



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

July 22, 2022

Mr. Michael F. Swan
Residuals Superintendent
City of High Point
Eastside Wastewater Treatment Plant
5898 Riverdale Drive
Jamestown, North Carolina 27282

Dear Mr. Swan:

On August 3, 2021, the City of High Point – Eastside Wastewater Treatment Plant (Eastside WWTP) submitted a petition with attachments (see Enclosure A) to the U.S. Environmental Protection Agency describing an alternative monitoring procedure (AMP) entitled “Site Specific Monitoring Plan for the Sorbent Polymer Composite Material Adsorber (CD-04)” prepared by GEL Engineering of NC, Inc. of Raleigh, NC, and dated July 2021. This AMP was previously submitted on September 1, 2020, to the North Carolina Department of Environmental Quality’s Division of Air Quality (DAQ). The NCDAQ apprised EPA Region 4 about this submitted petition in July of 2021 (see Enclosure B).

The City of High Point cites to the provisions of 40 CFR Part 62 Subpart LLL – Federal Plan Requirements for Sewage Sludge Incineration (SSI) Units Constructed on or Before October 14, 2010, and also to the Emission Guidelines (EG) and Compliance Times for Existing SSI Units under 40 CFR Part 60, Subpart M. Under §62.15965(b) of the federal plan (or §60.5175(b) in the EG), if a facility is not using a wet scrubber, fabric filter, electrostatic precipitator, activated carbon injection, or afterburner, or if emissions are limited in some other manner (e.g., materials balance), in order to comply with the emission standards, then the facility must submit a petition to the EPA for approval. The City of High Point is not using activated carbon injection to control mercury emissions from their fluidized bed incinerator at the Eastside WWTP (Facility ID 04-4100977) but instead has installed Sorbent Polymer Composite (SPC) modules from EnviroCare International / W.L. Gore & Associates, Inc. SPC modules are fluoro-polymer filters manufactured primarily for the control of mercury emissions.

On May 2, 2018, EPA Region 4 delegated authority of the Federal SSI plan for existing SSI units to the North Carolina Department of Environmental Quality (NCDEQ) (See 83FR 19184); the approval of major alternatives to monitoring, however, is not delegated to state agencies under the provisions of §60.5050. Based on our review of the information provided, Region 4 disapproves the petition. Details regarding our review and the basis for our disapproval are provided in the remainder of this letter.

Description of SSI, VenturiPak Scrubber and SPC System

As described in the petition, Eastside WWTP operates a sewage sludge fluidized bed incinerator (FBI) designated as source ES-01, (3,000 pounds of dry sludge per hour maximum charge rate) fired by natural gas/No. 2 fuel oil-fired burners with an auxiliary heat input rating of 5.05 million British thermal units per hour (MMBtu/hr). Emissions from the FBI are controlled by a VenturiPak wet scrubber (CD-01) followed by a sorbent polymer composite (SPC) material adsorber (CD-04). The FBI is subject to the Emission Guidelines and Compliance Times for Existing Sewage Sludge Incineration Units promulgated under 40 CFR Part 60, Subpart M. Eastside WWTP also included information regarding CD-04 entitled Gore Mercury and SO₂ Control System for Incineration (See Enclosure C). Particulate emissions and other pollutants are controlled by a VenturiPak scrubber. The VenturiPak scrubber supplied to the City of High Point Eastside WWTP has been designed to clean the exhaust gases generated by a fluidized bed municipal waste reactor, which are primarily particulates. The main components of the scrubber vessel are an impingement tray stage, a Venturi stage, a separator stage consisting of an impingement tray and a high efficiency mesh pad mist eliminator. The SPC material adsorber for mercury control consists of five layers (each containing 5 removable SPC Modules) for a total of 25 SPC Modules currently in use. The configuration allows for additional SPC Modules as needed in the future and can accommodate up to a maximum capacity of 45 SPC Modules total. Each individual SPC Module is 26.9" l x 24.9" w x 13.06" h.

SSI Regulatory Requirements

As required in paragraphs §60.5175(b)(1) thru (b)(5) (or §62.15965(b)(2)(i) thru (b)(2)(v) in the SSI Federal Plan), the petition must include the specific parameters to be monitored, a discussion of the relationship between these parameters and the emissions of regulated pollutants, a discussion of the parameter operating limits and averaging periods, the instruments and methods used to monitor these parameters, and the frequency and methods for recalibrating the instruments used for monitoring these parameters.

City of High Point's Proposed AMP for the SPC Modules

Eastside WWTP proposes to monitor the following operating parameters and conduct sampling as described in their petition:

- Pressure-drop across the SPC material adsorber
- Annual physical sampling of the SPC media (described below) as recommended by the SPC system supplier, Envitech, in order to determine when the media will be replaced

The SPC material adsorber contains five layers of SPC Modules (total of 25 SPC Modules). An approximate 1-inch square coupon will be physically removed from each layer of the SPC media annually and analyzed for mercury content by weight using EPA Method 7473. EnviroCare International (ECI) has demonstrated through extensive pilot testing at other facilities that the media can hold up to 8% by weight of mercury without affecting mercury removal efficiency. However, in order to provide an appropriate level of conservatism, each layer of SPC media module will be replaced when the media has reached a 2% mercury by weight threshold as recommended by the SPC system supplier, Envitech.

EPA Region 4 Determination

Based upon our review, the EPA denies your request to use the proposed AMP for the following reasons:

- No correlation has been established regarding mercury removal efficiency to a specific rotation change-out and/or disposal of spent SPC modules due to saturation.
- With respect to ECI claims regarding the 8% by weight of mercury without affecting mercury removal efficiency (i.e., up to 2 pounds of mercury per module), no specific information supporting this was provided.
- Specific information is needed by the EPA regarding the proposed physical sampling and frequency and how these parameters relate to continuous demonstration, site awareness, and guarantee of actual adsorbent performance efficiency. The proposed annual sampling is inadequate to ensure the SPC media is effectively removing mercury on a continuous basis.
- No monitoring has been proposed related to humidity entering the SPC adsorbent modules as would be expected from the exhaust of a wet scrubber. Humidity would affect adsorption efficiency.
- No periodic US EPA Reference Method 30B monitoring (i.e., one-hour RM 30B run once per quarter at the exhaust stack or downstream of the induced draft fan inducing a vacuum on the SPC adsorbent system) is proposed to periodically indicate compliance status.

This alternative monitoring procedure disapproval was coordinated with the EPA's Office of Enforcement and Compliance Assurance and the Office of Air Quality Planning and Standards. If you have any questions regarding this disapproval, please contact Mark Bloeth of my staff at bloeth.mark@epa.gov or (404) 562-9013.

Sincerely,

**CAROLINE
FREEMAN**

Caroline Y. Freeman
Director

Air and Radiation Division

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Enclosure A – City of High Point AMP Submittal (August 3, 2021)

Enclosure B – NCDAQ Email to Region 4 (July 29, 2021)

Enclosure C – Mercury Control Manufacturer Information