NORTH CAROLINA DIVISION OF AIR QUALITY

Application Review

Issue Date: January 22, 2025

Region: Winston-Salem Regional Office
County: Guilford
NC Facility ID: 4100977
Inspector's Name: Ryan Dyson
Date of Last Inspection: 08/14/2024
Compliance Code: 3 / Compliance - inspection

Facility Data

Applicant (Facility's Name): City of High Point - Eastside Wastewater Treatment Plant

Facility Address:
City of High Point - Eastside Wastewater Treatment Plant
5898 Riverdale Road
Jamestown, NC 27282

SIC: 4952 / Sewerage Systems
NAICS: 221320 / Sewage Treatment Facilities

Facility Classification: Before: Title V **After:** Title V
Fee Classification: Before: Title V **After:** Title V

Permit Applicability (this application only)

SIP: 02D .0524, .0614, .1204
NSPS: Subpart O
NESHAP: NA
PSD: No
PSD Avoidance: No
NC Toxics: No
112(r): NA
Other: 40 CFR 62 Subpart LLL

Contact Data

Facility Contact	Authorized Contact	Technical Contact
Tricia Lowery Residuals Management Superintendent (336) 883-3361 PO Box 230 Jamestown, NC 27261	Derrick Boone Assistant Public Services Director (336) 883-3279 PO Box 230 High Point, NC 27261	John Thomas Eastside Wastewater Superintendent (336) 822-4730 PO Box 230 High Point, NC 27261

Application Data

Application Number: 4100977.24A
Date Received: 07/29/2024
Application Type: Modification
Application Schedule: TV-Minor

Existing Permit Data
Existing Permit Number: 08074/T17
Existing Permit Issue Date: 06/11/2024
Existing Permit Expiration Date: 04/30/2028

Total Actual emissions in TONS/YEAR:

CY	SO2	NOX	VOC	CO	PM10	Total HAP	Largest HAP
2023	---	4.89	0.2000	2.60	0.1200	1.84	1.16 [Dichlorobenzene(p), 1,4-]
2022	0.0500	8.25	0.2700	3.20	0.1600	0.0034	0.0012 [Benzene]
2021	0.1200	10.74	0.2900	2.85	0.2200	0.0040	0.0016 [Benzene]
2020	0.1500	8.73	0.2300	2.31	0.1300	0.0028	0.0008 [Benzene]
2019	0.6300	6.03	0.2000	1.10	0.1200	0.0026	0.0008 [Benzene]

Review Engineer: Emily Supple

Review Engineer's Signature: **Date: 1/22/2025**

Emily J Supple

Comments / Recommendations:
Issue 08074/T18
Permit Issue Date: January 22, 2025
Permit Expiration Date: April 30, 2028

1. Purpose of Application

City of High Point – Eastside Wastewater Treatment Plant (City of High Point), located in Jamestown, Guilford County, North Carolina, currently holds Air Quality Title V Permit No. 08074T17 with an expiration date of April 30, 2028.

On July 29, 2024, the North Carolina Department of Environmental Quality (NCDEQ), Division of Air Quality (DAQ), received Permit Application No. 4100977.24A for minor modification.

The acknowledgement letter was sent on August 7, 2024, and the payment was received on July 29, 2024 via ePay.

This permitting action will be considered a Title V minor modification under 15A NCAC 02Q .0515. With this application, City of High Point is requesting to update several permitted operating parameters for the natural gas/No. 2 fuel oil-fired fluidized bed sewage sludge incinerator (ID No. ES-01) and associated control devices: wet scrubber (ID No. CD-01) and sorbent polymer catalyst composite material adsorber (ID No. CD-04).

The requested revisions to the operating parameters are based on performance testing conducted on the incinerator (ID No. ES-01) in May of 2024. The performance test results were received by DAQ on July 22, 2024. The Stationary Source Compliance Branch (SSCB) completed the review of the results on November 22, 2024. Thus,the applicant may make the requested process changes pursuant to the procedures contained in 15A NCAC 02Q .0515 as of this date.

2. Facility Description

The following description of the incinerator's operation is taken from the August 23, 2024 inspection report by Ryan Dyson of the Winston-Salem Regional Office (WSRO):

The facility is permitted for a natural gas/No. 2 fuel oil-fired fluidized bed sewage sludge incinerator (ES-01). The facility's feed solids typically begin at approximately 2.3% to 2.4% solid content. The feed solids at the facility are then combined with a polymer product and processed through a centrifuge to further dry the materials. The resultant cake solids are typically between 27.0% and 28.0% solid content before being fed to the incinerator for combustion. Because the cake solids being fed into the incinerator have a Btu value, the incinerator can typically operate without any supplemental fuel once the incinerator is up and running. If the incinerator is out of operation for an extended period, the facility must do a "cold start". As part of this process, the facility will combust natural gas in the incinerator to help build up temperature, before switching to No. 2 fuel oil before ultimately being able to cut off any supplemental fuels and burn the sludge exclusively.

In addition to the sewage sludge incinerator (ID No. ES-01) with associated wet scrubber (ID No. CD-01) and sorbent polymer catalyst composite material adsorber (ID No. CD-04), the facility is also permitted to operate one sand storage silo (ID No. ES-02) with associated bagfilter (ID No. CD-02) and three 2,000-kilowatt (kW) No. 2 fuel oil-fired generators (ID Nos. ES-03, ES-04, and ES-05).

3. History/Background/Application Chronology

May 28-30, 2024	Performance test (2024-085ST) was conducted on the incinerator (ID No. ES-01) at City of High Point – Eastside Wastewater Treatment Plant. Revised operating parameters were established for the incinerator (ID No. ES-01) and associated control devices: wet scrubber (ID No. CD-01) and sorbent polymer catalyst composite material adsorber (ID No. CD-04).
June 11, 2024	Permit No. 08074T17 issued to City of High Point – Eastside Wastewater Treatment Plant.
July 22, 2024	Performance test (2024-085ST) results were received by DAQ.

July 29, 2024	Application No. 4100977.24A received for minor modification requesting revisions to operating parameters based on the May 2024 performance testing. The application fee was paid on the same day via ePay.
August 7, 2024	Minor modification acknowledgement letter sent to City of High Point – Eastside Wastewater Treatment Plant indicating a complete application. The letter indicated the facility should not make the modifications requested in the application until the SSCB reviews and approves the data submitted in the stack testing report submitted on July 22, 2024 (2024-084ST).
October 29, 2024	Tricia Lowery, Residuals Management Superintendent of City of High Point – Eastside Wastewater Treatment Plant, sent an email inquiring about the status of the application. Emily Supple of DAQ responded the same day and indicated that the performance test results submitted July 22, 2024 have not yet been reviewed by SSCB, and application processing will not proceed until the performance test results have been reviewed and approved by SSCB.
November 22, 2024	Gregg Oneal of SSCB reviewed the performance test results submitted on July 22, 2024 and sent a copy of the review memo via email.
December 2, 2024	A request for a revised Form E5 was sent to the facility.
December 5, 2024	The revised Form E5 was received.
December 16, 2024	Draft permit and review sent to supervisor for review.
January 11, 2025	Minor/editorial comments received from supervisor.
January 13, 2025	A request for a revised Form E5 was sent to the facility, and the revised form was received on the same day.
January 13, 2025	Draft permit and review sent to applicant, WSRO, and SSCB. No comments were received.
January 22, 2025	Permit No. 08074T18 issued.

4. Permit Modification/Emissions Changes and TVEE Discussion

Permit Modification/Emissions Changes

Application No. 4100977.24A consists of the following proposed changes to the facility's current Permit No. 08074T17 as part of this minor modification:

- In the Section 1 table, for the fluidized bed sewage sludge incinerator (ID No. ES-01), revise the maximum charge rate from 2,049 pounds of dry sludge per hour to 2,750 pounds of dry sludge per hour in the emission source description.

- In Condition No. 2.1 A.2.f.ii, for the fluidized bed sewage sludge incinerator (ID No. ES-01), revise the maximum average oxygen content of the exhaust gas while sewage sludge is charged into the fluidized bed incinerator from 13.0% to 12.2%.

- In Condition No. 2.1 A.3.d, for the wet scrubber (ID No. CD-01), revise the minimum pressure drop from 29.6 inches of water column to 31.0 inches of water column for Indicator Range, and revise the minimum pressure drop from 29.6 inches of water column to 31.0 inches of water column for QIP Threshold.

- In Condition Nos. 2.1 A.5.c and 2.1 A.6.f, for the fluidized bed sewage sludge incinerator (ID No. ES-01), revise the minimum combustion chamber operating temperature from 1,298 °F to 1,342 °F.

- In Condition Nos. 2.1 A.5.c and 2.1 A.6.f, for the sorbent polymer catalyst composite material adsorber (ID No. CD-04), revise the minimum pressure drop from 0.17 inches of water column to 0.19 inches of water column.

No emission changes are expected with this minor modification.

Table 4.1 below describes the changes made to the facility's current Air Permit No. 08074T17 as a result of this minor modification:

Table 4.1: Table of Changes to Permit No. 08074T17

Page No.	Section	Description of Changes
NA	Cover Letter	• Updated cover letter for current date, modification etc. • Added minor modification language
1	Permit page 1	• Updated page 1 for current date, modification etc.
4	Section 1	• For the incinerator (ID No. ES-1) revised the permitted throughput capacity from 2,049 to 2,720 pounds of dry sludge per hour maximum charge rate • Added minor modification footnotes as applicable
6	2.1 A.2.d.ii	• Revised average pressure drop of the sorbent polymer catalyst composite material adsorber (ID No. CD-04) from at least 0.17 inches of water column to at least 0.19 inches of water column
7	2.1 A.2.f.i.	• Revised average pressure drop of the wet scrubber (ID No. CD-01) is less than 20.7 inches of water column to less than 21.7 inches of water column
7	2.1 A.2.f.ii	• Revised average oxygen content reporting value from 13.0% to 12.2%-
8	2.1 A.3.d	• Revised indicator range and QIP threshold from 29.6 to 31.0 inches of water
10	2.1 A.5.c	• Revised minimum combustion chamber operating temperature from 1,298 °F to 1,342 °F • Revised minimum pressure drop of wet scrubber (ID No. CD-01) from 29.6 to 31.0 inches of water column • Revised minimum pressure drop of sorbent polymer catalyst composite material adsorber (ID No. CD-04) from 0.17 to 0.19 inches of water column
14	2.1 A.6.f	• Revised minimum combustion chamber operating temperature from 1,298 °F to 1,342 °F • Revised minimum pressure drop from 29.6 to 31.0 inches of water • Revised minimum pressure drop of sorbent polymer catalyst composite material adsorber (ID No. CD-04) from 0.17 to 0.19 inches of water column
29-36	Section 4	• Updated to latest version of DAQ shell version 8.0, 07/10/2024

Title V Equipment Editor (TVEE)

TVEE was updated as part of this permitting action and was reviewed and approved on January 22, 2025 by Connie Horne of DAQ.

5. Regulatory Review

The following regulations were reviewed as part of this application for minor modification:

- 15A NCAC 02D .0516, Sulfur Dioxide Emissions from Combustion Sources
- 15A NCAC 02D .0524, New Source Performance Standards (40 CFR Part 60 Subpart O)
- 15A NCAC 02D .0614, Compliance Assurance Monitoring
- 15A NCAC 02D .1110, National Emission Standards for Hazardous Air Pollutants (40 CFR Part 61 Subparts C and E)
- 15A NCAC 02D .1204, Sewage Sludge Incineration Units
- 15A NCAC 02Q .0317, Avoidance of PSD (NOx)
- 15A NCAC 02Q .0308(a) and 02Q .0309(b), Disclosure of Information Relating to Emissions of Fluorinated Chemicals
- 40 CFR Part 62 Subpart LLL, Federal Plan Requirements for Sewage Sludge Incineration Units Constructed on or Before October 4, 2010
- 40 CFR Part 503 Subpart E, Incineration

a. <u>15A NCAC 02D .0516, Sulfur Dioxide Emissions from Combustion Sources</u>

This rule requires that emissions of sulfur dioxide from any source of combustion, including air pollution control devices, discharged from any vent, stack, chimney, or flare shall not exceed 2.3 pounds of sulfur dioxide per million Btu heat input.

A source subject to an emission standard for sulfur dioxide in Rules 02D .0524, .0527, .1110, .1111, .1206, or .1210 shall meet the standard in that particular rule instead of the emission standard under 02D .0516. The fluidized bed sewage sludge incinerator (ID No. ES-01) at City of High Point is not subject to a sulfur dioxide standard under any of those rules, so the sewage sludge incinerator (ID No. ES-01) at City of High Point is subject to the sulfur dioxide emission standard under 02D .0516.

The incinerator (ID No. ES-01) fires natural gas and No. 2 fuel oil as needed.

As per AP-42 Section 1.4, Natural Gas Combustion, the sulfur dioxide emission factor for natural gas combustion is 0.6 lb/10^6 scf. Using a standard natural gas heating value of 1,020 Btu/scf, this emission factor can be converted to a value of 0.0006 pounds per million Btu heat input.

Furthermore, No. 2 fuel oil has a maximum sulfur content of 0.5% by weight. This value translates to a value of 0.51 pounds per million Btu using the SO2 emission factor of 142*(Sulfur%) given in AP-42 Section 1.3 and assuming a fuel heating value of 140 million Btu per thousand gallons.

Thus, emissions of SO2 from combustion of both natural gas and No. 2 fuel oil in the sewage sludge incinerator are below the allowable SO2 emission rate of 2.3 pounds per million Btu, and compliance with 02D .0516 is indicated.

Due to the inherently low sulfur content of natural gas and No. 2 fuel oil, no monitoring, recordkeeping, or reporting is required to demonstrate compliance with 02D .0516.

No changes to the current permit requirements are required as part of this minor modification.

b. <u>15A NCAC 02D .0524, New Source Performance Standards (40 CFR Part 60 Subpart O)</u>

See Section 6.a below for a discussion of NSPS applicability.

c. 15A NCAC 02D .0614, Compliance Assurance Monitoring

See Section 6.e below for a discussion of CAM applicability.

d. 15A NCAC 02D .1110, National Emission Standards for Hazardous Air Pollutants (40 CFR Part 61 Subparts C and E)

See Section 6.b below for a discussion of NESHAP applicability.

e. 15A NCAC 02D .1204, Sewage Sludge Incinerators

This rule is state-enforceable only and applies to sewage sludge incineration (SSI) units that meet all three requirements listed in 40 CFR 60.5060(a) through (c), including (1) SSI units that commenced construction on or before October 14, 2010, (2) SSI units that meet the definition of SSI unit as defined in 60.5250, and (3) SSI units not exempt under 60.5065. The fluidized bed sewage sludge incinerator (ID No. ES-01) at City of High Point is subject to this rule.

The Permittee shall meet the emission standards provided in 15A NCAC 02D .1204(e)(1) through (15). As per 15A NCAC 02D .1204(b), when the provisions of this rule and provisions of 15A NCAC 02D .0524, .1110, or .1111 or provisions of 40 CFR Part 61, Subpart C; 40 CFR Part 61, Subpart E; or 40 CFR Part 503, Subpart E, regulate the same pollutant, the provisions of the more restrictive standards established in Paragraphs (e) and (f) of this Rule shall apply, notwithstanding provisions of 15A NCAC 02D .0524, .1110, or .1111 or provisions of 40 CFR Part 61, Subpart C; 40 CFR Part 61, Subpart E; or 40 CFR Part 503, Subpart E to the contrary.

As per 15A NCAC 02D .1204(f), the owner or operator of an SSI unit shall meet the following operating limits:

(1) as applicable, the operating limits and requirements specified in 40 CFR 60.5170 including subparagraphs (a) through (d) and (h) according to the schedule specified in 40 CFR 60.5170(e);
(2) the operating limits and requirements specified in 40 CFR 60.5170 including subparagraphs (a) through (d) by the final compliance date specified in paragraph (n) of this rule;
(3) monitor the feed rate and moisture content of the sewage sludge fed to the sewage sludge incinerator, as specified in 40 CFR 60.5170(f)(1) and (f)(2); and
(4) the operating requirements in 40 CFR 60.5170(a) through (d) and (h) shall meet any new operating limits, re-established in accordance with 40 CFR 60.5210.

As per 40 CFR 60.5170(a) through (h):

(a) You must meet a site-specific operating limit for minimum operating temperature of the combustion chamber (or afterburner combustion chamber) that you establish in 60.5190.

(b) If you use a wet scrubber, electrostatic precipitator, activated carbon injection, or afterburner to comply with an emission limit, you must meet the site-specific operating limits that you establish in 60.5190 for each operating parameter associated with each air pollution control device.

(c) If you use a fabric filter to comply with the emission limits, you must install the bag leak detection system specified in 60.5200(b) and 60.5225(b)(3)(i) and operate the bag leak detection system such that the alarm does not sound more than 5 percent of the operating time during a 6-month period. You must calculate the alarm time as specified in 60.5210(a)(2)(i).

(d) You must meet the operating requirements in your site-specific fugitive emission monitoring plan, submitted as specified in 60.5200(d) to ensure that your ash handling system will meet the emission standard for fugitive emissions from ash handling.

(e) You must meet the operating limits and requirements specified in paragraphs (a) through (d) of this section by the final compliance date under the approved state plan, Federal plan, or delegation, as applicable.

(f) You must monitor the feed rate and moisture content of the sewage sludge fed to the sewage sludge incinerator, as specified in paragraphs (f)(1) and (f)(2) of this section.

(1) Continuously monitor the sewage sludge feed rate and calculate a daily average for all hours of operation during each 24-hour period. Keep a record of the daily average feed rate, as specified in 60.5230(f)(3)(ii).

(2) Take at least one grab sample per day of the sewage sludge fed to the sewage sludge incinerator. If you take more than one grab sample in a day, calculate the daily average for the grab samples. Keep a record of the daily average moisture content, as specified in 60.5230(f)(3)(ii).

(g) For the operating limits and requirements specified in paragraphs (a) through (d) and (h) of this section, you must meet any new operating limits and requirements, re-established according to 60.5210(d).

(h) If you use an air pollution control device other than a wet scrubber, fabric filter, electrostatic precipitator, or activated carbon injection to comply with the emission limits in Table 2 or 3 to this subpart, you must meet any site-specific operating limits or requirements that you establish as required in 60.5175.

Currently, City of High Point complies with the following established operating limits in Table 5.1 below, taken from Condition 2.1 A.5.c of Permit No. 08074T17:

Table 5.1: Current Permitted Operating Limits per 02D .1204

Source or Control Device	Operating Parameter/Operating Requirement	Operating Limit	Data Averaging Period for Compliance	Allowable Variance*
Sewage Sludge Incinerator (**ID No. ES-01**)	minimum combustion chamber operating temperature	1,298^{0}F	12-hour block	Accuracy percentage of ±1.0 percent of the temperature measured
Wet Scrubber (**ID No. CD-01**)	minimum pressure drop across scrubber	29.6 inches of H_2O	12-hour block	Accuracy percentage of ±5 percent
	minimum scrubber liquid flow rate	280 gallons per minute	12-hour block	Accuracy percentage of ±5 percent
	minimum scrubber liquid pH	2.9	3-hour block	Accuracy value of ±0.2 pH units
Sorbent Polymer Catalyst Composite Material Adsorber (**ID No. CD-04**)	site-specific operating limits or requirements per 40 CFR 60.5170(h) and 40 CFR 60.5175	-	-	-
	minimum pressure drop across scrubber	0.17 inch of H_2O	12-hour block	Accuracy percentage of ±5 percent
Ash Handling System of Sewage Sludge Incinerator (**ID No. ES-01**)	site-specific fugitive emissions monitoring plan for operating requirements for ash handling system per 40 CFR 60.5200	-	-	-

As per 40 CFR 60.5120(d), operating limits and requirements may be re-established according to the following:

(d) You must confirm your operating limits according to paragraph (d)(1) of this section or re-establish operating limits according to paragraph (d)(2) of this section. Your operating limits must be established so as to assure ongoing compliance with the emission limits. These requirements also apply to your operating requirements in your fugitive emissions monitoring plan specified in 60.5170(d).

(1) Your operating limits must be based on operating data recorded during any performance test required in 60.5205(a) or any performance evaluation required in 60.5205(b)(4).

(2) You may conduct a repeat performance test at any time to establish new values for the operating limits to apply from that point forward

Additionally, as per Condition No. 2.1 A.5.e:

e. For the operating requirements in 40 CFR 60.5170(a) through (d) and (h), as specified in Section 2.1 A.5.c above, the Permittee shall either confirm the operating limits or reestablish the operating limits, in accordance with 40 CFR 60.5210(d). This requirement shall also apply to the operating requirements for fugitive emissions monitoring plan for ash handling system, specified in §60.5170(d).
- *i. Compliance with the parameters in Section 2.1 A.5.c above is not required during performance testing.*
- *ii. If the Permittee conducts testing that results in monitoring parameter(s) that:*
  - *(A) are greater (i.e., more stringent) than those in Section 2.1 A.5.c above, the Permittee shall submit a request to revise the value(s) within 60 days of conducting a stack test. The permit revision will be processed pursuant to 15A NCAC 02Q .0514.*
  - *(B) are less (i.e., less stringent) than those in Section 2.1 A.5.c above, the Permittee may request to revise the value(s) in the permit pursuant to 15A NCAC 02Q .0515.*
  - *(C) are both more stringent (e.g., scrubber liquid flow rate is higher than the minimum value in Section 2.1A.5.c above) and less stringent (e.g., combustion chamber operating temperature is less than the minimum value prescribed in Section 2.1 A.5.c above), the Permittee shall request only one permit modification pursuant to 15A NCAC 02Q .0515 to revise the pertinent values in the permit, within 60 days of conducting a stack test.*

City of High Point conducted performance testing on May 28-30, 2024 to re-establish several operating limits including the minimum combustion chamber operating temperature for the incinerator (ID No. ES-01), the minimum pressure drop of the wet scrubber (ID No. CD-01), the minimum pressure drop of the sorbent polymer catalyst composite material adsorber (ID No. CD-04), and the maximum charge rate of the sewage sludge incinerator (ID No. ES-01). In accordance with the requirements of Condition No. 2.1 A.5.e above, City of High Point has submitted an application for minor modification on July 29, 2024 to revise several operating limits that are both more stringent and less stringent than the currently permitted operating limits.

As per 15A NCAC 02D .1204(h)(2), operating limits shall be established in accordance with the requirements of 40 CFR 60.5190(a) through (f), as applicable.

<u>Minimum Combustion Chamber Operating Temperature of Incinerator (ID No. ES-01)</u>

According to 40 CFR 60.5190(e):

Minimum combustion chamber operating temperature (or minimum afterburner temperature), [shall be] equal to the lowest 4-hour average combustion chamber operating temperature (or afterburner temperature) measured during the most recent performance test demonstrating compliance with all applicable emission limits.

On May 28-30, 2024, performance testing was conducted on the incinerator to re-establish the operating limit for combustion chamber temperature. The results were submitted to DAQ on July 22, 2024 and reviewed and approved by SSCB on November 22, 2024. The emission rate of each pollutant measured during testing was found to be in compliance with all applicable standards.

According to the SSCB stack test review memo, the lowest 4-hour average combustion chamber temperature during the May 2024 performance testing was 1,342 °F. This temperature is more stringent than the current operating temperature limit of 1,298 °F. Thus, City of High Point shall operate the incinerator (ID No. ES-01) combustion chamber temperature at a minimum temperature of 1,342 °F. Permit Condition No. 2.1 A.5.c shall be updated with the revised operating temperature with this permitting action.

Minimum Pressure Drop Across Wet Scrubber (ID No. CD-01)

According to 40 CFR 60.5190(b) and (c):

(b) Minimum pressure drop across each wet scrubber used to meet the particulate matter, lead, and cadmium emission limits in Table 2 or 3 to this subpart, equal to the lowest 4-hour average pressure drop across each such wet scrubber measured during the most recent performance test demonstrating compliance with the particulate matter, lead, and cadmium emission limits.

(c) Minimum scrubber liquid flow rate (measured at the inlet to each wet scrubber), equal to the lowest 4-hour average liquid flow rate measured during the most recent performance test demonstrating compliance with all applicable emission limits.

On May 28-30, 2024, performance testing was conducted on the incinerator to re-establish the operating limit for pressure drop across the wet scrubber (ID No. CD-01). The results were submitted to DAQ on July 22, 2024 and reviewed and approved by SSCB on November 22, 2024. The emission rate of each pollutant measured during testing was found to be in compliance with all applicable standards.

According to the SSCB stack test review memo, the lowest 4-hour average pressure drop across the wet scrubber (ID No. CD-01) during the May 2024 performance testing was 31.0 inches of water column. This pressure drop is more stringent than the current operating pressure drop limit of 29.6 inches of water column. Thus, City of High Point shall operate the wet scrubber (ID No. CD-01) at a minimum pressure drop across the scrubber of 31.0 inches of water column. Permit Condition No. 2.1 A.5.c shall be updated with the revised operating pressure drop with this permitting action.

Minimum Pressure Drop Across Sorbent Polymer Catalyst Material Adsorber (ID No. CD-04)

According to 40 CFR 60.5175, if a Permittee uses an air pollution control device other than a wet scrubber, fabric filter, electrostatic precipitator, activated carbon injection, or afterburner, the Permittee shall meet the requirements of 60.5175(a) and (b). As per 60.5175(a), the Permittee shall meet the applicable operating limits and requirements of 60.4850. As per 60.4850(h):

If you use an air pollution control device other than a wet scrubber, fabric filter, electrostatic precipitator, or activated carbon injection to comply with the emission limits in Table 1 or 2 to this subpart, you must meet any site-specific operating limits or requirements that you establish as required in 60.4855.

On September 4, 2020, DAQ received a site-specific monitoring plan for the sorbent polymer catalyst composite material adsorber (ID No. CD-04) which established an initial minimum operating pressure drop limit based on performance testing conducted in December 2018 and indicated that the facility will monitor and record pressure drop across the material adsorber to ensure compliance with the applicable emission standards.

On May 28-30, 2024, performance testing was conducted on the incinerator (ID No. ES-01) to re-establish the operating limit for pressure drop across the sorbent polymer catalyst composite material adsorber (ID No. CD-04). The results were submitted to DAQ on July 22, 2024 and reviewed and approved by SSCB on

November 22, 2024. The emission rate of each pollutant measured during testing was found to be in compliance with all applicable standards.

According to the SSCB stack test review memo, the lowest 4-hour average pressure drop across the sorbent polymer catalyst composite material adsorber (ID No. CD-04) during the May 2024 performance testing was 0.19 inches of water column. This pressure drop is more stringent than the current operating pressure drop limit of 0.17 inches of water column. Thus, City of High Point shall operate the sorbent polymer catalyst composite material adsorber (ID No. CD-04) at a minimum pressure drop across the scrubber of 0.19 inches of water column. Permit Condition No. 2.1 A.5.c shall be updated with the revised operating pressure drop with this permitting action.

Maximum Charge Rate of the Incinerator (ID No. ES-01)

15A NCAC 02D .1204(j)(1) requires that the owner or operator of a SSI unit subject to this rule (02D .1204) shall demonstrate compliance with the emission standards in 02D .1204(e)(1) through (e)(13) and (15) by meeting the performance testing requirements specified in 40 CFR 60.5220(a)(1) through (11).

According to 40 CFR 60.5220(a)(11), during each test run specified in 40 CFR 60.5220(a)(1), the Permittee shall operate the sewage sludge incinerator at a minimum of 85 percent of the maximum permitted capacity.

Currently, Section 1 of the permit lists a maximum charge rate of the incinerator of 2,049 pounds of dry sludge per hour which is based on the prior performance test results where the Permittee operated the incinerator at a minimum charge rate of 1,742 pounds of dry sludge per hour during testing (1,742 lbs / 0.85 = 2,049 lbs).

On May 28-30, 2024, performance testing was conducted on the incinerator to re-establish various operating limits. The results were submitted to DAQ on July 22, 2024 and reviewed and approved by SSCB on November 22, 2024. The emission rate of each pollutant measured during testing was found to be in compliance with all applicable standards.

During the May 2024 performance testing, as noted in a spreadsheet sent by Keith McCullock of GEL Engineering via email on November 7, 2024, the incinerator was operated with a minimum average charge rate during any test run of 2,312 pounds of dry sludge per hour. This minimum charge rate occurred during Test Run 1 of the mercury (Hg) testing. The Permittee has requested a maximum charge rate of 2,750 pounds of dry sludge per hour. However, the minimum charge rate during testing was only approximately 84.1% of this requested maximum charge rate (2,312 lbs / 2,750 lbs). The minimum charge rate during testing of 2,312 pounds of dry sludge per hour supports a maximum charge rate of 2,720 pounds of dry sludge per hour (2,312 lbs / 85% = 2,720 lbs). Therefore, the permitted maximum charge rate of the incinerator listed in the Section 1 table will be revised to 2,720 pounds of dry sludge per hour with this permitting action.

It should be noted that the November 22, 2024 stack test review memo indicates that a permitted maximum charge rate of 2,750 pounds of dry sludge per hour is supported by the stack testing results based on the provisions of 40 CFR 60.5220(a)(10). 40 CFR 60.5220(a)(10) states the following:

"Unless otherwise specified in this subpart, each performance test must consist of three separate runs using the applicable test method. Each run must be conducted for the time and under the conditions specified in the applicable standard. Compliance with each emission limit must be determined by calculating the arithmetic mean of the three runs. ***In the event that a sample is accidentally lost or conditions occur in which one of the three runs must be discontinued because of forced shutdown, failure of an irreplaceable portion of the sample train, extreme meteorological conditions, or other circumstances, beyond your control, compliance may, upon the Administrator's approval, be determined using the arithmetic mean of the results of the two other runs****."*

This provision allows for a compliance determination to be made based on the results of only two test runs (instead of three) in the event that a sample is lost or conditions occur in which one of the three runs must be discontinued due to circumstances beyond the facility's control.

The November 22, 2024 stack test review memo states that "*The run 2 and 3 Hg results averaged by DAQ were 0.000172 lb/hr, 1.87 g/24hr-day, 0.00412 lb/24hr-day, and 0.00953 mg/dscm @ 7% O2. These results indicate compliance was maintained at dry sludge charge rates greater than 85% of the previous 08074T16 permit maximum of 2,750 lb/hr*." Thus, the stack test review memo is indicating that, if the Test Run 1 results of the Hg testing are not included in the compliance determination, then the May 2024 testing is supportive of a maximum charge rate of the full requested amount of 2,750 pounds of dry sludge per hour. However, since no event occurred during testing in which a sample was lost or conditions occurred such that one of the three runs needed to be discontinued because of circumstances beyond the facility's control, the provisions of 40 CFR 60.5220(a)(10) do not apply, and Test Run 1 of the Hg testing must be included in the compliance determination. Since the charge rate during this test run was only 2,312 pounds of dry sludge per hour, the maximum charge rate of the incinerator shall be only 2,720 pounds of dry sludge per hour.

Monitoring, Recordkeeping, and Reporting Requirements

With this application for minor modification, City of High Point shall continue to comply with all currently required monitoring, recordkeeping, and reporting. This includes a requirement to install, operate, calibrate, and maintain the continuous parameter monitoring systems to ensure compliance with all applicable operating limits. The Permittee shall keep records of the continuous monitoring data, any inspections, calibrations, and validation checks of the monitoring devices, the monitoring plan and performance evaluations for the continuous monitoring systems, and any deviations from the requirements of the permit. The Permittee shall submit a semiannual summary report of all monitoring and recordkeeping activities. No changes to the monitoring, recordkeeping, or reporting requirements of the permit will be made with this minor modification.

f. 15A NCAC 02Q .0317, Avoidance of PSD (NOx)

This rule applies facility wide. In order to avoid applicability of 15A NCAC 02D .0530(g), facility-wide emissions of NOx shall be limited to less than 250 tons per consecutive 12-month period.

To ensure compliance with this condition, the Permittee shall keep monthly records of the hours of operation for each of the No. 2 fuel oil-fired generators (ID Nos. ES-03, ES-04, and ES-05) and calculate, on a monthly basis, the total hours of operation for each consecutive 12-month period of all the generators. The Permittee shall submit a semiannual summary report of the monitoring and recordkeeping activities.

No monitoring, recordkeeping, or reporting is required for operation of the incinerator (ID No. ES-01) to ensure compliance with this condition. NOx emissions from the incinerator are not expected to change or increase. No changes to the current permit requirements are required as part of this minor modification.

g. 15A NCAC 02Q .0308(a) and 02Q .0309(b), Disclosure of Information Relating to Emissions of Fluorinated Chemicals

North Carolina DEQ is working to address the environmental impacts of PFAS, or per- and poly-fluoroalkyl substances. DEQ is advancing science-based, standards-setting approach for thorough permitting of PFAS releases into the environment. DEQ believes that the standards-based permit limits reduce the PFAS compounds entering the environment, give the industrial community certainty and set clear targets for PFAS reductions. Accordingly, to undertake any future standards-setting for PFAS emissions, the DEQ is currently collecting information on PFAS uses, creation (product or byproduct), and its environmental releases through a set of screening-questions from some air quality permit-applicants.

The facility was sent a PFAS questionnaire on February 16, 2024 as part of the T17 review. A response was received on February 21, 2024. A reporting condition, 15A NCAC 02Q .0308 and .0309 for "Disclosure of

Information Relating to Emissions of Fluorinated Chemicals", was added to the permit. This condition is state-enforceable only and states that the facility must disclose the presence of PFAS containing materials to DAQ within thirty days of becoming aware of such information. Additionally, DAQ may require testing or analysis of the materials to properly evaluate emissions sources at the facility.

No changes to the current permit requirements are required as part of this minor modification.

h. 40 CFR Part 62 Subpart LLL, Federal Plan Requirements for Sewage Sludge Incineration Units Constructed on or Before October 4, 2010

This rule applies to sewage sludge incineration (SSI) units that meet all three requirements listed in 40 CFR 62.15855 including (1) SSI units that commenced construction on or before October 14, 2010, (2) SSI units that meet the definition of SSI unit as defined in 62.16045, and (3) SSI units not exempt under 62.15860. The fluidized bed sewage sludge incinerator (ID No. ES-01) at City of High Point is subject to this rule.

Permit Condition No. 2.1 A.6.h requires that the operating requirements in 40 CFR 62.15960(a) through (d) shall be either confirmed or reestablished in accordance with 40 CFR 62.16005(d). Additionally, Permit Condition No. 2.1 A.6.h.ii states the following:

ii. If the Permittee conducts testing that results in monitoring parameter(s) that:
(A) are greater (i.e., more stringent) than those in Section 2.1 A.6.f above, the Permittee shall submit a request to revise the value(s) within 60 days of conducting a stack test. The permit revision will be processed pursuant to 15A NCAC 02Q .0514.
(B) are less (i.e., less stringent) than those in Section 2.1 A.6.f above, the Permittee may request to revise the value(s) in the permit pursuant to 15A NCAC 02Q .0515.
(C) are both more stringent (e.g., scrubber liquid flow rate is higher than the minimum value in Section 2.1 A.6.f above) and less stringent (e.g., combustion chamber operating temperature is less than the minimum value prescribed in Section 2.1 A.6.f above), the Permittee shall request only one permit modification pursuant to 15A NCAC 02Q .0515 to revise the pertinent values in the permit, within 60 days of conducting a stack test.

40 CFR 62.16005(d) states:

(d) You must confirm your operating limits according to paragraph (d)(1) of this section or re-establish operating limits according to paragraph (d)(2) of this section. Your operating limits must be established so as to assure ongoing compliance with the emission limits. These requirements also apply to your operating requirements in your fugitive emissions monitoring plan specified in § 62.15960(d).

(1) Your operating limits must be based on operating data recorded during any performance test required in § 62.16000(a) or any performance evaluation required in § 62.16000(b)(4).

(2) You may conduct a repeat performance test at any time to establish new values for the operating limits to apply from that point forward.

Furthermore, 40 CFR 62.15960(a) through (d) state:

You must meet, as applicable, the operating limits and requirements specified in paragraphs (a) through (d) and (h) of this section, according to the schedule specified in paragraph (e) of this section. The operating parameters for which you will establish operating limits for a wet scrubber, fabric filter, electrostatic precipitator or activated carbon injection are listed in Table 4 to this subpart. You must comply with the operating requirements in paragraph (f) of this section and the requirements in paragraph (g) of this section for meeting any new operating limits, re-established in § 62.16005. The operating limits apply at all times that sewage sludge is in the combustion chamber (i.e., until the sewage sludge feed to the combustor has been cut off for a period of time not less than the sewage sludge incineration residence time):

(a) You must meet a site-specific operating limit for minimum operating temperature of the combustion chamber (or afterburner combustion chamber) that you establish in § 62.15985;

(b) If you use a wet scrubber, electrostatic precipitator, activated carbon injection or afterburner to comply with an emission limit, you must meet the site-specific operating limits that you establish in § 62.15985 for each operating parameter associated with each air pollution control device;

(c) If you use a fabric filter to comply with the emission limits, you must install the bag leak detection system specified in §§ 62.15995(b) and 62.16020(b)(3)(i) and operate the bag leak detection system such that the alarm does not sound more than 5-percent of the operating time during a 6-month period. You must calculate the alarm time as specified in § 62.16005(a)(2)(i);

(d) You must meet the operating requirements in your site-specific fugitive emission monitoring plan, submitted as specified in § 62.15995(d) to ensure that your ash handling system will meet the emission standard for fugitive emissions from ash handling;

The following Table 5.2 shows the currently permitted operating limits for the incinerator (ID No. ES-01):

Table 5.2: Current Permitted Operating Limits per 40 CFR 62 Subpart LLL

Source or Control Device	Operating Parameter/Operating Requirement	Operating Limit	Data Averaging Period for Compliance	Allowable Variance*
Sewage Sludge Incinerator (**ID No. ES-01**)	minimum combustion chamber operating temperature	1,298^{0}F	12-hour block	Accuracy percentage of ±1.0 percent of the temperature measured
Wet Scrubber (**ID No. CD-01**)	minimum pressure drop across scrubber	29.6 inches of H_2O	12-hour block	Accuracy percentage of ±5 percent
	minimum scrubber liquid flow rate	280 gallons per minute	12-hour block	Accuracy percentage of ±5 percent
	minimum scrubber liquid pH	2.9	3-hour block	Accuracy value of ±0.2 pH units
Sorbent Polymer Catalyst Composite Material Adsorber (**ID No. CD-04**)	site-specific operating limits or requirements per 40 CFR 62.15960(h) and 40 CFR 62.15965.	-	-	-
	minimum pressure drop across adsorber	0.17 inch of H_2O	12-hour block	Accuracy percentage of ±5 percent
Ash Handling System of Sewage Sludge Incinerator (**ID No. ES-01**)	site-specific fugitive emissions monitoring plan for operating requirements for ash handling system per 40 CFR 62.15960(d) and 62.15995(d).	-	-	-

City of High Point conducted performance testing on May 28-30, 2024 to re-establish several operating limits including the minimum combustion chamber operating temperature for the incinerator (ID No. ES-01), the minimum pressure drop of the wet scrubber (ID No. CD-01), and the minimum pressure drop of the sorbent polymer catalyst composite material adsorber (ID No. CD-04). In accordance with the requirements of Condition No. 2.1 A.6.h above, City of High Point submitted an application for minor modification on July 29, 2024 to revise several operating limits that are both more stringent and less stringent than the currently permitted operating limits.

Minimum Combustion Chamber Operating Temperature of Incinerator (ID No. ES-01)

According to 40 CFR 62.15985(e):

Minimum combustion chamber operating temperature (or minimum afterburner temperature), [shall be] equal to the lowest 4-hour average combustion chamber operating temperature (or afterburner temperature) measured during the most recent performance test demonstrating compliance with all applicable emission limits.

On May 28-30, 2024, performance testing was conducted on the incinerator to re-establish the operating limit for combustion chamber temperature of the SSI unit. The results were submitted to DAQ on July 22, 2024 and reviewed and approved by SSCB on November 22, 2024. The emission rate of each pollutant measured during testing was found to be in compliance with all applicable standards.

According to the SSCB stack test review memo, the lowest 4-hour average combustion chamber temperature of the incinerator during the May 2024 performance testing was 1,342 °F. This temperature is more stringent than the current operating temperature limit of 1,298 °F. Thus, City of High Point shall operate the incinerator (ID No. ES-01) combustion chamber temperature at a minimum temperature of 1,342 °F. Permit Condition No. 2.1 A.6.f shall be updated with the revised operating temperature with this permitting action.

Minimum Pressure Drop Across Wet Scrubber (ID No. CD-01)

According to 40 CFR 62.15985(b) and (c):

(b) Minimum pressure drop across each wet scrubber used to meet the particulate matter, lead, and cadmium emission limits in Table 2 or 3 to this subpart, equal to the lowest 4-hour average pressure drop across each such wet scrubber measured during the most recent performance test demonstrating compliance with the particulate matter, lead, and cadmium emission limits.

(c) Minimum scrubber liquid flow rate (measured at the inlet to each wet scrubber), equal to the lowest 4-hour average liquid flow rate measured during the most recent performance test demonstrating compliance with all applicable emission limits.

According to the SSCB stack test review memo, the lowest 4-hour average pressure drop across the wet scrubber (ID No. CD-01) during the May 2024 performance testing was 31.0 inches of water column. This pressure drop is more stringent than the current operating pressure drop limit of 29.6 inches of water column. Thus, City of High Point shall operate the wet scrubber (ID No. CD-01) at a minimum pressure drop across the scrubber of 31.0 inches of water column. Permit Condition No. 2.1 A.6.f shall be updated with the revised operating pressure drop with this permitting action.

Minimum Pressure Drop Across Sorbent Polymer Catalyst Composite Material Adsorber (ID No. CD-04)

According to 40 CFR 62.15965, if a Permittee uses an air pollution control device other than a wet scrubber, fabric filter, electrostatic precipitator, activated carbon injection, or afterburner, the Permittee shall meet the requirements of 62.15965(a) and (b). As per 62.15965(a), the Permittee shall meet the applicable operating limits and requirements of 60.4850. As per 60.4850(h):

If you use an air pollution control device other than a wet scrubber, fabric filter, electrostatic precipitator, or activated carbon injection to comply with the emission limits in Table 1 or 2 to this subpart, you must meet any site-specific operating limits or requirements that you establish as required in 60.4855.

On September 4, 2020, DAQ received a site-specific monitoring plan for the sorbent polymer catalyst composite material adsorber (ID No. CD-04) which established an initial minimum operating pressure drop limit based on performance testing conducted in December 2018 and indicated that the facility will monitor

and record pressure drop across the material adsorber to ensure compliance with the applicable emission standards.

According to the SSCB stack test review memo, the lowest 4-hour average pressure drop across the sorbent polymer catalyst composite material adsorber (ID No. CD-04) during the May 2024 performance testing was 0.19 inches of water column. This pressure drop is more stringent than the current operating pressure drop limit of 0.17 inches of water column. Thus, City of High Point shall operate the sorbent polymer catalyst material adsorber (ID No. CD-04) at a minimum pressure drop across the scrubber of 0.19 inches of water column. Permit Condition No. 2.1 A.6.f shall be updated with the revised operating pressure drop with this permitting action.

Maximum Charge Rate of the Incinerator (ID No. ES-01)

According to 40 CFR 62.16015(a)(11), during each test run specified in 40 CFR 62.16015(a)(1), the Permittee shall operate the sewage sludge incinerator at a minimum of 85 percent of the maximum permitted capacity.

Currently, Section 1 of the permit lists a maximum charge rate of the incinerator of 2,049 pounds of dry sludge per hour which is based on the prior performance test results where the Permittee operated the incinerator at a minimum charge rate of 1,742 pounds of dry sludge per hour during testing (1,742 lbs / 0.85 = 2,049 lbs).

On May 28-30, 2024, performance testing was conducted on the incinerator to re-establish various operating limits. The results were submitted to DAQ on July 22, 2024 and reviewed and approved by SSCB on November 22, 2024. The emission rate of each pollutant measured during testing was found to be in compliance with all applicable standards.

During the May 2024 performance testing, as noted in a spreadsheet sent by Keith McCullock of GEL Engineering via email on November 7, 2024, the incinerator was operated with a minimum average charge rate during any test run of 2,312 pounds of dry sludge per hour. This minimum charge rate occurred during Test Run 1 of the mercury (Hg) testing. The Permittee has requested a maximum charge rate of 2,750 pounds of dry sludge per hour. However, the minimum charge rate during testing was only approximately 84.1% of this requested maximum charge rate (2,312 lbs / 2,750 lbs). The minimum charge rate during testing of 2,312 pounds of dry sludge per hour supports a maximum charge rate of 2,720 pounds of dry sludge per hour (2,312 lbs / 85% = 2,720 lbs). Therefore, the permitted maximum charge rate of the incinerator listed in the Section 1 table will be revised to 2,720 pounds of dry sludge per hour with this permitting action.

Monitoring, Recordkeeping, and Reporting Requirements

With this application for minor modification, City of High Point shall continue to comply with all currently required monitoring, recordkeeping, and reporting. This includes a requirement to install, operate, calibrate, and maintain the continuous parameter monitoring systems to ensure compliance with all applicable operating limits. The Permittee shall keep records of the continuous monitoring data, any inspections, calibrations, and validation checks of the monitoring devices, the monitoring plan and performance evaluations for the continuous monitoring systems, and any deviations from the requirements of the permit. The Permittee shall submit a semiannual summary report of all monitoring and recordkeeping activities. No changes to the monitoring, recordkeeping, or reporting requirements of the permit will be made with this minor modification.

i. 40 CFR Part 503 Subpart E, Incineration

As per 40 CFR 503.40, (a) this rule applies to a person who fires sewage sludge in a sewage sludge incinerator, to a sewage sludge incinerator, and to sewage sludge fired in a sewage sludge incinerator; and (b) this rule applies to the exit gas from a sewage sludge incinerator stack. Therefore, this rule applies to the sewage sludge incinerator (ID No. ES-01).

As per Permit Condition No. 2.1 A.7.(b), the average daily lead concentration in the sewage sludge fed into the incinerator (ID No. ES-01) shall not exceed a maximum concentration of 6,077 mg/kg.

As per Permit Condition No. 2.1 A.7.(c), the average daily concentrations of arsenic, cadmium, and nickel in the sewage sludge fed into the incinerator (ID No. ES-01) shall not exceed the following maximum concentrations:

518 mg/kg (arsenic)
3,592 mg/kg (cadmium)
184,341 mg/kg (chromium)
103,128 mg/kg (nickel)

To ensure compliance with the above emissions limits, the Permittee shall install, calibrate, operate, and maintain continuous monitoring and recording devices for the carbon monoxide concentrations, oxygen concentration, and moisture content of the incinerator (ID No. ES-01). Additionally, the Permittee shall not operate the incinerator such that the combustion temperatures exceed the combustion temperature achieved during the performance testing by more than 20%.

The Permittee shall keep a variety of records to ensure compliance including records of the lead, arsenic, cadmium, chromium, and nickel concentrations in the sewage sludge fed to the incinerator, combustion temperatures of the incinerator, operating parameter values for air pollution control devices, oxygen concentration and moisture content of the incinerator exit gas, and the sewage sludge feed rate to the incinerator. The Permittee shall submit an annual report including a summary of the monitoring and recordkeeping activities.

No operating parameters are explicitly listed in this permit condition, so no updates to the operating parameters for this condition are required as part of this minor modification.

6. NSPS, NESHAP/MACT, PSD, 112(r), and CAM Applicability

a. NSPS

The sewage sludge incinerator (ID No. ES-01) located at the City of High Point – Eastside Wastewater Treatment Plant is subject to the following rule under 40 CFR Part 60:

40 CFR Part 60 Subpart O – Standards of Performance for Sewage Treatment Plants

As per 40 CFR 60.150(a), this rule applies to each incinerator that combusts wastes containing more than 10 percent sewage sludge (dry basis) produced by municipal sewage treatment plants, or each incinerator that charges more than 1000 kg (2205 lb) per day municipal sewage sludge (dry basis).

Permit Condition No. 2.1 A.2.f.iii states:

Any stack testing conducted pursuant to Section 2.1 A.5.e or Section 2.1 A.6.h below may require revising the operating parameter limits in Section 2.1 A.2.d.ii and Section 2.1 A.2.f.i and ii above with respect to pressure drop of the sorbent polymer catalyst composite material adsorber, pressure drop of the wet scrubber, and average oxygen content of the fluidized bed sewage sludge incinerator's exhaust gas. Permit revision may be processed in accordance with 15A NCAC 02Q .0514 or 02Q .0515, as appropriate. The deadline to submit a permit application shall be 60 days of conducting a test.

City of High Point conducted performance testing on May 28-30, 2024 to re-establish several operating limits including the minimum pressure drop of the wet scrubber (ID No. CD-01), the minimum pressure drop of the sorbent polymer catalyst composite material adsorber (ID No. CD-04), and the average oxygen content of the incinerator's exhaust gas. In accordance with the requirements of Condition No. 2.1 A.2.f.iii above, City of High Point submitted an application for minor modification on July 29, 2024 to revise

several operating limits that are both more stringent and less stringent than the currently permitted operating limits.

Minimum Pressure Drop Across Wet Scrubber (ID No. CD-01)

Per 40 CFR 60.155(a)(1)(i), for incinerators that achieved an average particulate matter emission rate of 0.38 kg/Mg (0.75 lb/ton) dry sludge input or less during the most recent performance test, a scrubber pressure drop reduction of more than 30 percent from the average scrubber pressure drop recorded during the most recent performance test shall be reported.

During the most recent performance test, the incinerator achieved an average particulate matter emission rate of 0.0625 kg/Mg (0.125 lb/ton) with a PM scrubber (ID No. CD-01) minimum 4-hour average pressure drop of 31.0 inches of water column. A 30 percent reduction of this average pressure drop is 21.7 inches of water column, so reporting is required pursuant to 40 CFR 60.155(a)(1)(i) if the scrubber pressure drop is less than 21.7 inches of water column for at least a 15-minute period while sewage sludge is charged into the incinerator during the prior six calendar months.

Permit Condition No. 2.1 A.2.f.i shall be updated with the revised pressure drop of the PM scrubber (ID No. CD-01) with this permitting action.

Minimum Pressure Drop Across Sorbent Polymer Catalyst Composite Material Adsorber (ID No. CD-04)

Permit Condition No. 2.1 A.2.d.ii currently requires that the pressure drop across the sorbent polymer catalyst composite material adsorber (ID No. CD-04) shall be at least 0.17 inches of water column. As stated above, Permit Condition No. 2.1 A.2.f.iii allows revision of the permitted operating parameters based on performance testing.

During the most recent performance test, the lowest 4-hour average pressure drop across the sorbent polymer catalyst composite material adsorber (ID No. CD-04) was 0.19 inches of water column. This pressure drop is more stringent than the current operating pressure drop limit of 0.17 inches of water column. Thus, City of High Point shall operate the sorbent polymer catalyst composite material adsorber (ID No. CD-04) at a minimum pressure drop across the scrubber of 0.19 inches of water column. Permit Condition No. 2.1 A.2.d.ii shall be updated with the revised operating pressure drop with this permitting action.

Average Oxygen Content of the Exhaust Gas of the Incinerator (ID No. ES-01)

Per 40 CFR 60.155(a)(2), for each period of 1-hour duration or more that the oxygen content of the incinerator exhaust gas exceeds the average oxygen content measured during the most recent performance test by more than 3 percent, the Permittee shall report the average oxygen content of the incinerator exhaust gas in the semiannual report.

During the most recent performance test, the incinerator exhaust gas achieved a maximum 1-hour exhaust gas oxygen content of 12.2%. Permit Condition No. 2.1 A.2.f.ii shall be updated with the revised oxygen content in the exhaust gas of the incinerator (ID No. ES-01) with this permitting action.

b. NESHAP/MACT

40 CFR Part 61 Subpart C – National Emission Standard for Beryllium and 40 CFR Part 61 Subpart E – National Emission Standard for Mercury

As per 40 CFR 61.30(a), 40 CFR Part 61 Subpart C applies to incinerators which process beryllium ore, beryllium, beryllium oxide, beryllium alloys, or beryllium-containing waste. The incinerator has a beryllium emission limit of 10 grams (0.022 lb) per 24-hour period.

As per 40 CFR 61.50, 40 CFR Part 61 Subpart E applies to stationary sources which incinerate or dry wastewater treatment plant sludge.

The permit currently requires that the recordkeeping requirements given in Sections 2.1 A.7.f.i.(B) and (C) and the reporting requirements given in Sections 2.1 A.7.g.ii and iii of the permit for 40 CFR Part 503 Subpart E shall be sufficient to ensure compliance with these regulations.

No changes to the current permit requirements are required as part of this minor modification

c. PSD

Guilford County is in attainment or unclassifiable for all promulgated National Ambient Air Quality standards (NAAQS) in accordance with 40 CFR 81.334.

For major stationary sources located in areas designated as attainment with respect to a specific regulated criteria pollutant, the requirements of the PSD program (40 CFR Part 51.166, as incorporated into 15A NCAC 02D .0530) apply. Major stationary sources are those sources with a potential to emit (as defined at 40 CFR 51.166(b)(4)) of a regulated New Source Review (NSR) pollutant of either: 100 tons per year or more if the source is listed in 40 CFR 51.166(b)(1)(i)(A); or 250 tons per year or more in 40 CFR 51.166(b)(1)(i)(B). The subject facility is not one of the stationary sources listed under §51.166(b)(1)(i)(A) and is therefore in the "250 ton" source category.

Since the permit contains a facility-wide PSD avoidance limit of 250 tpy for NOx, and its PTE for all other regulated NSR pollutants are below the above major source threshold, the facility is considered a “minor” stationary source under PSD.

Revision to the monitoring parameters is not expected to result in an increase in emissions and hence does not trigger a PSD applicability review.

Guilford County has triggered increment tracking under PSD for PM10 and SO2. However, this permit modification does not consume or expand increments for any pollutants.

d. 112(r)

The facility is NOT subject to CAA §112(r) and the resulting regulatory requirements in 40 CFR 68 “chemical accident prevention provisions” as the facility does not produce, process, handle, or store any regulated chemicals under this Part above the threshold quantities.

e. CAM

Permit Condition No. 2.1 A.3.d includes the following Table 5.3 for the monitoring approach under CAM (15A NCAC 02D .0614):

Table 5.3: Monitoring Approach for CAM Plan

	Indicator #1 Liquid injection flow rate	**Indicator #2** Pressure Drop
Measurement Approach	Liquid injection flow rate.	Pressure Drop
Indicator Range	An excursion is defined as a 6-hour block average less than the minimum liquid injection flow rate established during most recent performance test (i.e., 6-hour block average < 280 gallons per minute). Excursion	An excursion is defined as a 6-hour block average less than the minimum drop established during most recent performance test (i.e., 6-hour block average < 29.6 inches of water). Excursion triggers an inspection,

	Indicator #1 Liquid injection flow rate	**Indicator #2** Pressure Drop
	triggers an inspection, corrective action and a reporting requirement.	corrective action and a reporting requirement.
QIP Threshold	12-hour block average less than minimum liquid injection flow rate established during most recent performance test (i.e., 12-hour block average < 280 gallons per minute).	12-hour block average less than minimum pressure drop established during most recent performance test (i.e., 12-hour block average < 29.6 inches of water).
Performance Criteria: Data Representativeness	Liquid injection flow rate is measured using the Supervisory Control and Data Acquisition (SCADA) system.	Pressure drop is measured using the SCADA system.
QA/QC Practices and Criteria	QA/QC practices are followed as set forth in 40 CFR Part 62, Subpart LLL. At a minimum, the monitoring device is calibrated as per manufacturer's recommendation.	QA/QC practices are followed as set forth in 40 CFR Part 62, Subpart LLL. At a minimum, the monitoring device is calibrated as per manufacturer's recommendation.
Monitoring Frequency	Monitored Continuously	Monitored Continuously
Data Collection Procedure	As required by 40 CFR Part 62, Subpart LLL, data is recorded at a minimum of every 15 minutes.	As required by 40 CFR Part 62, Subpart LLL, data is recorded at a minimum of every 15 minutes.
Data Averaging Period	6-hour block average	6-hour block average

Pressure drop across the wet scrubber (ID No. CD-01) is an indicator in the existing CAM plan monitoring approach. With this permitting action, the minimum pressure drop of the wet scrubber (ID No. CD-01) will be revised from 29.6 inches of water column to 31.0 inches of water column, as discussed in Sections 5.e and 5.h of this review above.

7. Facility Wide Air Toxics

With this application for minor modification, the toxic air pollutant emission rates of the incinerator are expected to remain unchanged.

Per 02Q .0703, "modification means a physical change or changes in the method of operation that result in a net increase in emissions or ambient concentration of a pollutant listed in 15A NCAC 02Q .0711 or that result in the emission of any pollutant listed in 15A NCAC 02Q .0711 not previously emitted."

Because no toxic air pollutant emissions are increasing with this project, and no toxic air pollutants are being emitted that were not previously emitted, a modification has not occurred under the definition in 02Q .0703, and a toxics review has not been triggered for this application.

No changes to this permit condition are required as part of this minor modification.

8. Facility Emissions Review

Page 1 of this review includes actual emissions data for calendar years 2019 through 2023.

Emissions changes are also discussed in Section 4 above. Detailed emission calculations are provided in the application.

9. Compliance History

The five-year compliance history for this facility is as follows:

September 6, 2023	A Notice of Violation and Recommendation for Enforcement (NOV/NRE) was issued for failure to conduct an annual internal inspection on the wet scrubber (ID No. CD-01). The facility's response to the violation letter was received on September 15, 2023. On September 25, 2023, DAQ issued a memo to the facility indicating that no enforcement action was recommended. No civil penalty was enforced for this violation. This violation has been resolved according to IBEAM/CMPL-Violations.
August 17, 2023	An NOV/NRE was issued for failure to operate the sewage sludge incinerator (ID No. ES-01) at or above the minimum permitted combustion chamber temperature. The facility's response to the violation letter was received on August 28, 2023. On September 25, 2023, DAQ issued a memo to the facility indicating that no enforcement action was recommended. No civil penalty was enforced for this violation. This violation has been resolved according to IBEAM/CMPL-Violations.
April 18, 2022	An NOV/NRE was issued for violation of the CO emission limit of Permit Condition No. 2.1 A.4.a. The exceedance of the CO emission limit occurred on November 19, 2021. The facility's response to the violation letter was received on May 12, 2022. DAQ and City of High Point entered into a Special Order by Consent (SOC) on July 18, 2022, and a total civil penalty of $24,000 was assessed for all violations covered under the SOC. This violation has been resolved according to IBEAM/CMPL-Violations.
March 31, 2022	An NOV was issued for failure to conduct an annual internal inspection of the bagfilter (ID No. CD-02). The facility's response to the violation letter was received on April 7, 2022. Enforcement was not recommended for this violation. No civil penalty was enforced for this violation. This violation has been resolved according to IBEAM/CMPL-Violations.
December 13, 2021	An NOV/NRE was issued for operating on an expired Title V permit. The facility's response to the violation letter was received on December 22, 2021. DAQ and City of High Point entered into an SOC on July 18, 2022, and a total civil penalty of $24,000 was assessed for all violations covered under the SOC. This violation has been resolved according to IBEAM/CMPL-Violations.
July 28, 2021	An NOV/NRE was issued for failure to operate the sorbent polymer catalyst composite material adsorber (ID No. CD-04) at or above the minimum pressure drop at all times, failure to operate the wet scrubber (ID No. CD-01) at or above the minimum pressure drop at all times, and failure to operate the wet scrubber (ID No. CD-01) at or above the minimum pH. The facility's response to the violation letter was received on August 9, 2021. A civil penalty of $44,364 was assessed for these violations. These violations have been resolved according to IBEAM/CMPL-Violations.
April 23, 2021	An NOV/NRE was issued for violation of the CO emission limit of Permit Condition No. 2.1 A.4 of Air Permit No. 08074T15. The exceedances of the CO emission limit occurred on December 10, 2020. The facility's response to the violation letter was received on May 17, 2021. A civil penalty of $12,457 was assessed for this violation. This violation has been resolved according to IBEAM/CMPL-Violations.
March 5, 2021	An NOV was issued for failure to operate within the bounds of several operating parameters for the incinerator (ID No. ES-01), wet scrubber (ID No. CD-01), and sorbent polymer catalyst composite material adsorber (ID No. CD-04). The facility's response to the violation letter was received on March 17, 2021.

	Enforcement was not recommended for these violations. No civil penalty was enforced for this violation. These violations have been resolved according to IBEAM/CMPL-Violations.
December 16, 2020	A Notice of Deficiency (NOD) was issued for failure to submit a permit application following a performance test, as required by Permit Condition No. 2.1 A.4.e of Permit No. 08074T14. The facility's response to the violation letter was received on January 21, 2021 and indicated that the facility is planning to submit an application for minor modification. The requested application, Application No. 4100977.21A, was received on January 22, 2021. No further compliance action is necessary for this deficiency.
August 20, 2020	An NOV was issued for operation of the incinerator (ID No. ES-01) at a combustion temperature that exceeded the maximum combustion temperature by more than 20% and for failure to conduct the required performance testing of the three 2,000 kW generators (ID Nos. ES-03, ES-04, and ES-05) within three years of the previous performance testing. The facility's response to the violation letter was received on September 4, 2020. Enforcement was not recommended for these violations. No civil penalty was enforced for these violations. These violations have been resolved according to IBEAM/CMPL-Violations.
March 12, 2020	An NOV/NRE was issued for exceedances of the CO emission limit of Permit Condition No. 2.1 A.6 of Air Permit No. 0807T12. The three exceedances occurred on August 28, 2019, August 29, 2019, and November 18, 2019. The facility's response to the violation letter was received on March 26, 2020. A civil penalty of $12,449 was assessed for these violations. These violations have been resolved according to IBEAM/CMPL-Violations.
October 28, 2019	An NOV/NRE was issued for exceedances of the CO emission limit of Permit Condition No. 2.1 A.6 of Air Permit No. 08074T12. The two exceedances occurred on January 20, 2019 and March 3, 2019. The facility's response to the violation letter was received on November 6, 2019. A civil penalty of $8,449 was assessed for these violations. These violations have been resolved according to IBEAM/CMPL-Violations.
August 2, 2019	An NOV was issued for failure to record pressure drop across the catalyst for the generator (ID No. ES-05) for the month of June 2019. The facility's response to the violation letter was received on August 12, 2019. Enforcement was not recommended for this violation. No civil penalty was assessed for this violation. This violation has been resolved according to IBEAM/CMPL-Violations.

In accordance with the provisions of 15A NCAC 02Q .0520 and .0515(b)(4) the Responsible Official, Mr. Derrick Boone, Assistant Director of Public Services, has signed the required Title V Compliance Certification - Form E5 (dated January 13, 2025) and Form A (dated July 22, 2024).

The most recent Annual Compliance Certification was received on March 1, 2024 and indicated compliance with all terms and conditions except for the deviations identified in the Deviation Summary Report. This certification was signed by Mr. Derrick Boone, Assistant Director of Public Services, on February 28, 2024.

Additionally, during the most recent compliance inspection, conducted on August 14, 2024 by Ryan Dyson of the Winston-Salem Regional Office (WSRO), the facility appeared to be in compliance with all applicable requirements.

10. Public Notice/EPA and Affected State(s) Review

Applications processed in accordance with 15A NCAC 02Q .0515 "Minor Permit Modifications" do not require public participation. Pursuant to this provision, this permit revision will be "proposed" to EPA for their 45-days review and the changes made to the current permit will become effective on the 60th day from the issuance date if no EPA comment is received. If the EPA does comment on the "proposed" permit within the required 45-days review period, the permit will be reissued with the changes as appropriate.

11. Other Regulatory Considerations

- Professional Engineer (PE) Seal Requirement – 15A NCAC 02Q .0112, Applications Requiring Professional Engineer Seal

  A PE Seal was not required for this application since no control devices are being added or modified.

- Zoning Requirement – 15A NCAC 02Q .0305(a)(1)(B) and .0304(b)(1)

  Pursuant to 15A NCAC 02Q .0507(d), a zoning consistency determination is required if expanding or adding new sources in accordance with G.S. 143-215.108(f).

  A zoning consistency determination was not required for this application because the facility is not expanding or adding new sources per 02Q .0507(d).

- EPA has promulgated a rule (88 FR 47029, July 21, 2023), with an effective date of August 21, 2023, removing the emergency affirmative defense provisions in operating permits programs, codified in both 40 CFR 70.6(g) and 71.6(g). EPA has concluded that these provisions are inconsistent with the EPA's current interpretation of the enforcement structure of the CAA, in light of prior court decisions[1]. Moreover, per EPA, the removal of these provisions is also consistent with other recent EPA actions involving affirmative defenses[2] and will harmonize the EPA's treatment of affirmative defenses across different CAA programs. As a consequence of this EPA action to remove these provisions from 40 CFR 70.6(g), it will be necessary for states and local agencies that have adopted similar affirmative defense provisions in their Part 70 operating permit programs to revise their Part 70 programs (regulations) to remove these provisions. In addition, individual operating permits that contain Title V affirmative defenses based on 40 CFR 70.6(g) or similar state regulations will need to be revised.

  Regarding NCDAQ, it has not adopted these discretionary affirmative defense provisions in its Title V regulations (15A NCAC 02Q .0500). Instead, DAQ has chosen to include them directly in individual Title V permits as General Condition (GC) J.

  Per EPA, DAQ is required to promptly remove such impermissible provisions, as stated above, from individual Title V permits, after August 21, 2023, through normal course of permit issuance. The General Conditions have been updated with this permitting action to remove General Condition J.

- An application fee of $3,508 was required and received for this application on July 29, 2024.

- Two copies of the application were received with the initial submittal on July 29, 2024.

12. Conclusions, Comments, and Recommendations

[1] NRDC v. EPA, 749 F.3d 1055 (D.C. Cir. 2014).

[2] In newly issued and revised New Source Performance Standards (NSPS), emission guidelines for existing sources, and NESHAP regulations, the EPA has either omitted new affirmative defense provisions or removed existing affirmative defense provisions. See, e.g., National Emission Standards for Hazardous Air Pollutants for the Portland Cement Manufacturing Industry and Standards of Performance for Portland Cement Plants; Final Rule, 80 FR 44771 (July 27, 2015); National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters; Final Rule, 80 FR 72789 (November 20, 2015); Standards of Performance for New Stationary Sources and Emission Guidelines for Existing Sources: Commercial and Industrial Solid Waste Incineration Units; Final Rule, 81 FR 40956 (June 23, 2016).

This engineer recommends issuance of Air Permit No. 08074T18.