

# CITY OF HIGH POINT

## AGENDA ITEM



<b>TITLE:</b> Annual Assistance with Air Permit Reporting Requirements and Compliance GEL Engineering of NC Inc.	
<b>FROM:</b> Robby Stone – Public Services Director Derrick Boone – Asst. Public Services Director	<b>MEETING DATE:</b> September 16, 2024
<b>PUBLIC HEARING:</b> N/A	<b>ADVERTISED DATE/BY:</b> Master Agreement - Task Order
<b>ATTACHMENTS:</b> Scope of Services	

**PURPOSE:** To contract with GEL Engineering of NC Inc. for annual air permitting assistance at the Eastside Wastewater Treatment Plant. The city has a master agreement for professional services with GEL Engineering of NC.

**BACKGROUND:** The City of High Point operates under a Title V air emissions permit at the Eastside WWTP. The air permit includes numerous reporting requirements, annual compliance emissions testing of the fluidized bed incinerator, and quarterly compliance emissions testing of the Sorbent Polymer Composite (SPC) Adsorber as required by the EPA approved Alternate Monitoring Plan.

**BUDGET IMPACT:** Funds for this project are available in the FY 2024-2025 budget.

**RECOMMENDATION/ACTION REQUESTED:** The Public Services Department recommends approval and asks for the Council to award a task order for professional engineering services to GEL Engineering of NC Inc. for the amount \$131,435.





Engineering of NC INC

# AIR PERMITTING SERVICES & COMPLIANCE EMISSIONS TESTING

FLUIDIZED BED SEWAGE SLUDGE INCINERATOR

SUBMITTED TO

**CITY OF HIGH POINT  
EASTSIDE WASTEWATER TREATMENT PLANT**

5898 Riverdale Road  
Jamestown, North Carolina 27282

PREPARED BY

**GEL ENGINEERING of NC INC**

2700 Sumner Boulevard, Suite 106  
Raleigh, NC 27616

AUGUST 26, 2024 | GEL PROPOSAL NO. HIPT00324

August 26, 2024

Mr. Derrick Boone  
Assistant Public Services Director  
City of High Point  
211 S Hamilton, Room 206  
High Point, North Carolina 27260

Re: Proposal for Assistance with Air Permitting Services and Compliance Emissions Testing  
of the Fluidized Bed Incinerator  
August 2024 – July 2025  
Eastside Wastewater Treatment Plant  
Air Permit No. 08074T17

Dear Derrick:

GEL Engineering of NC, Inc. (GEL) appreciates the opportunity to provide air permitting assistance to the City of High Point (City) related to reporting requirements included in the Title V operating permit for the Eastside Wastewater Treatment Plant (Eastside WWTP) in Jamestown, North Carolina. Outlined below is our understanding of the project, a proposed scope of work, and cost estimate.

## PROJECT INFORMATION

Eastside WWTP is currently covered under Title V operating permit No. 08074T17 issued on June 11, 2024 with an August 10, 2024 effective date, by the North Carolina Department of Environmental Quality (NCDEQ) Division of Air Quality (DAQ). The referenced air permit includes numerous reporting requirements and requires annual compliance emissions testing of the fluidized bed incinerator (FBI) (ID No. ES-01).

## SCOPE OF WORK

The following outlines GEL's proposed scope of work:

### **Task No. 1: Assistance with Environmental Compliance Reporting and General On-Call Services – Eastside WWTP**

Based on a review of the Eastside WWTP's Title V operating permit, Eastside WWTP is required to prepare and submit the following reports to NCDEQ DAQ:

- Semiannual reports (January 30<sup>th</sup> and July 30<sup>th</sup> of each year) that include a summary of deviations regarding wet scrubber (CD-01) pressure drop and exhaust gas oxygen (O<sub>2</sub>) content for the Fluidized Bed Incinerator (FBI) (ES-01) (Condition Nos. 2.1 (A) (2) (f) and 2.1 (A) (5) (u) (ix)).
- Annual report (February 19<sup>th</sup>) including the following (Condition No. 2.1 (A) (7) (g)):
  - Records related to pollutant limits for metals.
    - Concentrations of arsenic, cadmium, chromium, lead, and nickel in sewage sludge fed to the incinerator.
    - Information showing how the requirements for beryllium and mercury in the NESHAP's are being met.
  - Records related to carbon monoxide (CO) limit:
    - CO monthly average concentrations in the stack exit gas.
    - O<sub>2</sub> concentration in the stack exit gas for each incinerator.
    - Information used to measure moisture content in the stack exit gas for the incinerator.
  - Records related to management practices and monitoring requirements:
    - Combustion temperatures, including maximum daily combustion temperature in the incinerator.
    - Measurements for required air pollution control device operating conditions.
    - Calibration and maintenance log for instruments used to measure:
      - CO level in stack exit gas.
      - Oxygen level in stack exit gas.
      - Moisture content in stack exit gas.
      - Combustion temperature in the incinerator.
- Annual compliance report (April 2025) required by 40 CFR Part 60 Subpart M (Condition Nos. 2.1 (A) (5) (u) (ii) and 2.1 (A) (6) (r) (iii)).
- Semiannual deviation reports (if applicable) (January 30<sup>th</sup> and July 30<sup>th</sup> of each year) required by 40 CFR Part 60 Subpart M (Condition Nos. 2.1 (A) (5) (u) (iii) and 2.1 (A) (6) (r) (iv)).

- Semiannual reports (January 30<sup>th</sup> and July 30<sup>th</sup> of each year) including summary of monitoring and recordkeeping activities associated with the sand silo baghouse (Condition No. 2.1 (B) (1) (f)).
- Semiannual reports (January 30<sup>th</sup> and July 30<sup>th</sup> of each year) including summary of monitoring and recordkeeping activities associated with the three 2,000 kilowatt (kW) No. 2 fuel oil-fired dual use generators (Condition No. 2.1 (C) (3) (bb)).
- Semiannual reports (January 30<sup>th</sup> and July 30<sup>th</sup> of each year) including summary of operational hours for the 2,000 kilowatts (kW) No. 2 fuel oil-fired dual use generators (previous 17-months) (Condition No. 2.2 (A) (1) (e)).
- Annual Title V certification report (March 1<sup>st</sup>) (Condition No. 4 (P)).
- Annual Emission Inventory (June 30<sup>th</sup>) (Condition No. 4 (X)).

It is assumed that the City will provide all the necessary information to prepare the preceding reports. The scope of work for this project does not include onsite data collection and coordination of recordkeeping requirements.

GEL will also provide general on-call support services related to environmental compliance at the Eastside WWTP.

**Task No. 2: Assistance with Environmental Compliance Reporting – Frank L. Ward Water Treatment Plant and Westside Wastewater Treatment Plant**

GEL will prepare the semiannual reports (January 30<sup>th</sup> and July 30<sup>th</sup> of each year) required under 40 CFR Part 63 Subpart ZZZZ for submittal to NCDEQ DAQ for Generator Nos. 1 and 2 located at the Frank L. Ward Water Treatment Plant and Generator No. 1 at the Westside Wastewater Treatment Plant.

**Task 3 – Conduct Compliance Emissions Testing of the FBI (tentatively scheduled for June 2025)**

**3.1 Prepare Stack Testing Protocol**

GEL will prepare a site-specific stack testing protocol for submittal to the NCDEQ DAQ as required by §60.5235 (g) (2) and Condition No. (4) (JJ). GEL will provide a draft version of the site-specific stack testing protocol to the City for review and approval. The site-specific stack testing protocol plan must be submitted to NCDEQ DAQ at least 45 days prior to the planned completion of the performance testing.

**3.2 Conduct Performance Test**

Emissions tests will be conducted on the FBI using the Environmental Protection Agency (EPA) methodologies listed in the following table:

Parameter	Method(s)	Duration
Gas Velocity and Volume Flow Rates	1 & 2	as required
O <sub>2</sub> /CO <sub>2</sub>	3A	as required
Moisture Content	4	as required
PM (filterable) & HCL <sup>1</sup>	5 / 26A	3 two-hour runs
Sulfur Dioxide (SO <sub>2</sub> )	6C	3 one-hour runs
Nitrogen Oxide (NO <sub>x</sub> )	7E	3 one-hour runs
Carbon Monoxide (CO)	10	3 one-hour runs
Dioxin / Furan (D/F)	23	3 three-hour runs
Metals <sup>2</sup>	29	3 two-hour runs
Mercury <sup>3</sup> (Hg)	30B	3 two-hour runs
Opacity – Ash Handling Fugitive	22	3 one-hour runs
Sludge Analysis <sup>4</sup>	SW846-6010C	As required
Sludge Analysis – Btu Content	D240	Grab sample

**\*\*Notes:**

- <sup>1</sup> Particulate matter (PM) & hydrogen chloride (HCL).
- <sup>2</sup> Metals to be targeted include As, Be, Cd, Cr, Ni and Pb.
- <sup>3</sup> GEL will employ EPA Method 30B to determine total vapor Hg.
- <sup>4</sup> Analysis of sludge will be for As, Be, Cd, Cr, Hg, Ni and Pb.

The sampling for the analytes noted above meet the testing requirements outlined in Condition Nos. 2.1 (A) (5) and (6).

**3.3 Perform Relative Accuracy Test Audit**

GEL will perform a relative accuracy test audit (RATA) on the Continuous Emissions Monitoring system (CEMs) for the exhaust of ES-01.

Testing will be performed using the EPA methodologies listed below.

Parameter	Test Method	Duration
CO	10	9-12, 21-minute runs

RATA testing will be performed in accordance with 40 CFR Part 60. GEL personnel will reduce the data for each run in the field. This includes moisture correction after each run or sets of runs. RATA emissions data will be bias and moisture corrected at the end of each test run and provided to the City.

**3.4 Prepare Compliance Emissions Test Report**

All test results will be submitted to the City within 30 days after completion of the tests. All results will be reported in accordance with the guidelines required by the EPA. After the City has reviewed the results and addressed any concerns, a draft report will be prepared and submitted to the City for review. A final report will be submitted to the City within 45 days after completion of the tests. GEL will provide one electronic copy (PDF) and two bound copies to the City. The test results will be expressed as noted in the following table:

Parameter	Units
PM <sup>1</sup>	mg/dscm, lb/hr, lb/ton of dry sludge
SO <sub>2</sub> , NO <sub>x</sub> , CO <sup>1</sup> 3A	ppm by dry volume, lb/hr, lb/ton of dry sludge
D/F <sup>1</sup>	nanograms per dscm, lb/hr, lb/ton of dry sludge
HCL <sup>1</sup>	ppm by dry volume, lb/hr, lb/ton of dry sludge
Metals <sup>1, 2</sup>	mg/dscm, lb/hr, lb/ton of dry sludge
Btu content	Btu/lb of dry sludge

\*\*Notes:

<sup>1</sup>All reported pollutant concentrations will be adjusted to 7 percent oxygen.

<sup>2</sup>As required by Condition No. (2.1) (A) (7) (f) (i) (J), control efficiencies for As, Be, Cd, Cr, Hg, Ni and Pb will be calculated.

GEL will utilize the following laboratories for sample analysis:

Analyte	Laboratory
PM	GEL
SO <sub>2</sub> , NO <sub>x</sub> , CO <sup>1</sup>	GEL
D/F	Cape Fear Analytical, Inc. Wilmington, N.C.
HCL	Element One Lab, Inc. Wilmington, N.C.
Metals	Element One Lab, Inc. Wilmington, N.C.
Mercury <sup>2</sup>	GEL
Btu content	GEL

\*\*Notes:

<sup>1</sup>Pollutants will be measured using GEL CEMs.

<sup>2</sup>GEL will analyze the absorbent traps utilized for total Hg.

**Task 4 - Prepare Air Permit Application to Revise Operating Parameter Limits**

During the compliance emissions tests on the FBI, operating parameter limits are established such as FBI combustion chamber temperature, FBI freeboard area temperature, exhaust gas oxygen content, scrubber liquid flow rate, scrubber pressure drop and scrubber liquid pH. Eastside WWTP is required to operate the FBI to comply with the established operating parameter limits. An air permit application will be prepared after the compliance emissions test and submitted to NCDEQ DAQ within 60 days of the compliance emissions testing on behalf of the City to request the most recent operating parameter limits be included in the air permit.

GEL will prepare the necessary air permit application forms along with a regulatory review and emissions assumptions and calculations sections for submittal to NCDEQ DAQ. As required by NCDEQ DAQ, we will prepare the application under the direction and seal of a professional engineer licensed in the state of North Carolina.

**Task 5 – Perform Quarterly Compliance Mercury Emissions Testing of Control Device ID No. CD-04**

As required by the EPA-approved Alternate Monitoring Plan (AMP) for Control Device ID No. CD-04, the City of High Point must perform quarterly inlet/outlet mercury (Hg) emissions testing. The quarterly testing will occur tentatively in December 2024, March 2025 and June 2025.

The emissions test will be conducted using the EPA methodologies listed in the following table:

Parameter	Method(s)	Duration
Gas Velocity and Volume Flow Rates	1 & 2	as required
Oxygen (O <sub>2</sub> )/Carbon Dioxide (CO <sub>2</sub> )	3A	as required
Moisture Content	4	as required
Hg	30B	3 two-hour runs

All test results will be submitted to the City within 30 days after completion of the tests. All results will be reported in accordance with the guidelines required by the EPA. After the City has reviewed the results and addressed any concerns, a draft report will be prepared and submitted to the City for review. A final report will be submitted to the City within 45 days after completion of the tests. GEL will provide two bound copies and one electronic copy (PDF).



Mr. Derrick Boone  
August 26, 2024

## COST ESTIMATE

The cost not to exceed fee to assist the City with performing the scope of work outline above is as follows:

Task No.	Description	Cost
1	Assistance with Environmental Compliance Reporting and General On-Call Services	\$25,530
2	Assistance with Environmental Compliance Reporting – Frank L. Ward Water Treatment Plant and Westside Wastewater Treatment Plant	\$540
3	Conduct Compliance Emissions Testing of the FBI	\$49,800
4	Prepare Air Permit Application to Revise Operating Parameter Limits	\$5,665
5	Perform Quarterly Compliance Mercury Emissions Testing of Control Device ID No. CD-04	\$49,900
<b>Total</b>		<b>\$131,435</b>

All fees will be billed on a time and materials basis using GEL’s standard billing rates. The cost not to exceed estimate will not be exceeded without prior authorization from the City.

## CLOSURE

All work outlined in this proposal will be self-performed. To our knowledge, there are no Minority and Women-owned Business Enterprises (MWBES) in the state of North Carolina that provide the type of services outlined in this proposal. In providing you with these services, it is our desire to meet your needs. If specific items detailed in the above proposal do not adequately address your needs, the scope of work can be modified accordingly.

Thank you for the opportunity to be of service. If this proposal meets your approval, please issue a supplemental agreement to the existing contract. If you have any questions concerning this proposal or need information on other services offered by GEL, please call me at (919) 323-9398 or by email at [keith.mccullock@gel.com](mailto:keith.mccullock@gel.com).

Sincerely,



Keith D. McCulloch, P.E.  
Director/Principal