



Sinclair, Alison <alison.sinclair@deq.virginia.gov>

EPA Comments on Balico LLC/Chickahominy Power

1 message

Burger, Riley <burger.riley@epa.gov>

Thu, Feb 14, 2019 at 11:37 AM

To: "Sinclair, Alison" <alison.sinclair@deq.virginia.gov>

Hi Alison,

Attached is a copy of the EPA comments for the Balico LLC/Chickahominy Power major PSD permit. A hard-copy original of the comments is also being mailed. You will find this includes the one minor comment we discussed this morning as well as attachment with modeling comments. Please be sure to send the final permit when issued and let me know if you have any questions.

Thanks again for your efforts on this one!

Riley

Riley Burger

Physical Scientist

EPA Region III

Air Protection Division

Office of Permits and State Programs (3AP10)

1650 Arch Street

Philadelphia, PA 19103

215-814-2217

 EPA Comments on Balico LLC-Chickahominy Power PSD Permit.pdf
985K



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

Alison Sinclair
Virginia Department of Environmental Quality
Piedmont Regional Office
4949-A Cox Road
Glen Allen, VA 23060

FFR 14 2010

Dear Ms. Sinclair,

The Environmental Protection Agency (EPA) offers the following comments on the proposed Prevention of Significant Deterioration Permit Stationary Source Permit Construct and Operate for Balico LLC/Chickahominy Power. This permit will authorize construction of a new, combined cycle, natural gas-fired, electrical power generating facility in Charles City County, VA with a nominal net capacity of 1,650MW. The facility is a major Prevention of Significant Deterioration (PSD) source, and the project exceeds PSD major source thresholds for nitrogen oxides (NO_x), carbon monoxide (CO), particulate matter (PM, PM₁₀, PM_{2.5}), volatile organic compounds (VOCs), and greenhouse gases (GHGs), and significance rates for sulfur dioxide (SO₂) and sulfuric acid mist (H₂SO₄).

These comments are provided to ensure that the project meets federal Clean Air Act requirements, that the permit will provide necessary information so that the basis for the permit decisions is transparent and readily accessible to the public, and that the permit record provides adequate support for the decisions.

I. PERMIT/ENGINEERING ANALYSIS COMMENTS:

A. Alternate Operating Scenario Emissions Accounting:

1. Permit condition 10c requires inclusion of emissions associated with the turbines' Tuning and On-line Water Washing Events in the annual facility-wide total. However, permit condition 36, which lists annual process emission limits for the turbines, only specifies that periods of startup and shutdown are included in the total. As a suggestion, please consider incorporating language into condition 36 that more explicitly requires inclusion of emissions from alternate operating scenarios in the annual process emission limits.

II. AIR QUALITY ANALYSIS REPORT

A. EPA comments on the modeling analysis are included in Enclosure 1.

Thank you for the opportunity to review this proposed permit. If you have any questions or concerns regarding these comments, please contact me or Riley Burger of my staff at 215-814-2217.

Sincerely,

A handwritten signature in blue ink, appearing to read "Zelma Maldonado", with a long horizontal flourish extending to the right.

Zelma Maldonado, Acting Associate Director
Office of Permits and State Programs

Enclosure

**EPA Region 3 Comments to *Air Permit Application Chickahominy Combined-Cycle Power Plant*
Project Charles City County, Virginia
Modeling Comments Prepared February 2019**

6.6.2 AERSURFACE Analysis – Meteorological Site Land Use Characteristics

The AECOM report provided in the modeling documentation did not include a comparison between the surface meteorological site (Richmond Airport) and the site of the proposed Chickahominy Combined-Cycle Power Plant to ensure the meteorological data would be representative of at the proposed facility. Section 3.1.1 of EPA's AERMOD Implementation Guide provides a more detailed discussion for determining site representativeness. At a minimum, a comparison of site characteristics between the Richmond Airport and the site of the proposed facility should have been conducted to ensure similarity between the two (2) sites.

Was snow cover checked at a local site to ensure continuous (monthly) snow cover was not present during the five (5) year simulation period (2012-16)? Has land use/land cover remained relatively unchanged in the area of the proposed facility? The data used in the application represents land use over 25 years ago.

6.8 Background Air Quality and Pre-Construction Monitoring

For most of the modeled pollutants (above significance) background monitoring data was utilized from the 2014-16 time period. The applicant used seasonally varying NOx concentrations from 2015-17, which represents the most recent time period with valid monitor concentrations. It would be prudent to show the most recent PM-2.5 and ozone design values (for 2015-17) to ensure there have been no significant changes in those concentrations that could change the outcome of the NAAQS modeling analysis.

Were the background monitor values listed in Table 6-15 of the AECOM's November 2018 Air Permit Application report deemed complete?

6.10 Secondary PM2.5 and Ozone – Approach

EPA notes that the proposed facility's projected secondary PM-2.5 concentrations listed in Table 6-18 would represent concentrations in the immediate area of the Chickahominy Combined-Cycle Power Plant (note the photochemical modeling used to estimate the worst-case secondary formation utilized a 12-km grid cell spacing).

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8.2 Modeling Approach

Please provide additional information regarding whether the background source emissions included in the cumulative analyses represent maximum allowable/permitted hourly emission rates or if they represent actual hourly emission rates. Section 8.2.2 (c) of EPA's Appendix W Guideline on Air Quality Models allows the applicant to use emission rates for nearby sources included in any cumulative analysis that reflect actual operations instead of a permitted and/or maximum allowable emission rate.

8.4.1 Summary of NAAQS Analysis

Results of the cumulative analyses are summarized in this section. The 1-hr NO₂ simulations did not include emissions from either the emergency generator or the emergency fire pump. EPA concurs with the applicant's and VA DEQ's decision not to include these sources based on EPA's intermittent source guidance¹; emergency equipment is infrequently tested as part of normal plant operations. Peak modeled 1-hour NO₂ concentrations for the GE units are almost 96% of the NAAQS during simulated cold start periods. NO_x emissions from the emergency generator are approximately 47 lbs/hr (see Table B-4 of AECOM report), which exceeds the estimated hourly NO_x emissions from the proposed combustion turbines during normal operations. Running the emergency generator during cold startups could potentially contribute to exceedences of the 1-hour NO₂ NAAQS given the model results summarized in Table 8.4.1. EPA suggests that the applicant refrain from testing its emergency generator when it's plant is conducting a cold start of its main combustion turbines.

8.4.2 Summary of PSD Increment Consumption Analysis

Please clarify if the modeling analysis included off-site source shut down emissions, which would expand PM-10 and annual NO₂ increment consumption and (conservatively) bias the final model results. Also, please clarify if this application triggered the PSD base-line PM-2.5 dates for Charles City County or any other surrounding counties in Virginia.

¹ See *Additional Clarification Regarding Application of Appendix W Modeling Guidance for the 1-hour NO₂, National Ambient Air Quality Standard*, March 1, 2011 (https://www.epa.gov/sites/production/files/2015-07/documents/appwno2_2.pdf)

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8.5 Ozone NAAQS Analysis Results

Similar to our previous comment for secondary PM-2.5 formation, the MERPS analysis used to estimate the proposed plant's (worst-case) impacts on ozone probably reflects local impacts since the photochemical model used an approximately 12-km grid cell spacing.

9.1 Class I Area Analysis

The secondary PM-2.5 contributions listed in Table 9-3 and 9.4 were taken from Section 6.10 of AECOM's report. As stated previously, EPA believes they are generally representative of values closer to the proposed source. Given the distances between the proposed source and the individual Class I areas, the secondary contribution presented in these tables is probably an overestimation of the proposed source's potential increment consumption at the closest Class I areas.

It does not appear that the applicant accounted for increment expansion created by (NO_x and SO₂) control installations and shut downs at regional coal-fired power plants. Given the NO_x and SO₂ controls implemented at many coal fired units over the last several decades, there is undoubtedly substantial increment expansion that is not accounted for in the modeling analysis (if a cumulative analysis would have been triggered).