



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

July 22, 2022

Mr. Bradley Flynt
Treatment Plant Superintendent
City of Greensboro
T.Z. Osborne Water Reclamation Facility
2350 Huffine Mill Road
McLeansville, North Carolina 27301

Dear Mr. Flynt:

On April 15, 2022, in response to our March 15, 2022, disapproval letter to the City of Greensboro - T.Z. Osborne Water Reclamation Facility's (T.Z. Osborne) previous petition describing an alternative monitoring procedure (AMP) in August of 2021, an updated petition entitled – EPA Region IV Submittal Package – Site-Specific Alternate Monitoring Plan for the VenturiPak Scrubber (CD-22) prepared by GEL Engineering of NC, Inc. of Raleigh, NC, dated April 2022 was submitted for approval (see Enclosure A). This most recently submitted AMP constitutes the third iteration wherein T.Z. Osborne is requesting approval for the use of sorbent polymer composite (SPC) modules for the control of mercury emissions in the fluidized bed sewage sludge incinerator (SSI).

T.Z. Osborne cited provisions of 40 CFR Part 60, Subpart M – Emissions Guidelines (EG) and Compliance Times for Existing Sewage Sludge Incineration Units. Under §60.5175(b) {or §62.15965(b) in the SSI Federal Plan}, if a facility does not use 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), then the facility must submit a petition to the EPA for approval to use an alternative control device. The petition must also include monitoring associated with the validation of compliance during non-performance testing times. T.Z. Osborne installed an SPC modules system to control emissions of mercury from the SSI. SPC modules are fluoro-polymer filters manufactured primarily for the control emissions of mercury.

On May 2, 2018, the 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, are not delegated to state agencies under the provisions of §62.16050. Based on our review of the information provided, Region 4 approves this most recent and updated petition. Details regarding our review and the basis for our approval are provided in the remainder of this letter.

Description of SSI and SPC System

As described in the petition, T.Z. Osborne operates a wastewater treatment facility in McLeansville, Guilford County, North Carolina. NCDEQ's Division of Air Quality issued Title V Operating Permit No. 04489T26 to T.Z. Osborne on March 2, 2021. T.Z. Osborne operates a sewage sludge fluidized bed incinerator designated as source ES-01 (6,000 pounds of dry sludge per hour maximum charge rate). The SSI is fired by natural gas/No. 2 fuel oil-fired burners with an auxiliary heat input rating of 8.61 million British thermal units per hour (MMBtu/hr). Emissions from the incinerator are controlled by a VenturiPak scrubber (CD-22). The VenturiPak scrubber is equipped with a wet tray, a venturi throat spray manifold, and SPC mercury control modules. Each SPC module is 25" wide x 27" long x 13" high. The SPC Mercury Control Stage consists of three layers (each containing four removable SPC modules) with additional space for a fourth layer if needed for future expansion. T.Z. Osborne also included the manufacturer's information: EnviroCare International VenturiPak Scrubber Functional Specifications, as well as the Operation and Maintenance Manual for the Fluidized Bed Incinerator VenturiPak Scrubber System.

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}, a 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.

T.Z. Osborne proposed AMP for the SPC Modules:

Removal Efficiency - The City of Greensboro will monitor the inlet and outlet concentrations of mercury across the SPC modules to calculate the removal efficiency of the SPC modules (while a threshold value of 70% removal efficiency and semi-annual monitoring frequency was proposed, T.Z. Osborne agreed to conduct quarterly monitoring of this parameter (by using carbon trap sampling and analyzed in accordance with EPA Method 30B) as recommended by EPA Region 4 on May 23, 2022, and agreed to by T.Z. Osborne on May 24, 2022; see Enclosure B).

Pressure Drop: Monitor Pressure Drop across the Mercury Control Modules

Gas Temperature: The outlet flue gas temperature will be monitored, and if elevated, will shut down the fluidizing air blower.

Visual Inspection: A quarterly visual inspection of the mercury modules as recommended by the manufacturer (Envirocare) to confirm the modules have not shifted during operation.

EPA Region 4 Determination

The following table summarizes the parameters agreed to between EPA Region 4 and T.Z. Osborne:

Parameter	Limit	Units	Recordkeeping Frequency	Averaging Period for Compliance
pressure drop	≤ 4	inches of water column	every 60 seconds	12 hours
outlet exhaust gas temperature	≤ 180	degrees Fahrenheit	every 60 seconds	12 hours
removal efficiency	$\geq 70\%$	N/A	quarterly	N/A

T.Z. Osborne will also perform quarterly physical inspections of the mercury modules using procedures recommended by the manufacturer.

Based upon our review of your submittal, the EPA approves the agreed upon AMP regarding pressure drop, scrubber outlet exhaust gas temperature, removal efficiency and physical inspection of the mercury modules in order to ensure that the mercury emissions limit (0.037 mg/dscm @ 7% O₂) is being continuously met.

This AMP approval was coordinated with the EPA's Office of Enforcement and Compliance Assurance and EPA's Office of Air Quality Planning and Standards. If you have any questions regarding this approval, 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 – Site-Specific Alternate Monitoring Plan (April 2022)

Enclosure B – Quarterly Sampling Email (May 2022)