 tons per year) would occur at 33,366 hours of firing (666 million Btu per hour).

Finally, sulfur dioxide increase were estimated using a wood sulfur content of 0.05 weight percent (500 ppmw) and a cotton waste sulfur content of 0.39 weight percent (3900 ppmw). AP-42 predicts a five ppmw sulfur dioxide emission rate (0.01 lb/ton) for a wood waste with a 500 ppmw sulfur content. Therefore, a ratio of sulfur contents (3900/500) time this emission rate was used to determine the amount of cotton waste that could be combusted and remain under the significant level (40 tons per year). The amount of cotton waste that can be combusted to produce a significant increase was calculated to be 1,025,641 tons, which is about 14,050 hours of operation firing the a design waste input of about 73 tons per hour.

The analyses above show that the burning of cotton waste will not trigger a PSD review, as all emissions increases will remain below significant levels.

**Permit Shield**

Boiler (ID No. ES5A) is a "qualified facility" under the acid rain provisions of 40 CFR 72.6(b)(5) as determined prior to November 15, 1990 which is exempt from the acid rain program pursuant to 40 CFR 72.6(a)(3)(v). The permit shield enforces this applicability determination.

**PSD - Wood Handling and Storage, Cooling Tower**

BACT emission limits were placed in the permit listing wood handling operations along with work practice and equipment standards. The emission limits were as follows:

wood unloading from truck dumper (ID No. F1A)	PM	0.09 lb/yr,
wood reclaim conveyor (ID No. F2A-1)	PM	23.1 lb/yr,
wood unloading onto wood storage pile (ID No. F2A-2)	PM	430.3 lb/yr,
traffic on wood pile (ID No. F2A-3)	PM	0.4 lb/yr,

wind erosion (ID No. F2A-4)	PM	258.1 lb/yr
cooling tower (ID No. F3A)	PM	0.005 guarantee drift rate

These emission limits are not considered to be practically enforceable and reflect an emission estimate rather than an appropriate BACT limitation. The cooling tower uses well water versus salt water at a very large power plant where this type of data is used in an emission rate determination for modeling. However, the work practice and equipment design standards do represent appropriate BACT, none of which apply to the cooling tower. Therefore, these work practice and equipment design standards along with the emission source designations for wood handling and storage will remain in the permit as part of the PSD BACT determination.

Changes to the Title V permit are as follows:

PAGE	CONDITION	CHANGE
3	Table of emissions sources	Cotton waste was added to the list of boiler fuels.
3	Table of emissions sources	Wood waste handling and storage sources were consolidated. The cooling tower was removed.
4	2.1 A.	Cotton waste was added to the list of boiler fuels.
4	2.1 A.	Wood waste handling and storage sources were consolidated and numerical annual emission rates removed. The cooling tower was removed.
10	2.1 A.	The cooling tower guarantee drift rate was removed.
5 10 10	2.1 A.3.b 2.1 A.9.b 2.1 A.9.c	Initial tests have been completed and testing deadlines removed.
10, 11	2.1 A.9.a., e. and f.	Wood waste handling and storage sources were consolidated and numerical annual emission rates removed.
14	2.3	Permit shield was added for exemption from acid rain requirements.
15-21	Section 3	General Conditions updated.

**2. Application Chronology:**

The application chronology is detailed on the attached IMPAQ Report.

**3. Facility Compliance Status:**

The facility is presently in compliance with all applicable regulations and permit conditions.

**4. Conclusions, Comments, and Recommendations:**

The RCO recommends issuance of permit revision 06419T17.  
The WARO recommends issuance of permit revision 06419T17.