North Carolina Department of Environment and Natural Resources

Pat McCrory
Governor

Donald R. van der Vaart
Secretary

June 5, 2015

Mr. Garald B. Cottrell
President
Wellons Energy Solutions, LLC
312 South Front Street, Suite 6
New Bern, NC 28560

SUBJECT: Applicability Determination Nos. 2593, 2594, 2595, 2596 – Secondary Material Determinations
W.E. Partners I, II, IV and V, LLCs
Facility ID Nos. 4600106, 0800107, 3100164, and 7900175
Cofield, Hertford County; Lewiston, Hertford County; Rose Hill, Duplin County; and Eden, Rockingham County

Dear Mr. Cottrell:

The North Carolina Division of Air Quality (NC DAQ) received your letter dated March 11, 2015 summarizing your analysis of creosote treated utility poles (CTUP). Wellons Energy (Wellons) is proposing to burn CTUP as a fuel in the existing clean cellulosic biomass-fired combustion units (boilers) rated at 29.4 million Btu per hour each at the respective existing plants except for the 69.99 million Btu per hour unit at the Eden plant. Air emissions from these sources are each controlled by their respective multicyclones and electrostatic precipitators. The boilers are used to generate process steam for a collocated facility while any remaining steam operates the associated turbine/generator to produce electricity for sale to the local utility.

Creosote treated utility poles are a non-hazardous secondary material (NHSM) within the meaning of Title 40, Part 241 of the Code of Federal Regulations (40 CFR Part 241). The creosote treated utility poles described in the letter referenced above is processed and meets the legitimacy criteria provided in 40 CFR 241.3(d)(1). The NC DAQ has determined, therefore, that the material is not a solid waste when used as fuel in a combustion unit. This determination relies on the language of the current Federal rule defining NHSM, discussions NC DAQ has had with representatives of the EPA, and on the proposed changes to the NHSM rule.

Processing of Discarded NHSM – 40 CFR 241.3(b)(4)

Pursuant to 40 CFR 241.2, "processing" means any operations that transform discarded NHSM into a non-waste fuel. "Processing" includes, but is not limited to, operations necessary to: remove or destroy contaminants; significantly improve fuel characteristics of the material, *e.g.* sizing or drying the material in combination with other operations; or chemically improve the as-fired energy content. Minimal operations that result only in modifying the size of the material by shredding do not constitute processing for purposes of this definition. "Secondary material" means any material that is not the primary product of a manufacturing or commercial process, and can include post-consumer material, off-specification commercial chemical products or manufacturing chemical intermediates, post-industrial material, and scrap.

The creosote treated utility poles that Wellons proposes to burn are collected directly from the utility companies and transported to Midwest MO Contractors (Midwest) for processing before delivery to Wellons. The CTUP is currently collected, separated and processed into a uniform chipped product by Midwest and then will be directly transferred to Wellons for storage, blending and combustion. Wellons proposes that Midwest will significantly improve the fuel combustion properties of the CTUP in order to produce an engineered fuel prior to use in the boiler. Midwest and Wellons will improve the fuel characteristics of the material through visual inspection, sampling/testing, screening (removal of foreign materials), sizing, grinding, blending with traditional clean cellulosic biomass, and drying and aging of wood. The CTUP will be sampled and tested regularly for moisture content, ash content and approximate heat value. Large physical materials will be removed manually and by mechanical screening. Ferrous metal substances will be removed by passing the material through a magnetic separation system. Quality assurance testing on representative samples on a batch basis will ensure that contaminant levels are comparable to or less than those found in traditional fuels which the boiler is designed to burn. Normally within 24 hours of processing, the material will be transported in covered, walking floor trailers for delivery to the Wellons Energy facility. Then the processed CTUP will be stored in an appropriate covered, below grade storage bunker in 1 of the 4 bays until it is blended with other woody biomass on site prior to burning. The stored CTUP will normally be blended within 48 hours of arrival with an existing woody biomass from another bay to ensure adequate consistency in moisture and energy content, and limit emissions from combustion.

NC DAQ has determined that the processing steps described above meet the regulatory definition of "processing" in 40 CFR 241.2 with further support from a recent EPA determination of proposed NHSM fuels.[1]

Managed as a Valuable Commodity – 40 CFR 241.3(d)(1)(i)

Wellons will store the CTUP in a covered concrete lined receiving bunker prior to using it as a fuel to prevent moisture uptake in the material. Use of the concrete lined storage bunker, particularly to limit moisture intake, is consistent with typical management of wood chips and other biomass fuels. In addition, Wellons has indicated that it will normally blend and store the processed CTUP for less than 48 hours prior to burning the material as a fuel. The NC DAQ concludes that these management practices satisfy the requirement that the NHSM be managed as a valuable commodity, and if so managed, the CTUP meets the legitimacy criterion pursuant to 40 CFR 241.3(d)(1)(i).

Meaningful Heating Value – 40 CFR 241.3(d)(1)(ii)

In the preamble to the final NHSM definitional rule, US EPA indicated that materials with a heat content of at least 5,000 Btu/lb presumptively satisfy this criterion.[2] Wellons analyzed composite samples of CTUP collected. The average as-received lower heating value (LHV) of the CTUP is 7,936 Btu/lb as noted in the data attached to your request.

Since the processed CTUP has an average heat content greater than 5,000 Btu/hr (approximately 7,936 Btu/lb LHV), the proposed fuel from the processed material satisfies this legitimacy criterion. The NC DAQ has determined that the material has meaningful heating value and meets the legitimacy criterion under 40 CFR 241.3(d)(1)(ii).

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[1] See Letter dated April 3, 2012 from Becky Weber, Director, Air and Waste Management Division, US EPA Region 7, to Mr. Gregory Haug, PE of Resource Enterprises, LLC http://www.epa.gov/osw//nonhaz/define/pdfs/Lhoist-engineered-fuels.pdf

[2] 78 Fed. Reg. 9172 (Feb. 7, 2013).

Comparable Contaminant Concentrations – 40 CFR 241.3(d)(1)(iii)

In order for a NHSM to be classified as a non-solid waste fuel, it must "contain contaminants or groups of contaminants *at levels comparable in concentration to or lower than* those in traditional fuels which the combustion unit is designed to burn."[3]

Contaminants

Contaminants are defined as "all pollutants identified in the Clean Air Act sections 112(b) or 129(a)(4) *including the elements chlorine, fluorine, nitrogen, and sulfur in cases where non-hazardous secondary material are burned as fuel and combustion will result in the formation of hydrogen chloride, hydrogen fluoride, and nitrogen oxides or sulfur dioxide.*"[4] In addition to a specific list of pollutants and precursors that fall within the definition of "contaminants," the listing also excludes pollutants that are unlikely to be found in non-hazardous secondary materials as well as individual cresol and xylene isomers.[5]

The NC DAQ reviewed the concentrations of the following contaminants in the CTUP:

- **Metals:** Antimony, Arsenic, Beryllium, Cadmium, Chromium, Cobalt, Lead, Manganese, Mercury, Nickel, and Selenium
- **Halogens:** Chlorine, Fluorine
- **Additional Precursors:** Nitrogen, Sulfur

Designed, not Permitted to Burn

To determine whether a NHSM satisfies the legitimacy criteria, the current rule requires that the contaminant levels in the NHSM be compared against the levels in "traditional fuels which the combustion unit is designed to burn."[6]

Further, the US EPA issued a Guidance Concept Paper indicating its intent to "address questions raised by industry, assist them in making determinations under the rule, and ensure their use of the flexibility embodied in the rule."[7] The Agency forecasted that the guidance would include a compilation of data it had collected on contaminant levels in traditional fuels which could be used by industry and other interested parties in the contaminant level comparison.

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[3] 40 CFR 241.3(d)(1)(iii) (February 7, 2013) (*emphasis added*). Note effective April 8, 2013; however, this rule revision does not affect the outcome of this determination.

[4] 40 CFR 241.2 (February 7, 2013) (*emphasis added*).

[5] The definition is as follows: "*Contaminants* means all pollutants listed in Clean Air Act sections 112(b) and 129(a)(4), with the following three modification. This definition includes the elements chlorine, fluorine, nitrogen, and sulfur in cases where non-hazardous secondary materials are burned as a fuel and combustion will result in the formation of hydrogen chloride (HCl), hydrogen fluoride (HF), nitrogen oxides (NO_x), or sulfur dioxide (SO_2). The definition does not include the following pollutants that are either unlikely to be found in non-hazardous secondary materials and products made from such materials or are adequately measured by other parts of this definition: hydrogen chloride (HCl), chlorine gas (Cl_2), hydrogen fluoride (HF), nitrogen oxides (NO_x), sulfur dioxide (SO_2), fine mineral fibers, particulate matter, coke oven emissions, diazomethane, white phosphorus, and titanium tetrachloride. The definition does not include m-cresol, o-cresol, p-cresol, m-xylene, o-xylene, and p-xylene as individual contaminants distinct from the grouped pollutants total cresols and total xylenes." See 78 Fed. Reg. 9212 (Feb. 7, 2013).

[6] 40 CFR 241.3(d)(1)(iii) (February 7, 2013).

[7] US EPA, "Non-Hazardous Secondary Materials (NHSM) Rule: Comparable Contaminant Guidance Concept Paper" (July 11, 2011. http://www.epa.gov/osw/nonhaz/define/pdfs/nhsm-concept.pdf

The guidance was provided by US EPA on November 29, 2011. It consists of three tables that provide a range of compiled contaminant concentrations for coal, untreated wood and biomass materials, and fuel oils.[8] The table does not distinguish between concentration levels of different coal ranks (i.e., anthracite, bituminous, sub-bituminous, and lignite) or different types of biomass (i.e., wood, bark, biogas, hogged fuel, and agricultural plant residues).[9] This approach is consistent with the NHSM rule revisions that US EPA finalized on February 7, 2013.

The US EPA codified the meaning of "designed to burn" to include "a traditional fuel that can be or is burned in the particular type of boiler, whether or not the combustion unit is permitted to burn that traditional fuel."[10] Also, in the preamble of final rule US EPA clarified the language regarding potential fuel category groups that any grade/rank (e.g. anthracite, lignite, bituminous and sub-bituminous coal) could be used in the traditional fuel contaminant levels of "designed to burn" fuel for comparison purposes.[11]

Wellons is proposing to burn the processed CTUP in their existing boiler systems. Wellons has indicated that their boiler systems are designed to burn solid fuels, including coal and woody biomass but is only permitted to burn clean cellulosic biomass. In accordance with US EPA's interpretation of "designed to burn," the NC DAQ compared the concentrations of contaminants in the CTUP to the contaminant levels in coal and woody biomass materials as provided in the November 29, 2011 guidance document and literature values.

Results of the Contaminant Comparison

The US EPA has indicated that a variety of comparisons could be made. For example, the highest contaminant levels in the NHSM could be compared against the highest contaminant levels in the relevant traditional fuels. Alternatively, the average values of the NHSM could be compared with the average values of the traditional fuels. "Anything less could result in 'traditional fuel' samples being considered solid waste if burned in the very combustion units designed to burn them – not the Agency's intent in either the 2011 NHSM final rule or February 7, 2013 NHSM final rule."[12] However, using different bases for comparison could lead to different results. The US EPA warned that "[i]t would not be appropriate to compare an average NHSM contaminant value to the high end of a traditional fuel range, as the existence of an average implies multiple data points from which a more suitable statistic (*e.g.,* range or standard deviation) could have been calculated." Finally, the US EPA warned that "in the context of an inspection or enforcement action, the Agency will evaluate the appropriateness of alternative methodologies and data sources on a case-by-case basis when determining whether the legitimacy criteria have been met."[13] The NC DAQ chose to use both maximum values (e.g. antimony) and averages for the rest in this comparison while focusing on the biomass average values.

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[8] US EPA, "Contaminant Concentrations in Traditional Fuels: Tables for Comparison" (November 29, 2011). http://www.epa.gov/osw/nonhaz/define/pdfs/nhsm_cont_tf.pdf

[9] This, despite the fact that a coal fired boiler is designed differently based on the rank of coal it will burn.

[10] 78 Fed. Reg. 9213 (Feb. 7, 2013).

[11] 78 Fed. Reg. 9148 (Feb. 7, 2013).

[12] 78 Fed. Reg. 9151 (Feb. 7, 2013).

[13] 78 Fed. Reg. 9151 (Feb. 7, 2013).

Wellons analyzed the contaminant levels in composite samples of CTUP supplied by Midwest. A summary of the measured contaminant levels and the contaminant levels in coal and biomass materials is provided as attachment to this letter. The contaminant level for antimony was compared to the maximum contaminant concentration based on US EPA's biomass literature source level while all other contaminant levels were compared to the biomass averages from US EPA's Office of Air Quality Planning and Standards (OAQPS) database. All contaminants show that the measured contaminant levels in the CTUP are within the range of contaminant concentrations in the traditional fuel (biomass and coal) that the existing boiler systems actually burn or is capable of burning (utilizing maximum and average values).

Given the comparability of all relevant contaminants between biomass, coal and CTUP as characterized by your submittal, the NC DAQ has determined that the CTUP does meet the legitimacy criteria under 40 CFR 241.3(d)(1)(iii).

Conclusion

As described in the letter received from Wellons on March 16, 2015, the creosote treated utility poles are processed and do meet the legitimacy criteria provided in 40 CFR 241.3(d)(1). Therefore, the NC DAQ has determined that CTUP is not a solid waste when used as fuel in a combustion unit. As a result of this determination, the existing boilers would not be subject to the combustion source emission standards for biomass fuel promulgated pursuant to Section 129 of the Clean Air Act. If you have any questions regarding this NHSM determination, please contact Mr. Jeff Twisdale at (919) 707-8472.

Sincerely,

William D. Willets, P.E., Chief, Permitting Section
Division of Air Quality, NCDENR

Attachment

c: Washington, Wilmington and Winston-Salem Regional Offices
Central Files

Attachment 2

Chemical Analysis of Creosote Treated Utility Poles

		Biomass		Coal		
Metal elements — dry basis	Laboratory Analysis Creosote Utility Poles	Literature Sources Range	OAQPS Database Range	Literature Sources Range	OAQPS Database Range	Conclusion
Antimony (Sb) ppm	13.5	ND - 26	ND - 6.0	0.5 - 10	ND - 6.9	Comparable to Biomass Lit source
Arsenic (As) ppm	0.109	ND - 6.8	ND - 298	0.5 - 80	ND - 174	Less than Biomass
Beryllium (Be) ppm --	<.5		ND - 10	0.1 - 15	ND - 206	Less than Biomass
Cadmium (Cd) ppm	0.068	ND - 3	ND - 17	0.1 - 3	ND - 19	Less than Biomass
Chromium (Cr) ppm	<.5	ND - 130	ND - 340	0.5 - 60	ND - 168	Less than Biomass
Cobalt (Co) ppm	<.5	ND - 24	ND - 213	0.5 - 30	ND - 25.2	Less than Biomass
Lead (Pb) ppm	0.366	ND - 34	ND - 229	2 - 80	ND - 148	Less than Biomass
Manganese (Mn) ppm	94.6	7.9 - 840	ND - 15,800	5 - 300	ND - 512	Less than Biomass
Mercury (Hg) ppm	0.009	ND - 0.2	ND - 1.1	0.02 - 1	ND - 3.1	Less than Biomass
Nickel (Ni) ppm	<.5	ND - 540	ND - 175	0.5 - 50	ND - 730	Less than Biomass
Selenium (Se) ppm	1.27	ND - 2	ND - 9.0	0.2 - 10	ND - 74.3	Less than Biomass
Copper (Cu) ppm	7.65					No EPA data
Non-metal elements — dry basis						
Nitrogen (N) ppm	<.1	200 - 39,500	2,200 - 4,600		13,600 - 54,000	Less than Biomass
Sulfur (S) ppm	338	ND - 8,700	ND - 6,100		740 - 61,300	Less than Biomass
Hazardous Air Pollutants						
Formaldehyde ppm	<.1	1.6-27				Less than Biomass