

## Application Review

Issue Date: Date needed

**Region:** Fayetteville Regional Office  
**County:** Montgomery  
**NC Facility ID:** 6200087  
**Inspector's Name:** Joshua Loehman  
**Date of Last Inspection:** 04/25/2023  
**Compliance Code:** 3 / Compliance – inspection

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| <p style="text-align: center;"><b>Facility Data</b></p> <p><b>Applicant (Facility's Name):</b> Uwharrie Mountain Renewable Energy, LLC</p> <p><b>Facility Address:</b><br/>                 Uwharrie Mountain Renewable Energy, LLC<br/>                 561 Landfill Road<br/>                 Mount Gilead, NC 27306</p> <p><b>SIC:</b> 4911 / Electric Services<br/> <b>NAICS:</b> 221119 / Other Electric Power Generation</p> <p><b>Facility Classification: Before:</b> Title V    <b>After:</b> Title V<br/> <b>Fee Classification: Before:</b> Title V    <b>After:</b> Title V</p> | <p style="text-align: center;"><b>Permit Applicability (this application only)</b></p> <p><b>SIP:</b> 15A NCAC 02D .0516, 02D .0521, 02D .0524, 02D .1111,<br/> <b>NSPS:</b> Subpart JJJJ<br/> <b>NESHAP:</b> Subpart ZZZZ<br/> <b>PSD:</b> N/A<br/> <b>PSD Avoidance:</b> N/A<br/> <b>NC Toxics:</b> N/A<br/> <b>112(r):</b> N/A<br/> <b>Other:</b> General Statute GS §62 – 133.8(g) – SB3</p> |
|---|--|

| Contact Data  |  |  | Application Data   |
|---|--|--|--|
| <p style="text-align: center;"><b>Facility Contact</b></p> Joseph Sowers<br>Facility Manager<br>(910) 572-1900<br>561 Landfill Road<br>Mt. Gilead, NC 27306 | <p style="text-align: center;"><b>Authorized Contact</b></p> Kevin Dobson<br>Vice President<br>(734) 358-1408<br>One Energy Plaza<br>Detroit, MI 48226 | <p style="text-align: center;"><b>Technical Contact</b></p> Jonny Neal<br>Associate Environmental<br>Engineer<br>(734) 546-4079<br>One Energy Plaza<br>Detroit, MI 48226 | <p><b>Application Number:</b> 6200087.21A<br/> <b>Date Received:</b> 04/27/2021<br/> <b>Application Type:</b> Renewal<br/> <b>Application Schedule:</b> TV-Renewal<br/> <b>Existing Permit Data</b><br/> <b>Existing Permit Number:</b> 10226/T03<br/> <b>Existing Permit Issue Date:</b> 02/09/2017<br/> <b>Existing Permit Expiration Date:</b> 01/31/2022</p> |

**Total Actual emissions in TONS/YEAR:**

| CY   | SO <sub>2</sub> | NOX   | VOC   | CO     | PM10  | Total HAP | Largest HAP             |
|------|-----------------|-------|-------|--------|-------|-----------|-------------------------|
| 2021 | 2.57            | 56.06 | 11.75 | 346.75 | 13.24 | 48.71     | 40.50<br>[Formaldehyde] |
| 2020 | 3.08            | 41.32 | 6.37  | 273.57 | 15.03 | 50.47     | 40.98<br>[Formaldehyde] |
| 2019 | 3.29            | 43.30 | 6.69  | 286.77 | 16.06 | 53.20     | 43.02<br>[Formaldehyde] |
| 2018 | 3.01            | 58.64 | 6.35  | 240.88 | 15.24 | 50.11     | 40.84<br>[Formaldehyde] |
| 2017 | 3.02            | 45.92 | 7.11  | 304.24 | 14.89 | 55.02     | 45.72<br>[Formaldehyde] |

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|--|--|
| <p><b>Review Engineer:</b> Jacob Larson</p> <p><b>Review Engineer's Signature:</b> _____    <b>Date:</b> _____</p> | <p style="text-align: center;"><b>Comments / Recommendations:</b></p> <p><b>Issue:</b> 10226T04<br/> <b>Permit Issue Date:</b> <span style="background-color: yellow;">Date needed</span><br/> <b>Permit Expiration Date:</b> <span style="background-color: yellow;">Date needed</span></p> |
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## **1. Purpose of Application**

Uwharrie Mountain Renewable Energy, LLC currently holds Title V Permit No. 10226T03 with an expiration date of 01/31/2022 for a landfill gas to energy facility located, Montgomery County, North Carolina. This permit application is for a permit renewal without modification. The renewal application was received on April 27, 2021, or at least six months prior to the expiration date. Therefore, the existing permit shall not expire until the renewal permit has been issued or denied. All terms and conditions of the existing permit shall remain in effect until the renewal permit has been issued or denied.

## **2. Facility Description**

Uwharrie Mountain Renewable Energy combusts the gas that is collected from the Uwharrie Regional Landfill (owned and operated by Republic Services) as fuel for six (6) 2,233 HP spark ignition internal combustion engines that each drive a 1.6 MW electrical generator, for a total electrical generation capacity of 9.6 MW. The electricity is sold to the local electrical grid. These engines are subject to 40 CFR 60 NSPS JJJJ and must comply with the emission standards for CO, NOX and VOC's for the entire life of the engines. Also, these engines are subject to 40 CFR 63 NESHAP ZZZZ. Compliance with NESHAP ZZZZ is demonstrated by complying with NSPS JJJJ. The engines are not certified by the manufacturer to meet emission standards when firing Landfill Gas, therefore according to NSPS JJJJ [40 CFR 60.4243(b)] emissions testing is required. An initial performance test was required within 180 days after start-up and subsequent testing is required every 8,760 hours or 3 years, whichever comes first. All initial testing has been accomplished and annual testing is being done.

The landfill gas is treated at this facility prior to being combusted in the engines by filtering to remove particulates down to 2 microns, dewatering by chilling, and compressing the resultant cleaned gas. This treatment process of filtering, dewatering, and compressing appears to satisfy the requirements of NSPS for the Landfill. This facility is not subject to NSPS Subpart WWW or the current Federal Rule (40 CFR Subpart 62) because it is not a municipal solid waste landfill, however, the gas treatment system was added when this facility began receiving landfill gas from the Uwharrie Landfill. The system is equipped with interlocking controls that will route the landfill gas back to the existing landfill flare systems located at the landfill if the gas is not used for the engines.

This facility is also equipped with a Regenerative Siloxane Removal System. This system removes a large portion of the Siloxane from the treated landfill gas and has resulted in a significant decrease in engine maintenance.

Finally, this facility is subject to NC State BACT [General Statute GS §62 – 133.8(g)] for renewable energy credits under Senate Bill 3, and is required to meet State BACT.

### 3. History/Background/Application Chronology

#### History/Background

February 09, 2017      Air Permit No. 10226T03 was issued on February 25, 2015 with an expiration date of January 31, 2022.

#### Application Chronology

April 27, 2021      DEQ received permit application 6200087.21A for Title V renewal.

May 03, 2021      Sent acknowledgment letter indicating that the application for permit renewal was complete.

May 26, 2023      Draft permit and review forwarded for comments to Permitting Supervisor.

June 02, 2023      Comments received from Booker Pullen, Permitting Supervisor.

June 02, 2023      Draft permit and review forwarded to the Stationary Compliance Branch for comments. NO comments were received XXXX xx, 2023.

June 02, 2023      Draft permit and review forwarded to the Fayetteville Regional Office for comments. Minor comments were received June 12, 2023.

June 12, 2023      Draft permit forwarded to the applicant for comments. NO comments were received June 23, 2023.

June 26, 2023      Draft permit and permit review forwarded to public notice.

XXXX xx, 2023      Public comment period ends. \_\_\_ comments received.

XXXX xx, 2023      EPA comment period ends. \_\_\_ comments received.

XXXX xx, 2023      Permit issued.

#### 4. Permit Modifications/Changes and TVEE Discussion

The following table describes the modifications to the current permit as part of the renewal process.

| Page No.                 | Section                          | Description of Changes   |
|--------------------------|----------------------------------|--|
| --                       | Cover page and throughout permit | <ul style="list-style-type: none"> <li>Updated all dates and permit revision numbers.</li> </ul>   |
| Pg 3 of the cover letter | Cover page                       | <ul style="list-style-type: none"> <li>Added "Notice Regarding The Right To Contest A Division Of Air Quality Permit Decision" page</li> </ul>                                 |
| Pg 4 of the cover letter | Summary of Changes to Permit     | <ul style="list-style-type: none"> <li>Added summary of changes made to Permit No. 09315T07 according to the most recent requirements of the renewal Title V permit</li> </ul> |
| Page 2 of Permit         | Table of Contents                | <ul style="list-style-type: none"> <li>Added Section 3.0 as "Insignificant Activities List"</li> <li>Added Section 4.0 as "General Permit Conditions"</li> </ul>               |
| Page 3 of the Permit     | List of Acronyms                 | <ul style="list-style-type: none"> <li>Added "List of Acronyms"</li> </ul>   |
| Page 4 of the Permit     | Permitted Emissions Table        | <ul style="list-style-type: none"> <li>Removed the * and footnote at the bottom of the table.</li> </ul>   |
| Page 5 of the Permit     | 2.1(A)(3)(b)                     | <ul style="list-style-type: none"> <li>Corrected citation from 40 CFR 60.42339(e) to 40 CFR 60.4233(e)</li> </ul>  |
| Page 5 of the Permit     | 2.1(A)(3)(b)                     | <ul style="list-style-type: none"> <li>NO<sub>x</sub> limit corrected from 10 ppmvd at 15% O<sub>2</sub> to 150 ppmvd at 15% O<sub>2</sub></li> </ul>                          |
| Page 5 of the Permit     | 2.1(A)(3)(f)                     | <ul style="list-style-type: none"> <li>Corrected performance testing requirements from 876 hours to 8760 hours</li> </ul>  |
| Page 10 of the Permit    | Section 3                        | <ul style="list-style-type: none"> <li>Added Insignificant Activities as Section 3 of the Title V Permit</li> </ul>  |
| Page 10 of the Permit    | Section 3                        | <ul style="list-style-type: none"> <li>Removed additional information link in footnote because site no longer exists</li> </ul>  |
| Page 11-19               | Section 4                        | <ul style="list-style-type: none"> <li>Added General Conditions as Section 4 of the Title V Permit</li> </ul>  |

This permit renewal is without modification, and no changes to the Title V Equipment Editor are needed.

#### 5. Regulatory Review

Uwharrie Mountain Renewable Energy is subject to the following regulations. The facility's equipment and operations have not changed since the last renewal in 2017. The permit was updated to reflect the most current stipulations for all applicable regulations, where necessary.

| Emission Source ID  | Emission Source Description   | Control System ID | Control System Description |
|---|---|-------------------|----------------------------|
| ES-01<br>(NSPS JJJJ, MACT ZZZZ, SB-3)<br>Passed NO <sub>x</sub> and VOC source test on 12/07/21.<br>Passed CO source test on 01/04/23 | One electrical generator (1600 kW electrical output) powered by one landfill gas-fired Caterpillar (Model G3520C) engine (2233 hp output) [NSPS, MACT, SB3]                         | N/A               | N/A                        |
| ES-02<br>(NSPS JJJJ, MACT ZZZZ, SB-3)<br>Passed NO <sub>x</sub> and VOC on 12/08/20; Passed CO source test on 01/04/23                | One electrical generator (1600 kW electrical output) powered by one landfill gas-fired Caterpillar (Model G3520C) engine (2233 hp output) [NSPS, MACT, SB3]<br><b>Not Operating</b> | N/A               | N/A                        |
| ES-03<br>(NSPS JJJJ, MACT ZZZZ, SB-3)   | One electrical generator (1600 kW electrical output) powered by one landfill gas-fired Caterpillar (Model G3520C) engine (2233 hp output) [NSPS, MACT, SB3]                         | N/A               | N/A                        |

|  |   |     |     |
|--|---|-----|-----|
| Passed NOx, and VOC source test on 12/07/21.<br>Passed CO source test on 01/04/23                          |   |     |     |
| ES-04<br>(NSPS JJJJ, MACT ZZZZ, SB-3)<br>Passed NOx, CO, and VOC source test on 01/04/23                   | One electrical generator (1600 kW electrical output) powered by one landfill gas-fired Caterpillar (Model G3520C) engine (2233 hp output) [NSPS, MACT, SB3] | N/A | N/A |
| ES-05<br>(NSPS JJJJ, MACT ZZZZ, SB-3)<br>Passed NOx, CO, and VOC source test on 01/04/23                   | One electrical generator (1600 kW electrical output) powered by one landfill gas-fired Caterpillar (Model G3520C) engine (2233 hp output) [NSPS, MACT, SB3] | N/A | N/A |
| ES-06<br>(NSPS JJJJ, MACT ZZZZ, SB-3)<br>Passed NOx and VOC on 12/08/20; Passed CO source test on 01/04/23 | One electrical generator (1600 kW electrical output) powered by one landfill gas-fired Caterpillar (Model G3520C) engine (2233 hp output) [NSPS, MACT, SB3] | N/A | N/A |

**A. Six 1.6 MW electrical generators powered by landfill gas-fired IC engines (ID Nos. ES-01 through ES-06):** The LFG-fired engines/generators are subject to the following regulations. The permit will be updated to reflect the most current stipulations for all applicable regulations.

**15A NCAC 02D .0516: SULFUR DIOXIDE EMISSIONS FROM COMBUSTION SOURCES**

Emissions of sulfur dioxide from the engines shall not exceed 2.3 lbs/mm Btu heat input. The engines/generators (ID Nos. ES-01 through ES-06) are subject to this regulation. Potential emissions of sulfur dioxide have been calculated during the initial permit review by Mr. Booker Pullen of NCDEQ to be 0.25 lbs. per hour per engine. This value is much lower than the allowable sulfur dioxide emission rate of 13.1 lbs. per hour per engine. This equates to 0.04 lbs of SO<sub>2</sub>/mm Btu heat for each of the 6 identically sized engines or 0.26 lbs of SO<sub>2</sub>/mm Btu heat input for all 6 engines in operation. Continued compliance is expected.

**15A NCAC 02D .0521: CONTROL OF VISIBLE EMISSIONS**

The engines/generators (ID Nos. ES-01 through ES-06) are subject to this regulation because they were each manufactured after July 1, 1971. VE from the engines shall not be more than 20 percent opacity when averaged over a six-minute period, except that six-minute periods averaging not more than 87 percent opacity may occur not more than once in any hour nor more than four times in any 24-hour period. During the previous inspection conducted by Joshua Loehman on 04/25/2023 no visible emissions were observed during the operation of four of the six engines. Continued compliance is expected.

**15A NCAC 02D .1111, 40 CFR Part 63, Subpart ZZZZ (RICE NESHAP)**

In accordance with 40 CFR 63.6590(c), compliance with 40 CFR Part 60, Subpart JJJJ meets the compliance with NESHAP ZZZZ for spark ignition RICE located at an area source. Annual reporting of fuel flow rates for each fuel combusted and heat value is required.

The most recent NSPS JJJJ performance test was conducted on 01/04/23 and compliance was demonstrated. Also, note that when the previous permit was issued on 02/09/17, a correction was made to include the requirement of NESHAP ZZZZ for a HAP major facility. The facility is Title III major for formaldehyde emissions. This requires the facility to submit an annual report by January 30th each year including data for fuel flow rates for each fuel combusted and heat value. This facility submitted their most recent annual report on 01/30/23. Continued compliance is expected.

## 6. NSPS, NESHAPS/MACT, PSD, 112(r), CAM, and BACT

### NSPS

15A NCAC 02D .0524, 40 CFR Part 60, Subpart JJJJ “New Source Performance Standards for Stationary Non-Emergency Spark Ignition Engines” The engines/ generators (ID Nos. ES-01 through ES-06) are subject to 40 CFR Part 60, Subpart JJJJ. Each engine was rated at 1600kW, and the maximum output was rated at 2233 hp. Since these are non-emergency engines, and are not certified by the manufacturer, the Permittee is required to perform stack testing in accordance with 40 CFR 60.4243(b)(2)(ii) and 40 CFR 60.4244. According to the DAQ’s database, the facility conducted initial performing testing on ES-03 and ES-05 on November 4, 2014 and subsequent testing on ES-01 and ES-04 on December 8, 2015. The engines need to be tested every 8,760 hours or 3 years, whichever comes first. The facility has written permission from the DAQ to test only two engines at a time to represent all six engines as long as they rotate the two engines that are tested. The standards for the engines are 2.0 g/HP-hr for NO<sub>x</sub>, 5.0 g/HP-hr for CO, 1.0 g/HP-hr for VOC, or 150 ppmvd for NO<sub>x</sub>, 610 ppmvd and 80 ppmvd for VOC (all at 15% O<sub>2</sub>). On 01/04/23, Engines ES-04 and ES-05 were tested on NO<sub>x</sub>, CO, and VOC while ES-01, ES-02, ES-03, and ES-06 were tested for CO following a failed CO stack test with ES-03 on 12/07/21. A report of results was received by FRO within 60 days after testing (on 01/31/23) and passed SSCB review. Therefore, this facility appears in compliance with this requirement. Continued compliance is expected.

The landfill gas treatment system is owned and operated by the Uwharrie Mountain Renewable Energy, LLC. The purpose of installing this type of system prior to the engines is to protect the engines from the wear and tear caused by the raw landfill gas. There are no recordkeeping, notification or reporting requirements associated with this control device, however, the treatment system is required by regulation under the NSPS for municipal solid waste landfills when the landfill sells gas to a third party. The treatment system will remain on the permit for Uwharrie Mountain Renewable Energy, LLC.

### NESHAP/MACT

15A NCAC 02D .1111, 40 CFR Part 63, MACT Subpart ZZZZ – The engines ES-01 through ES-06 are subject to MACT Subpart ZZZZ. According to the stack test report dated June 20, 2016, the potential formaldehyde emission for each engine is 10.99 tons per year or 65.28 tons/year for all engines. This makes the facility a major source of HAPs. Therefore, the permit must include requirements for a stationary RICE that is located at a major source of HAPs. According to 40 CFR 63.6600(c), however, a stationary RICE that combusts landfill gas equivalent to 10 % or more of the gross heat input on an annual basis is exempt from the emission limitations of this subpart. However, that facility must meet the additional monitoring, recordkeeping, and reporting requirements.

15A NCAC 02D .1111: National Emission Standards for Hazardous Air Pollutants  
The Permittee shall comply with all applicable provisions, including the monitoring, recordkeeping, and reporting contained in Environmental Management Commission Standard 15A NCAC 02D .1111 "Maximum Achievable Control Technology" (MACT) as promulgated in 40 CFR 63, “Subpart ZZZZ-National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines.”

### **Monitoring/Recordkeeping/Reporting** [15A NCAC 02Q .0508(f),40 CFR 63.6590]

The Permittee shall meet the monitoring, recordkeeping, reporting, and notification requirements of 40 CFR Part 63, Subpart ZZZZ by meeting the requirements of 40 CFR 63.6625(c), 63.6650(g) and 63.6655(c).

i. Monitoring [40 CFR 63.6625(c)]

The Permittee shall monitor and record daily fuel usage with separate fuel meters to measure the volumetric flow rate of each fuel. In addition, the Permittee must operate the RICE in a manner which reasonably minimizes HAP emissions.

ii. Reporting [40 CFR 63.6650(g)]

The Permittee shall submit an annual report, acceptable to the Regional Air Quality Supervisor, on or before January 30 of each calendar year.

The report shall contain the following:

- (A) Fuel flow rate of each fuel and the heating values that were used in your calculations. The Permittee must demonstrate that the percentage of heat input provided by landfill gas or digester gas, is equivalent to 10 percent or more of the gross heat input on an annual basis.
- (B) The operating limits provided in your federally enforceable permit, and any deviations from these limits.
- (C) Any problems or errors suspected with the meters.

PSD

The facility originally owned and operated four engines (ES-01 through 04). An additional two engines (ES-05 and 06) were added in Permit R01. The total CO emissions for the original four engines were 237.2 tpy which categorized the facility as a minor source under PSD. The addition of the two engines (ES-05 and 06) added 118.6 tpy of CO making the total potential emissions from the facility greater than 250 tons per year. The facility will continue to be a major source under PSD as indicated on the first page of the cover letter. This renewal does not change this status.

112(r)

The facility is not subject to Section 112(r) of the Clean Air Act requirements because it does not store any of the regulated substances in quantities above the 112(r) thresholds. No change with respect to 112(r) is anticipated under this permit renewal.

CAM

The CAM rule (40 CFR 64; 15A NCAC 02D .0614) applies to each pollutant specific emissions unit (PSEU) at major TV facilities that meets all three following criteria:

- the unit is subject to any (non-exempt: e.g. pre November 15, 1990, Section 111 or Section 112 standard) emission limitation or standard for the applicable regulated pollutant.
- the unit uses any control device to achieve compliance with any such emission limitation or standard.
- The unit has potential pre-control device emissions of the applicable regulated air pollutant that are equal to or greater than 100 percent of the amount, in tons per year, required for a source to be classified as a major source (i.e., 100 tons per year for criteria pollutants or 10/25 tons per year for HAPs).

CAM does not apply to this facility. This permit renewal does not change the facility's CAM status.

State BACT (SB-3)

The State BACT Analysis and Evaluation [NCGS §62-133.8(g)] - NCGS§62-133.8 (SB-3) contains a requirement for any biomass combustion process that is otherwise not subject to the Best Available Control Technology (BACT) requirements of the PSD program, and that is determined to be a 'new renewable energy facility' to meet BACT.

|   |                          |
|---|--------------------------|
| Carbon Monoxide (CO)                                      | BACT limit = 3.3 g/hp-hr |
| Nitrogen Oxides (NO <sub>x</sub> )                        | BACT limit = 2.0 g/hp-hr |
| Particulate Matter (PM <sub>10</sub> /PM <sub>2.5</sub> ) | Good combustion Practice |
| Volatile Organic Compounds (VOCs)                         | Good combustion Practice |
| Sulfur Dioxide (SO <sub>2</sub> )                         | Good combustion Practice |
| Lead (Pb)   | Good combustion Practice |
| Mercury (Hg)  | Good combustion Practice |

On 01/04/23, Engines ES-01 through ES-06 were tested to demonstrate compliance with the State BACT limits. A test report was due within 60 days as outlined in NSPS JJJJ and was received on 01/31/23. The results were approved by SSCB. Therefore, compliance was determined with NSPS JJJJ emission standard for CO, NO<sub>x</sub>, and VOC. All previous tests before the 01/04/23 test have been approved and demonstrated compliance. Continued compliance is expected.

### 7. Facility Wide Air Toxics

Engines EG-01 through 06 are exempt from the toxics rules per GS 143-215.102(a) and 15A NCAC 02Q .0702(a)(27)(B). General Statute G.S. 143-215.102(a) was approved on June 28, 2012 and exempts from State Air Toxics those sources of emissions that are subject to certain Federal emissions requirements under 40 CFR Part 61 (NESHAP), Part 63 (NESHAP), or Case-by-Case MACT pursuant to 42 U.S.C. §7412(j). The six engines are subject to 40 CFR 63, Subpart ZZZZ. When the facility conducted a source test demonstrating compliance with NSPS Subpart JJJJ on November 2, 2015, formaldehyde emissions were also measured by FTIR in addition to the pollutants required by NSPS Subpart JJJJ. A toxic air pollutant evaluation with modeling was performed for this facility. The toxic air pollutant and hazardous air pollutant emissions that are present in landfill gas were modeled for compliance with the AALs.

Nine toxic air pollutants were calculated to be above their respective TPER limit (See Table 2below). These values were modeled by the applicant using the most current version of the US EPA approved regulatory modeling system – AERMOD v12345. The EPA default options were used in the modeling along with RURAL dispersion coefficients. RURAL dispersion coefficients were also utilized in the previous modeling analysis. All six engines are located in the same building.



Table 1: Modeled Source Locations and Stack Parameters of the six engine/generator units

| Source (engines) | UTM-X (m) | UTM-Y (m)   | Elevation (m) | Stack Height (m) | Temperature (K) | Exit velocity (m/s) | Diameter (m) |
|------------------|-----------|-------------|---------------|------------------|-----------------|---------------------|--------------|
| ES-01            | 593,962.3 | 3,910,425.5 | 196.00        | 14.021           | 754.3           | 45.4                | 0.406        |
| ES-02            | 593,968.2 | 3,910,427.1 | 195.79        | 14.021           | 754.3           | 45.4                | 0.406        |
| ES-03            | 593,974.1 | 3,910,428.7 | 195.75        | 14.021           | 754.3           | 45.4                | 0.406        |
| ES-04            | 593,986.1 | 3,910,432.1 | 195.44        | 14.021           | 754.3           | 45.4                | 0.406        |
| ES-05            | 593,992.0 | 3,910,433.7 | 195.19        | 14.021           | 754.3           | 45.4                | 0.406        |
| ES-06            | 593,997.9 | 3,910,435.4 | 195.23        | 14.021           | 754.3           | 45.4                | 0.406        |

Table 2: Maximum impacts for each toxic pollutant.

| Emission Sources                                   | Toxic Air Pollutants | Averaging Period | Emission Rate (g/s) | Predicted Concentrations ( $\mu\text{g}/\text{m}^3$ ) | % of AALs |
|--|----------------------|------------------|---------------------|---|-----------|
| Six engine/generator ES-01, 02, 03, 04, 05, and 06 | Acrolein             | 1-hour           | 1.15E-02            | 6.97  | 9         |
|  | Acrylonitrile        | 1-hour           | 4.86E-04            | 0.29  | 0         |
|  | Acrylonitrile        | 24-hour          | 4.86E-04            | 0.20  | 1         |
|  | Benzene              | Annual           | 1.20E-03            | 0.033   | 28        |
|  | Ethylene Dibromide   | Annual           | 9.96E-05            | 0.003   | 1         |
|  | Formaldehyde         | 1-hour           | 2.39E-01            | 144.64  | 96        |
|  | Hydrogen Chloride    | 1-hour           | 1.60E-02            | 9.64  | 1         |
|  | Hydrogen Sulfide     | 24-hour          | 1.97E-02            | 8.30  | 7         |
|  | Vinyl Chloride       | Annual           | 3.68E-04            | 0.010   | 3         |
|  | 1,3-Butadiene        | Annual           | 5.99E-04            | 0.016   | 4         |

The combustion of treated landfill gas in the six engine/generator sets was evaluated based on potential emissions and all of the toxic air pollutants modeled less than their respective AAL thresholds. Since the six engines modeled below the AAL concentrations, the emissions should not cause an unacceptable health risk.

## 8. Facility Emissions Review

The facility-wide potential emissions do not change under this TV permit renewal. Actual emissions for criteria pollutants and HAPs for the years 2017 through 2021 are provided in the header of this permit review.

## **9. Compliance Status**

DAQ has reviewed the compliance status of Uwharrie Mountain Renewable Energy. During the most recent inspection, conducted on April 25, 2023 by Joshua Loehman, the facility appeared to be in compliance with all applicable requirements. Further, the facility has had one air quality violations within the last five years. NOV/NRE was issued 03/21/22 for failing CO SB-3 limit on ES-03 during a stack test. Resolved 05/18/2022.

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

A notice of the DRAFT Title V Permit shall be made pursuant to 15A NCAC 02Q .0521. The notice will provide for a 30-day comment period, with an opportunity for a public hearing. Consistent with 15A NCAC 02Q .0525, the EPA will have a concurrent 45-day review period. Copies of the public notice shall be sent to persons on the Title V mailing list and EPA. Pursuant to 15A NCAC 02Q .0522, a copy of each permit application, each proposed permit and each final permit shall be provided to EPA. Also pursuant to 02Q .0522, a notice of the DRAFT Title V Permit shall be provided to each affected State at or before the time notice provided to the public under 02Q .0521 above. No affected states or local agencies are within 50 miles of this facility.

## **11. Other Regulatory Considerations**

- A P.E. seal is NOT required for this renewal application.
- A zoning consistency determination is NOT required for this renewal application.
- A permit fee is NOT required for this renewal application.

## **12. Recommendations**

The permit renewal application for The Uwharrie Mountain Renewable Energy, LLC located in Mount Gilead, Montgomery County, North Carolina has been reviewed by DAQ to determine compliance with all procedures and requirements. DAQ has determined this facility is complying or will achieve compliance, as specified in the permit, with all requirements that are applicable to the affected sources. DAQ recommends the issuance of Air Permit No. 10226T04.