

# NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Environmental Permits, Region 5

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July 11, 2023

Saratoga Biochar Solutions LLC  
ATTN: Raymond Apy  
26 F Congress Street, #346  
Saratoga Springs, NY 12866

**RE: Request for Additional Information**  
**DEC #5-4144-00187/00001**  
**Facility: Saratoga Biochar Solutions**  
**Moreau (T), Saratoga County**

Dear Mr. Apy:

This letter provides follow-up and clarifying information requested in our Notice of Incomplete Application (Notice) dated June 14, 2023; specifically, item #2 “Total PFAS emissions.” The technical comments shown below were generated from Air staff’s review of your most recent 180-page Air State Facility application submittal and are required for application completeness. Please provide responses to these technical comments in addition to the items contained within the June 14, 2023 Notice:

1. On Page 24, it is stated that “The SBS Facility will thermally oxidize the syngas for heat recovery at a temperature of 1,650°F to 2,300°F (871°C to 982°C), which has an estimated destruction efficiency of 99.99% for PFAS compounds.” EPA’s research indicates that thermal treatment of PFAS needs to reach greater than 2,500 o F for CF4 destruction to achieve complete mineralization of PFAS compounds down to HF. CF4 and HF are not currently included in the application as the air contaminants being released. Please provide a discussion and supporting documentation regarding the emissions of CF4 that might occur with the partial destruction/breakdown of all the PFAS compounds present. Additionally, a discussion of the HF being formed from the breakdown of the PFAS compounds should also be provided. If the CF4 and HF exiting the Thermal Oxidizer will be captured by the downstream control devices then provide supporting documents/discussion to support the claims. To summarize, in the permit application please discuss, and provide justification for your conclusions, the creation of any CF4 and HF and the ultimate fate of these compounds whether they are captured or emitted from the facility.
2. On Page 7 the air pollution control process after the thermal oxidizer is described with dry cyclones, venturi heads, two packed bed wet scrubbers, and a bio-scrubber. Please provide estimates on the control efficiencies for these devices.

3. On Page 18, the following is stated for the criteria air contaminants NO<sub>x</sub> and SO<sub>2</sub>: “By achieving the NAAQS, the Facility achieves the necessary Degree of Air Cleaning Required.” However, meeting the required degree of air cleaning specified in Part 212-2.3 (a) Table 3 - degree of air cleaning required for criteria air contaminants is necessary, along with also demonstrating that the residual impacts from the post-control emissions are in compliance with the NAAQS. Please provide a discussion demonstrating compliance with the degree of air cleaning requirements for NO<sub>x</sub> and SO<sub>2</sub> emissions.


On Page 19 and 21, the following is stated respectively for the non-criteria air contaminants Naphthalene (C<sub>10</sub>H<sub>8</sub>) and Ammonia (NH<sub>3</sub>) emissions: “By achieving the Guideline Concentrations, the Facility achieves the necessary Degree of Air Cleaning Required.” Based upon the environmental rating of the air contaminants and its Emission Rate Potential, meeting the required degree of air cleaning specified in Part 212-2.3(b) Table 4 - degree of air cleaning required for non-criteria air contaminants is necessary, along with also demonstrating that the residual impacts from the post-control emissions do not exceed the upper concentration limit of the DEC’s risk management range. Please provide a discussion demonstrating compliance with the degree of air cleaning requirements for Naphthalene and Ammonia emissions.

4. On Page 24 the residence time in the pyrolysis chamber of 20 min with SBS’s small-scale test is stated, but the pyrolysis chamber residence time for the full-scale SBS facility is not specified. Only the pyrolysis chamber operating temperature range of 482°C to 621°C for the full-scale SBS facility is specified, compared to the pyrolysis chamber operating temperature range of 450°C with SBS’s small-scale test. Please provide information on the proposed residence time and more precise operating temperature of the full-scale pyrolysis process.

5. On Air Permit Application form Page 3 the Total HAPs annual PTE is listed as being 9.5 tons/yr but the sum of the individual annual PTEs within the table on Page 66 for all those Air Contaminants which are listed in the current (2021) DAR-1 AGC/SGC Tables as being Federal HAPs is almost 14.5 tons/yr. Naphthalene alone has an annual PTE over 9.5 tons/yr. Please correct the Total HAPs number.

If you have questions regarding the technical items being requested in this letter, please contact Paul Sierzenga, Regional Air Engineer at [Paul.Sierzenga@dec.ny.gov](mailto:Paul.Sierzenga@dec.ny.gov) or 518-623-1200.

Sincerely,



Erin L. Burns  
Regional Permit Administrator

ec: Paul Sierzenga, NYSDEC Air  
Julia Stuart, NYSDEC Air  
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