

**COMMONWEALTH OF VIRGINIA
DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR DIVISION**

INTRA AGENCY MEMORANDUM

TO: File

FROM: Mary E. Major
Environmental Program Manager

SUBJECT: Meeting Minutes - Technical Advisory Committee Concerning Qualified Energy Generators using Biomass (Rev. Cg)

DATE: October 15, 2009

INTRODUCTION

A meeting of the technical advisory committee concerning qualified energy generators using biomass was held in the 2nd Floor Conference Rooms B and C, Department of Environmental Quality, 629 E. Main Street, Richmond, Virginia. A record of meeting attendees is attached.

Start: 10:10 a.m.

End: 1:00 p.m.

Subcommittee Members Present:

Mr. Tony Banks, Virginia Farm Bureau Federation
Ms. Donna L. Wirick, Intrinergy
Mr. Donald Bishop, Cumberland, VA
Mr. Matt Faulconer, Rappahannock Electric Cooperative
Mr. Ken Moss, Piedmont BioProducts, LLC
Mr. Ian Heatwole, Weyers Cave, VA
Ms. Rebekah Remick, Minor NSR Coordinator, DEQ
Ms. Patty Buonviri, Air Toxics Coordinator, DEQ
Ms. Mary E. Major, Office of Regulatory Affairs, DEQ

Subcommittee Members Absent:

Dr. Foster A Agblevor, Ph.D., Biological Systems Engineering, Virginia Tech
Mr. Oren Heatwole, Dayton, VA
Mr. H. Dean Price, Red Birch Energy, LLC
Mr. Paul R. Howe, Virginia Forestry Association

Public Attendees:

Mr. John English, English Boiler, Inc.

Mr. John Rainey

Mr. Bob Broom, McGill Environmental Systems

SUMMARY OF DISCUSSION

Discussion: Ms. Major began the meeting by reviewing the items to be discussed during the meeting: a review of emissions data from boilers using various biomass fuels to be presented by Mr. English of English Boiler, Inc., a review of the draft information to be included on a new web page to assist in the current permitting of biomass projects and a discussion of a new approach to better facilitate small biomass projects in the future.

Item 1. Ms. Remick reviewed the information for the web page notice followed by a group discussion. Suggestions included:

- Provide a clear summary of the key components of Chapter 80, Article 6, (regulations for permitting minor sources) along with the hyperlink.
- Provide a table listing the emission limits that would exempt a project from permitting requirements.

Ms. Wirick will provide suggestions for summarizing the permitting regulations to Ms. Remick within the next several days. Ms. Remick will provide the amended web page to committee members via email so that they may review the material, try the links, share it with members of their associations to determine if the material meets their needs. Committee members will provide any other suggestions/comments directly to Ms. Remick; the committee will review the final product at the next meeting.

Item 2. Ms. Major provided, in very general terms, a possible approach that could be used to overcome the conundrum of crafting a general permit which by its very nature requires emission limits or compliance limitations but not having any data to establish appropriate limitations. This is particularly difficult given the very diverse fuels that could be used in existing or new emerging technology.

In essence the group would develop a permit to allow the source to operate for a specified timeframe to determine what emissions are present through stack testing; then the source in collaboration with DEQ, would address the procedures to control emissions if necessary to ensure the source could continue to operate without violating any regulations. If it is determined that all emissions are below the permitting exemptions limits then the source would get an exemption. If it is determined that one or more emissions are above the permitting exemption limits, then the source would have to get a minor NSR permit. Once the department had sufficient emissions data for a particular technology, then a specific general permit could be developed for that technology or fuel as appropriate.

The key components of this particular permit include the source agreeing to stack test and providing all data to the department in a timely manner (timeframe yet to be determined); this would also include data for toxic emissions. If the testing results demonstrated that the facility was below the permit exemption levels, the department would issue an exemption letter and the facility could continue to operate; however, it would still be subject to any other applicable air, water or waste regulations.

If the testing data demonstrated emissions levels that were above exemption levels, including toxic emissions, the source would agree to work closely with DEQ to determine appropriate corrective action and begin the process for obtaining a permit or permit modification. The source would be subject to any and all appropriate fines/penalties including civil charges if a permit was not obtained in a timely manner (timeframe to be determined).

It was reiterated that the department currently permits biomass projects via the standard permitting process using Form 7, the document used to apply for a permit. A source always has the option to use the standard permitting process.

The group discussed the merits of such a permit given the difficulty of obtaining emissions data from many different types of technologies/fuels. The group also reviewed the specific legislative language in § 10.1-1308.1; in particular the definition of qualified generator:

"Qualified energy generator" means a commercial facility located in the Commonwealth with the capacity annually [emphasis added] to generate no more than five megawatts of electricity, or produce the equivalent amount of energy in the form of fuel, steam, or other energy product, that is generated or produced from biomass, and that is sold to an unrelated person or used in a manufacturing process.

The use of the term "annually" suggests that the facility would be operating for a limited time or providing very little electricity during normal operation as five megawatts over 365 days is not a large amount of electricity. The group reached consensus on the following:

- The statutory language does not apply to a boiler or combustion unit with a nameplate capacity of 5 Mw.
- Developing a permit that allowed for the operation of a test facility to determine if a "commercial application" is feasible was desirable and appropriate.
- Sources that demonstrate that emissions were below exemption levels via stack testing could continue to operate after receiving an exemption letter from the department.
- Enforcement action should be taken when the conditions of the general permit are not followed.

Item 3. Mr. English provided information including emissions test data for a variety of different biomass fuels. He also recommended the department require a certified fuel test for all feed-stock used in the process as well as a certified stack test. The fuel analysis will provide a good basis to estimate which pollutants might be coming out of the stack; the stack test will verify the emissions. Costs estimates for fuel analysis was \$800 to \$1000.00 per test. Cost estimates for stack testing range between \$10,000 to \$20,000.00.

DOCUMENT DISTRIBUTION

The following documents were distributed to the committee prior to or at the meeting:

1. Air Permitting Requirements for Biomass web page draft
2. Summary Results of test burns of various biomass fuels in boilers.

TEMPLATES\GEN-PERMIT\GP08
REG\GEN-DEV\Cg-GP08-3

Attachments

**COMMONWEALTH OF VIRGINIA
STATE AIR POLLUTION CONTROL BOARD**

**TECHNICAL ADVISORY COMMITTEE MEETING
ATTENDANCE RECORD**

October 15, 2009

SUBJECT: Biomass General Permit for Qualified Energy Generator (Revision CG)

LOCATION: 2nd Floor Conference Room, Department of Environmental Quality, 629 East Main Street, Richmond, Virginia

PRINTED NAME	SIGNATURE
John Rainey	<i>John Rainey</i>
Rebekah Kemick	<i>Rebekah Kemick</i>
Ken Mass	<i>Kenneth D. Mass</i>
Beth Widjuc	DEQ
MATT FAULCONER	<i>Matt Faulconer</i>
TONY BANKS	<i>Tony Banks</i>
Bob Brewer	<i>Bob Brewer</i>
Donald Bishop	<i>Donald Bishop</i>
PATRICIA BUONVINI	<i>Patricia Buonvini</i>
Donna Wirick	<i>Donna Wirick</i>
Jan Heetude	<i>Jan Heetude</i>
John ENGLISH	<i>English Boiler</i>

Air Permitting Requirements for Biomass

What is biomass and what are the air permitting requirements?

Definition: The Virginia DEQ Air Division defines "biomass" as:

"Biomass" means organic material that is available on a renewable or recurring basis, including:

1. Forest-related materials, including mill residues, logging residues, forest thinning, slash, brush, low-commercial value materials or undesirable species, and woody material harvested for the purpose of forest fire fuel reduction or forest health and watershed improvement;
2. Agricultural-related materials, including orchard trees, vineyard, grain or crop residues, including straws, aquatic plants and agricultural processed co-products and waste products, including fats, oils, greases, whey, and lactose;
3. Animal waste, including manure and slaughterhouse and other animal processing waste;
4. Solid woody waste materials, including landscape trimmings, waste pallets, crates and manufacturing, construction, and demolition wood wastes, excluding pressure-treated, chemically treated or painted wood wastes and wood contaminated with plastic;
5. Crops and trees planted for the purpose of being used to produce energy;
6. Landfill gas, wastewater treatment gas, and biosolids, including organic waste byproducts generated during the wastewater treatment process; and
7. Municipal solid waste, excluding tires and medical and hazardous waste.

Exempt From Permitting: An air permit is not required if uncontrolled emissions of equipment and process units are below exemption levels in 9 VAC 5-80-1320 (9 VAC 5, Chapter 80, Article 6) of state regulations. Any owner claiming that a facility is exempt shall keep records in accordance with 9 VAC 5-80-1320 A.4 as may be necessary to demonstrate to the satisfaction of the Department its continued exempt status. The facility may contact the appropriate DEQ regional office (i.e. the region where the facility is/will be located) for help in determining if you qualify for an exemption.

If Not Exempt From Permitting: A permit is needed! Although DEQ is currently working on a biomass general permit, facilities can still get a permit through our minor new source review (NSR) program. The steps to complete this process are state below:

- Fill out a complete Form 7 application. ***Please note that the facility only has to fill out the pages that apply to you.*** Also include any emissions data, stack test data, and/or emission factors for your equipment and process units.
- Send the completed Form 7 application (with cover letter) to the appropriate regional office.

Note: If the facility is already operating and discovers that an air permit is needed, the facility must still complete and submit a complete Form 7 application for evaluation of the regulatory status by the DEQ.

2.0 SUMMARY OF RESULTS

2.1 SUMMARY TABLE

Table 1-3 summarizes the emissions for the boiler.

**TABLE 1-3
SUMMARY TABLE***

POLLUTANT	Wood Pellets	Oat Hulls	Corn Germ	Degermed Debranned Corm	Soy Bean Hulls
HCl	0.004	0.067	0.009	0.019	0.008
PM	0.076	0.428	0.287	0.076	0.484
SO ₂	0.011	0.092	0.147	0.116	0.036
NO _x	0.188	0.321	0.389	0.377	0.375
CO	0.005	0.018	0.008	0.007	0.009
VOC	0.002	0.005	0.005	0.005	0.007

* EMISSION RATES ARE LBS/MBTU BASED ON THE F FACTOR OF 9240 FOR WOOD.

2.2 PRESENTATION

Table 2.2.1 presents the sulfur dioxide, nitrogen oxides, carbon monoxide, volatile organic compounds, particulate matter and hydrogen chloride concentrations and emissions rates for the wood pellets emission tests. Table 2.2.2 presents the sulfur dioxide, nitrogen oxides, carbon monoxide, volatile organic compounds, particulate matter and hydrogen chloride concentrations and emissions rates for the oat hulls emission tests. Table 2.2.3 presents the sulfur dioxide, nitrogen oxides, carbon monoxide, volatile organic compounds, particulate matter and hydrogen chloride concentrations and emissions rates for the corn germ, degermed debranned corn and soy bean hulls emission tests. Table 2.2.4 contains example calculations, in spreadsheet format for Run # 1. Appendix A contains the field data, including appropriate EPA forms completed during the test program. Appendix B contains the appropriate calibration data for the sampling systems. Appendix C contains the laboratory reports.