



VRO-AIR-073-10

# COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY  
VALLEY REGIONAL OFFICE

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Douglas W. Domenech  
Secretary of Natural Resources

David K. Paylor  
Director

Amy Thatcher Owens  
Regional Director

July 8, 2010

Mr. Robert B. McKinley  
Vice President, Generation Construction  
Virginia Electric and Power Company  
5000 Dominion Boulevard  
Glen Allen, Virginia 23060

Facility: Warren County Plant  
Location: Warren County  
Registration No.: 81391  
Plant ID No.: 51-187-0041

Re: Review of Revised Applications, ILOD Response, and BACT

Dear Mr. McKinley:

We have reviewed Dominion's response letter dated April 26, 2010 to DEQ's request for additional information. DEQ concurs with the responses.

We have reviewed your three Best Available Control Technology (BACT) analyses, contained in the revised permit applications dated April 2010 and received by this office April 27, 2010. The applications to construct and operate a combined-cycle combustion turbine electric generating facility include information on three turbine options – Siemens, Mitsubishi, and General Electric. Based on the Valley Regional Office (VRO) staff's additional review, your BACT analyses are incomplete. Additional information is needed before the BACT analyses and the application will be considered complete. Please provide the following:

- Proposed BACT Carbon Monoxide (CO) Emission Rates – After reviewing air permitting documents from similar facilities, DEQ requests Dominion to evaluate the costs and emissions reduction benefits of installing a larger oxidation catalyst for the Mitsubishi and GE turbines in order that those units are capable of meeting the same CO emission rate as the Siemens turbine with and without duct burning.

- Proposed BACT Volatile Organic Compound (VOC) Emission Rates – After reviewing air permitting documents from similar facilities, DEQ requests Dominion to evaluate the costs and emissions reduction benefits of installing a larger (or otherwise modifying the proposed) oxidation catalyst for the Siemens and GE turbines in order that those units are capable of meeting the same VOC emission rate as the Mitsubishi turbine with and without duct burning.
- Proposed BACT Particulate Matter (PM/PM<sub>10</sub>/PM<sub>2.5</sub>) Emission Rates – DEQ staff has reviewed source testing data from a number of similar combined-cycle facilities, which showed average particulate emissions of 4.58 lb/hr, with a high of 10.65 lb/hr. This emission limit includes all filterable and condensable particulate emissions. In addition, a PM emission rate of 9.5 lb/hr was required for a recently permitted Siemens SGT6-5000F engine at Carlsbad Energy Center in Carlsbad, CA. Please investigate why the proposed turbines cannot meet these lower emission rates for PM/PM<sub>10</sub>/PM<sub>2.5</sub>.
- Proposed Ammonia Emission Rates – A permit issued June 15, 2009 to Kleen Energy Systems LLC in Connecticut limits the Siemens SGT6-5000F turbine to 2.0 ppmvd ammonia as a one-hour average during steady-state operation when burning natural gas. Please evaluate the feasibility of achieving 2.0 ppmvd (1-hour average) during steady-state operation (i.e., operation above 60% load) for the Siemens, GE and Mitsubishi turbines.

Please note as stated in the *EPA 1990 PSD Draft Manual*, a lack of a vendor guarantee by itself does not present sufficient justification that a control option or an emissions limit is technically infeasible.

It is important that you provide the requested information above **no later than August 13, 2010** so that the engineering staff can complete the review of your application in a timely manner. Please note that a signed and dated Document Certification Form (page 1 of Form 7) must accompany the submittal. If a later analysis of the permit application indicates that additional information is required to support your application, such information will be requested at that time.

You are reminded that construction of a source subject to permitting requirements in 9 VAC 5 Chapter 80 of the Virginia Regulations for the Control and Abatement of Air Pollution without a permit may result in enforcement action.

If you have any questions or require assistance, please call me at (540) 574-7852 or send electronic mail to [anita.riggleman@deq.virginia.gov](mailto:anita.riggleman@deq.virginia.gov).

Sincerely,



Anita Riggleman  
Environmental Engineer Senior

- c: Gerallyn Duke – U.S. EPA, Region 3 (via email)
- Andrea Stacy – National Park Service (via email)
- Edward (Tedd) Huffman – U.S. Forest Service (via email)
- Martha Bogle, Shenandoah National Park
- Maureen Hyzer, George Washington and Jefferson National Forests
- Jim Schaberl – National Park Service (via email)
- Andy Gates – Virginia Electric and Power Company (via email)
- Bill Campbell – AECOM, Inc. (via email)
- Mike Kiss – DEQ, Central Office (via email)
- VRO – File