

**NORTH CAROLINA DIVISION OF
AIR QUALITY
Application Review**

Issue Date: Date needed

Region: Mooresville Regional Office
County: Rowan
NC Facility ID: 8000190
Inspector's Name: Karyn Kurek
Date of Last Inspection: 04/25/2024
Compliance Code: 3 / Compliance - inspection

<p>Facility Data</p> <p>Applicant (Facility's Name): Rowan County Solid Waste Landfill</p> <p>Facility Address: Rowan County Solid Waste Landfill 789 Campbell Road Woodleaf, NC 27054</p> <p>SIC: 4953 / Refuse Systems NAICS: 562212 / Solid Waste Landfill</p> <p>Facility Classification: Before: Title V After: Title V Fee Classification: Before: Title V After: Title V</p>	<p>Permit Applicability (this application only)</p> <p>SIP: 15A NCAC 02D .0516, .0521, .0524, .1111, and .1806 NSPS: 40 CFR Part 60, Subpart III NESHAP: 40 CFR Part 63, Subparts AAAA, ZZZZ, and CCCCCC PSD: NA PSD Avoidance: NA NC Toxics: NA 112(r): NA Other: 40 CFR Part 62, Subpart OOO</p>
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<p>Contact Data</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%; padding: 5px;">Facility Contact</td> <td style="width: 33%; padding: 5px;">Authorized Contact</td> <td style="width: 33%; padding: 5px;">Technical Contact</td> </tr> <tr> <td style="padding: 5px;"> Jeff Boyd Landfill Supervisor (704) 202-5585 789 Campbell Road Woodleaf, NC 27054 </td> <td style="padding: 5px;"> W. Craig Powers, PE Director of Eng and Env Services (704) 216-8606 PO Box 430 East Spencer, NC 28039 </td> <td style="padding: 5px;"> Nick Lang Environmental/Solid Waste Engineer (703) 297-6338 4880 Sadler Road, Suite 1200 Glen Allen, VA 23060 </td> </tr> </table>	Facility Contact	Authorized Contact	Technical Contact	Jeff Boyd Landfill Supervisor (704) 202-5585 789 Campbell Road Woodleaf, NC 27054	W. Craig Powers, PE Director of Eng and Env Services (704) 216-8606 PO Box 430 East Spencer, NC 28039	Nick Lang Environmental/Solid Waste Engineer (703) 297-6338 4880 Sadler Road, Suite 1200 Glen Allen, VA 23060	<p>Application Data</p> <p>Application Number: 8000190.24A Date Received: 05/30/2024 Application Type: Renewal Application Schedule: TV-Renewal Existing Permit Data Existing Permit Number: 10405/T03 Existing Permit Issue Date: 01/24/2023 Existing Permit Expiration Date: 11/30/2024</p>
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Jeff Boyd Landfill Supervisor (704) 202-5585 789 Campbell Road Woodleaf, NC 27054	W. Craig Powers, PE Director of Eng and Env Services (704) 216-8606 PO Box 430 East Spencer, NC 28039	Nick Lang Environmental/Solid Waste Engineer (703) 297-6338 4880 Sadler Road, Suite 1200 Glen Allen, VA 23060					

Total Actual emissions in TONS/YEAR:

CY	SO2	NOX	VOC	CO	PM10	Total HAP	Largest HAP
2023	2.30	4.40	4.00	5.10	1.70	2.93	1.20 [Hydrogen chloride (hydrochlori)]
2022	2.40	4.60	3.70	5.50	1.80	2.79	1.20 [Hydrogen chloride (hydrochlori)]
2021	2.20	4.50	3.50	5.30	1.70	2.65	1.15 [Hydrogen chloride (hydrochlori)]
2020	1.90	3.70	3.30	4.40	1.40	2.40	0.9873 [Hydrogen chloride (hydrochlori)]
2019	2.00	4.00	3.20	4.70	1.50	2.49	1.02 [Hydrogen chloride (hydrochlori)]

<p>Review Engineer: Luke Mayer</p> <p>Review Engineer's Signature: _____ Date: _____</p>	<p>Comments / Recommendations:</p> <p>Issue: 10405/T04 Permit Issue Date: Date needed Permit Expiration Date: Date needed</p>
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1. Purpose of Application

Rowan County Solid Waste Landfill currently holds Title V Permit No. 10405T03 with an expiration date of November 30, 2024, for a solid waste landfill facility in Woodleaf, Rowan County, North Carolina. This permit application is for a permit renewal without modification. The renewal application was received on May 30, 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.

This permit will add a previously non-permitted source (one 173hp diesel fuel-fired emergency generator for the blower and flare, **ID No. IES-EG2**) to the permit.

2. Facility Description

The following facility description is taken from the statement of basis¹ for Air Permit Application No. 8000190.21A, processed by engineer Booker T. Pullen of the DAQ Central Office and dated January 24, 2023, and the most recent facility inspection report², prepared by engineer Karyn Kurek of the Mooresville Regional Office and dated April 25, 2024.

Rowan County Solid Waste landfill is an existing municipal solid waste landfill located at 789 Campbell Road in Woodleaf, North Carolina. It is owned and operated by Rowan County and operates under Solid Waste permit No. 8003. The landfill property is approximately 375 acres, which consists of a closed land clearing and inert debris (LCID) landfill, a closed construction and demolition (C&D) landfill and a lined Subtitle D landfill. The Subtitle D landfill's total design capacity is approximately 15.071 million cubic yards. The landfill began receiving waste in December 1989 and has three phases (I, II, and III) operating. The landfill obtained a construction permit from the Division of Waste Management for Phase IV and the addition met the threshold requirement for volume (2.5 million cubic meters) and weight (2.5 million megagrams), requiring a Title V permit. At the time of the most recent inspection, phases one through four were existing with the active face on phase four. Phase four construction was complete. In the existing phases, anaerobic decomposition of the buried municipal solid waste (MSW) materials produces landfill gas (LFG) which contains approximately 50% methane. Leachate from existing phases is collected in a storage basin/pond. A mobile tub-grinder is also present on site.

The following emissions sources are active at Rowan County Solid Waste Landfill:

- Municipal Solid Waste Landfill (**ID No. ES-1**)

The following control devices are active at Rowan County Solid Waste Landfill:

- One landfill gas-fired candlestick type flare (1,500 scfm maximum gas flow rate) (**ID No. CD-1**)
- One landfill gas collection and control system (**ID No. CD-GCCS**)

The following insignificant sources are active at Rowan County Solid Waste Landfill:

- One Diesel fuel storage tank (10,000 gallon capacity) (**ID No. IES-Diesel**)
- One LP gas-fired emergency generator (13kW) (**ID No. IES-EG1**)
- One waste oil-fired furnace used for heating (0.175 million Btu per hour heat input) (**ID No. IES-Furnace**)

¹ <https://edocs.deq.nc.gov/AirQuality/DocView.aspx?id=394255&dbid=0&repo=AirQuality>

² <https://edocs.deq.nc.gov/AirQuality/DocView.aspx?id=484549&dbid=0&repo=AirQuality>

- One gasoline storage tank (200 gallon capacity) (**ID No. IES-Gasoline**)
- One Diesel fuel-fired HD12 Duratech Model tub grinder (portable non road engine = 500 hp) (**ID No. IES-HD12**)
- One leachate storage basin (1,350,000 gallon capacity) (**ID No. IES-Leachate**)
- One waste oil storage tank (200 gallon capacity) (**ID No. IES-Wasteoil1**)
- One waste oil storage tank (200 gallon capacity) (**ID No. IES-Wasteoil2**)
- One waste oil storage tank (330 gallon capacity) (**ID No. IES-Wasteoil3**)
- One diesel fuel-fired emergency generator for the blower and flare (173 hp) (**ID No. IES-EG2**)

The facility is a Title V facility because the design capacity volume and mass exceed the Title V thresholds of 2.5 million cubic meters and 2.5 million megagrams.

3. History/Background/Application Chronology

History/Background

- | | |
|-------------------|--|
| December 19, 2019 | TV permit renewal issued. Air Permit No. 10405T02 was issued on December 19, 2019, with an expiration date of November 30, 2024. <i>(See Joshua L. Harris' TV review for permit No. 10405T02, dated December 19, 2019)</i> |
| January 24, 2023 | Air Permit No. 10405T02 was reopened for cause and reissued as Air Permit No. 10405T03. This was to update existing MACT AAAA conditions and replace North Carolina 15A NCAC 02D .1700 rules with Federal landfill regulations as codified in 40 CFR 62, Subpart OOO as the EPA had not yet approved North Carolina's rules. <i>(See Booker T. Pullen's TV review for permit No. 10405T03, dated January 24, 2023)</i> |

Application Chronology

- | | |
|-------------------|---|
| May 30, 2024 | Received permit application 8000190.24A for renewal. |
| June 7, 2024 | Sent acknowledgment letter indicating that the application for permit renewal was complete. |
| September 9, 2024 | Sent DAQ's PFAS questionnaire and a request for information and documentation for the new insignificant source (ID No. IES-EG2) to technical contact Emily Tucker. |
| October 9, 2024 | Received PFAS questionnaire responses and information and documentation for the new insignificant source (ID No. IES-EG2) from technical contact Emily Tucker. The facility's responses to the PFAS questionnaire can be found in Attachment 1 to this technical review. |
| November 1, 2024 | Received a notice from technical contact Emily Tucker that she was leaving her role and would be replaced by Nick Lang. The facility's contact information in IBEAM and statement of basis were updated accordingly. |
| December 18, 2024 | Draft permit and review forwarded to Supervisor Rahul Thaker for comments. |

February 5, 2025	Comments received from Supervisor Rahul Thaker. Editorial changes and clarifications to the statement of basis regarding North Carolina's implementation of 40 CFR 60 Subpart Cf and 40 CFR 62, Subpart OOO were needed.
February 14, 2025	Draft permit and review forwarded to applicant, SSCB, and regional office for comments.
February 17, 2025	Engineer Karyn Kurek from the Mooresville Regional Office indicated via email that they had comments on the draft permit or permit review. MRO requested that the Raleigh Central Office address comments raised by the inspector about previous permit issuances. It was determined that these comments had been previously addressed or were already being included as part of the renewal, and no further changes were necessary.
February 18, 2025	Engineer Karyn Kurek from the Mooresville Regional Office indicated via email that they had no further comments on the draft permit or permit review.
February 19, 2025	Samir Parekh of the SSCB indicated via email that they had no comments on the draft permit or permit review.
February 21, 2025	Technical contact Nick Lang indicated via email that they had comments on the draft permit and permit review. Mr. Lang requested corrections to several erroneous section references that were not updated as part of the reformatting process for Sections 2.1 A.3 and A.5.
February 27, 2025	Met with technical contact Nick Lang and subject matter expert Kirk Dunbar, both of HDR, Inc. regarding the incorrect section references. Revised draft permit and permit review sent to Mr. Lang and Mr. Dunbar for additional examination.
March 3, 2025	Subject matter expert Kirk Dunbar of HDR, Inc. indicated via email that they had comments on the draft permit and permit review. Mr. Dunbar requested additional corrections to both draft documents, including clarification about the nature of 40 CFR 60, Subpart Cf and 40 CFR 62, Subpart OOO and the replacement of direct rule references in the permit conditions for 40 CFR 63, Subpart AAA and 40 CFR 62, Subpart OOO with internal references to permit conditions for clarity and ease of interpretation. DAQ elected not to modify the direct rule references in the permit conditions, but all other proposed changes were made.
March 6, 2025	Subject matter expert Kirk Dunbar of HDR, Inc. indicated via phone that they had no further comments on the draft permit and draft review.
March 11, 2025	Technical contact Nick Lang indicated via email that they had no comments on the draft permit or permit review.
date	Draft permit and permit review forwarded to public notice via DAQ website.
date	Public comment period ends. Comments were/were not received.

date EPA comment period ends. [Comments were/were not received.](#)

date 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. This summary is not meant to be an exact accounting of each change but a summary of those changes.

Page(s)	Section	Description of Changes
Cover Letter and throughout permit	--	<ul style="list-style-type: none">Updated all dates and permit revision numbersReformatted permit in accordance with current TV permitting shell
6	2.1 A.3	<ul style="list-style-type: none">Reformatted the condition for 40 CFR 63, Subpart AAAA in accordance with current TV permitting standards
19	2.1 A.5	<ul style="list-style-type: none">Reformatted the condition for 40 CFR 62, Subpart OOO in accordance with current TV permitting standards
47	2.1 A.6	<ul style="list-style-type: none">Added PFAS disclosure condition pursuant to 15A NCAC 02Q .0308(a) and 15A NCAC 02Q .0309(b)
48	3	<ul style="list-style-type: none">Added one diesel-fired emergency generator (ID No. IES-EG2) to insignificant source table
49	4	<ul style="list-style-type: none">Updated General Conditions with most recent version (Version 8.0 dated 07/10/2024)

This permit renewal is being processed to add a new insignificant source (**ID No. IES-EG2**). This change will be reflected in TVEE.

5. Regulatory Review

Rowan County Solid Waste Landfill is subject to the following regulations. The facility's equipment and operations have not changed since the last renewal in 2019. The permit was updated to reflect the most current stipulations for all applicable regulations, where necessary.

15A NCAC 02D .0516, Sulfur Dioxide Emissions from Combustion Sources – Sulfur dioxide emissions from the Rowan County MSW landfill facility's combustion sources shall be no more than 2.3 pounds per million Btu heat input. For LFG combustion in the flare (**ID No. CD-1**), using AP-42 Chapter 2.4, Equations 3, 4, and 7, the SO₂ emission rate was determined to be 0.015 pounds per million Btu at the flare's maximum capacity of 45.0 million Btu per hour, 1500 scfm and assuming a heat value of 500 Btu per ft³ of LFG combusted. See calculation below, from Booker T. Pullen's TV review¹ for Permit No. 10405T03, dated January 24, 2023.

$$\text{Flare heat input} = \frac{1500 \text{ ft}^3}{\text{minute}} \times \frac{60 \text{ minutes}}{\text{hour}} \times \frac{500 \text{ BTU}}{\text{ft}^3} \times \frac{1 \text{ million BTU}}{1 \times 10^6} = \frac{45.0 \text{ million Btu}}{\text{hour}}$$

To calculate potential SO₂ emissions, AP-42 Chapter 2.4 was used:

- Flare design rating = 1,500 scfm (or 42.48 m³/min = 2,548.8 m³/hour)
- Methane is only 50% of this gas stream (1,274.4 m³/hour)
- Q_s = Emission rate of reduced sulfur compounds, m³/hour
- C_s = Concentration of reduced sulfur compounds (46.9 ppmv, AP-42)
- Multiplication factor for 50% methane concentration in landfill gas = 2.0

- Molecular weight of sulfur = 32.06 g/mole

$$Q_s = 2.0 \times Q_{CH_4} \times \left(\frac{C_s}{1 \times 10^6} \right) \quad (\text{AP-42, Equation 3})$$

$$Q_s = 2.0 \times 1,274.4 \frac{\text{m}^3}{\text{hour}} \times \left(\frac{46.9 \text{ parts}}{1 \times 10^6} \right) = 0.12 \frac{\text{m}^3}{\text{hour}}$$

The mass of the pre-combustion sulfur present in the methane was found using Equation 4 of AP-42, Section 2.4.4.2:

$$UM_s = 0.12 \frac{\text{m}^3}{\text{hour}} \times \left[\frac{32.06 \frac{\text{g}}{\text{gmol}} \times 1 \text{ atm}}{8.205 \times 10^{-5} \frac{\text{m}^3 \cdot \text{atm}}{\text{gmol} \cdot \text{K}} \times 1000 \frac{\text{g}}{\text{kg}} \times (273 + 25 \text{ }^\circ\text{C}) \text{ K}} \right] \times 2.205 \frac{\text{pounds}}{\text{kg}}$$

$$UM_s = 0.35 \frac{\text{pounds}}{\text{hour}}$$

To calculate SO₂ emitted from the combustion of sulfur, Equation 10 of Section 2.4-8 was used.

$$SO_2 \text{ emitted} = UM_s \times \frac{\eta_{col}}{100} \times 2.0$$

Where:

- UM_s = Uncontrolled mass emission rate of sulfur compounds (0.34 lb sulfur/hour)
- η_{col} = Collection efficiency of the landfill gas collection system, percent (assumed 100% for these purposes)
- 2.0 = Ratio of the molecular weight of SO₂ to the molecular weight of sulfur

$$SO_2 \text{ emitted} = 0.35 \frac{\text{lb}}{\text{hour}} \times \frac{100}{100} \times 2.0 \times 8,760 \frac{\text{hours}}{\text{year}} \times \frac{1 \text{ ton}}{2,000 \text{ lb}} = 3.0 \frac{\text{tons } SO_2}{\text{years}}$$

$$\text{Emission Rate } SO_2 = \frac{3.0 \text{ tons } SO_2}{\text{year}} \times \frac{2000 \text{ lbs } SO_2}{1 \text{ ton } SO_2} \times \frac{1 \text{ year}}{8760 \text{ hours}} \times \frac{\text{hour}}{45 \text{ million Btu}} = \frac{0.015 \text{ lbs } SO_2}{\text{million Btu}}$$

This value (0.015 pounds per million Btu) is well below the sulfur dioxide threshold. Continued compliance is expected. Landfill gas is similar in composition to natural gas for the purposes of this regulation, and as a result there are no requirements for monitoring, recordkeeping, or reporting for this source. The most recent inspection report², prepared by engineer Karyn Kurek of the Mooresville Regional Office and dated April 25, 2024, indicates that the facility demonstrated compliance during the permitting process.

15A NCAC 02D .0521, Control of Visible Emissions – The Rowan County MSW landfill facility’s control device (**ID No. CD-1**), one landfill gas-fired candlestick-type flare (1,500 scfm maximum gas flow rate) may produce visible emissions from the burning of landfill gas. The flare appears to have been built after July 1, 1971, so its emissions will be subject to a limit of 20% opacity per six-minute averaging period. Six minute averaging periods may exceed 20% opacity if: no six-minute averaging period exceeds 87% opacity; no more than one six-minute averaging period exceeds 20% opacity in any hour, and no more than four six-minute averaging periods exceed 20% opacity in any 24-hour period. Landfill gas is similar in composition to natural gas for the purposes of this regulation, and as a result there are no requirements for monitoring, recordkeeping, or reporting for this source. Properly maintained and operated flares of this nature typically have no trouble meeting the opacity requirements. The most recent inspection report², prepared by engineer Karyn Kurek of the

Mooresville Regional Office and dated April 25, 2024, indicates that the flare was in operation and producing no visible emissions at the time of inspection. Continued compliance is expected.

15A NCAC 02D .0524, New Source Performance Standards – The Rowan County MSW landfill facility is subject to one (1) New Source Performance Standard (NSPS): 40 CFR 60, Subpart III: Standards of Performance for Stationary Compression Ignition Internal Combustion Engines. The facility is also subject to 40 CFR 62, Subpart OOO: Federal Plan Requirements for Municipal Solid Waste Landfills that Commenced Construction On or Before July 17, 2014 and Have Not Been Modified or Reconstructed Since July 17, 2014, which is a federal plan that implements emissions guidelines from 40 CFR 60, Subpart Cf: Emission Guidelines and Compliance Timelines for Municipal Solid Waste Landfills. See the Federal Plan Requirements segment in Section 6 below for more information. The facility has one new 173-hp diesel fuel-fired emergency generator for the blower and flare (**ID No. IES-EG2**) that is subject to 40 CFR 60 Subpart III and 40 CFR 63, Subpart ZZZZ, and demonstrates compliance with that Subpart ZZZZ (a NESHAP regulation) by complying with 40 CFR 60, Subpart III. See the NSPS regulatory review in Section 6 below for more information. The facility shall comply with any applicable federal NSPS requirements to satisfy this state-level regulation. Continued compliance is expected.

15A NCAC 02D .0958, Work Practices for Sources of Volatile Organic Compounds - On November 1, 2016, amendments to 15A NCAC 02D .0902 were finalized to narrow applicability of work practice standards in 15A NCAC 02D .0958 from statewide to the maintenance area for the 1997 8-hour ozone standard. This change is being made primarily because the abundance of biogenic VOC emissions in North Carolina results in ozone formation being limited by the amount of available nitrogen oxides (NO_x) emissions. Provisions of the Clean Air Act require VOC requirements previously implemented in an ozone nonattainment area prior to redesignation remain in place. However, facilities outside the maintenance area counties for the 1997 8-hour ozone standard would no longer be required to comply with the work practice standards in 15A NCAC 02D .0958. Although Rowan County was previously in nonattainment for ozone, 15A NCAC 02D .0958 is not applicable to Rowan County Solid Waste Landfill. The facility has never in the past been subject to these work practice standards, so the permit condition for 15A NCAC 02D .0958 will continue to be omitted under this permit renewal.

15A NCAC 02D .1111, Maximum Achievable Control Technology – The Rowan County MSW landfill facility is subject to three (3) National Emission Standards for Hazardous Air Pollutants (NESHAP) regulations: 40 CFR 63, Subpart AAAA: National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills; 40 CFR 63, Subpart ZZZZ: National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines; and 40 CFR 63, Subpart CCCCC: National Emission Standards for Hazardous Air Pollutants for Source Category: Gasoline Dispensing Facilities. The facility's landfill portion (**ID No. ES-1**) is subject to 40 CFR 63, Subpart AAAA, its two emergency generators (**ID Nos. IES-EG1 and IES-EG2**) are subject to 40 CFR 63, Subpart ZZZZ, and its 200-gallon gasoline storage tank (**ID No. IES-Gasoline**) is subject to 40 CFR 63, Subpart CCCCC. See the NESHAPs/MACT regulatory review in Section 6 below for more information. The facility shall comply with any applicable federal NESHAP requirements to satisfy this regulation. Continued compliance is expected.

15A NCAC 02D .1806, Control and Prohibition of Odorous Emissions – The Rowan County MSW landfill facility is capable of generating odorous emissions. The facility owner/operator is required to implement practices or odor control technologies sufficient to prevent facility emissions from causing or contributing to objectionable odors beyond the facility's boundaries. The most recent inspection report², prepared by engineer Karyn Kurek of the Mooresville Regional Office and dated April 25, 2024, indicates that the facility has had no issues managing odors. No odor complaints have been

filed by neighbors or other citizens in the past. Continued compliance is expected. This is a state-enforceable only requirement.

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

NSPS

The facility is currently subject to one (1) New Source Performance Standard: 40 CFR 60, Subpart IIII: Standards of Performance for Stationary Compression Ignition Internal Combustion Engines. The facility is also subject to 40 CFR 62, Subpart OOO: Federal Plan Requirements for Municipal Solid Waste Landfills that Commenced Construction On or Before July 17, 2014 and Have Not Been Modified or Reconstructed Since July 17, 2014, which implements 40 CFR 60, Subpart Cf: Emission Guidelines and Compliance Timelines for Municipal Solid Waste Landfills. See the Federal Plan Requirements segment below for more information on 40 CFR 62, Subpart OOO. This permit renewal changes the facility's NSPS status to include 40 CFR 60, Subpart IIII based on the addition of a new 173hp diesel fuel-fired emergency generator for the blower and flare.

40 CFR 60, Subpart Cf: Emission Guidelines and Compliance Timelines for Municipal Solid Waste Landfills – The Rowan County MSW landfill facility is now considered an existing source under this subpart, because it has accepted waste after November 8, 1987, and was constructed prior to July 17, 2014. This subpart is implemented by 40 CFR 62, Subpart OOO, which means that 40 CFR 60, Subpart WWWW is no longer applicable to this facility. Since this subpart's contents are implemented by another subpart, there are no conditions in the permit language related to this subpart. See the regulatory review for 40 CFR 62, Subpart OOO below in the Federal Plan Requirements segment for more information.

40 CFR 60, Subpart IIII: Standards of Performance for Stationary Compression Ignition Internal Combustion Engines – The Rowan County MSW landfill facility has recently installed a 2019 model 173-horsepower diesel fuel-fired emergency generator (**ID No. IES-EG2**) for the landfill gas collection system's blower and flare as of August 2020. According to the generator's EPA exhaust emission compliance statement from 2020, attached to Melinda Wolanin's inspection report³ dated February 23, 2021, the engine is manufactured by Cummins, Inc., model number QSB5-G13, with a displacement of 272 in³ (4.45L) and a compression ratio of 17.3:1. The EPA compliance statement was issued on and is effective as of July 8, 2019. Note that this source is also subject to 40 CFR 63, Subpart ZZZZ: National Emission Standards for Stationary Reciprocating Internal Combustion Engines and demonstrates compliance with that NESHAP regulation by complying with this subpart. Also note that this source is considered insignificant, so there will be no permit condition for Subpart IIII in the permit language. The facility is still required to comply with this subpart where applicable. EPA certification testing indicated the generator's compliance with applicable emission limits upon issuance. Continued compliance is expected.

NESHAP/MACT

The facility is currently subject to three (3) Maximum Achievable Control Technology standards: 40 CFR 63, Subpart AAAA: National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills; 40 CFR 63, Subpart ZZZZ: National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines; and 40 CFR 63, Subpart CCCCCC: National Emission Standards for Hazardous Air Pollutants for Source Category: Gasoline Dispensing Facilities. The facility itself is subject to Subpart AAAA, specifically the landfill portion (**ID No. ES-1**); the facility's two emergency generators (**ID Nos. IES-EG1** and **EG2**) are subject to Subpart ZZZZ; and the facility's 200-gallon gasoline storage tank (**ID No. IES-Gasoline**) is subject to Subpart CCCCCC. This

³ <https://edocs.deq.nc.gov/AirQuality/DocView.aspx?id=66057&dbid=0&repo=AirQuality>

permit renewal does not change the facility's MACT status, although it should be noted that this permit renewal adds the second, diesel fuel-fired emergency generator as a source, which is subject to Subpart ZZZZ.

40 CFR 63, Subpart AAAA: National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills – The Rowan County MSW landfill has accepted waste since November 8, 1987, has a design capacity greater than 2.5 million megagrams and 2.5 million cubic meters, and has demonstrated an annual NMOC emission rate greater than 50 megagrams per year, so it is subject to this subpart. Note that the facility demonstrates compliance with 40 CFR 62, Subpart OOO by complying with this subpart. The facility is required to: monitor the parameters of its well field consisting of 36 wells daily, monitor its flare for methane concentration, CO₂ concentration, oxygen concentration, temperature, pressure, and low rates quarterly, and monitor surface methane concentration quarterly; keep records of these activities for review upon request, and to maintain a site map of all well locations; submit a design capacity report to the Division of Solid Waste annually as well as a design report for the gas collection system; submit a summary of all monitoring and recordkeeping activities semi-annually to the DAQ; and to submit reports through the EPA's Compliance and Emissions Data Reporting Interface (CEDRI), although CEDRI is not yet set up to accept reports from landfills as of the time of the latest inspection report (April 25, 2024) – the facility will comply with this requirement once the EPA has updated CEDRI. The most recent inspection report², prepared by engineer Karyn Kurek of the Mooresville Regional Office and dated April 25, 2024, indicates that the facility is achieving compliance with this subpart without issue and continues to meet monitoring/recordkeeping/reporting requirements. Continued compliance is expected.

This subpart has been updated four times since the last renewal: on March 26, 2020; on October 13, 2020; on November 12, 2020; and on February 14, 2022. This permit was reopened for cause in 2021, with one of the reasons for this being to address this particular regulatory update. The permit was then reissued on January 24, 2023, including revised permit conditions to reflect technical revisions and clarifications made by the EPA. No changes to the permit related to this subpart are needed in this renewal as they have already been included.

40 CFR 63, Subpart ZZZZ: National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines – The Rowan County MSW landfill operates two stationary reciprocating internal combustion engines that are subject to this subpart: its emergency generators (**ID Nos. IES-EG1 and EG2**). The facility demonstrates compliance with Subpart ZZZZ for the second, diesel fuel-fired generator by complying with 40 CFR 60, Subpart IIII. Note that both generators subject to this subpart are considered insignificant, so there are no conditions for this subpart in the permit language. The facility is still required to comply with this subpart where applicable. Continued compliance is expected.

This subpart has been updated eight times since the last renewal: on November 19, 2020; on December 4, 2020; on January 1, 2021; on January 20, 2021; on August 10, 2022; on March 29, 2023; on May 30, 2023; and most recently, on August 30, 2024. It should be noted that the most recent update brings significant alterations, as it clarifies the definition of “annually” to “1 year + 30 days of previous action” for oil change, inspection, and cleaning actions, adds a requirement for digital reporting using the EPA's Electronic Reporting Tool (ERT) within 60 days of completing performance tests and continuous emissions monitoring system (CEMS) evaluations, adds a digital reporting requirement for certain compliance reports (for example, initial compliance notifications), and clarifies certain requirements in the subpart's supplementary tables. As previously mentioned, all Subpart ZZZZ-applicable sources are insignificant, so there are no conditions in the permit language

and no changes will be needed to apply these updates. The facility must still comply with the most recent form of this subpart where applicable.

40 CFR 63, Subpart CCCCCC: National Emission Standards for Hazardous Air Pollutants for Source Category: Gasoline Dispensing Facilities – The Rowan County MSW landfill operates one 200-gallon gasoline storage tank (**ID No. IES-Gasoline**) that is subject to this subpart. The facility itself is an area source of HAPs and meets the definition of a “gasoline dispensing facility” (any stationary source which dispenses gasoline into the tank of a motor vehicle, motor vehicle engine, nonroad vehicle, or nonroad vehicle engine). There is no size threshold under this subpart. Note that the only source at the facility subject to this subpart is considered insignificant, so there are no conditions for this subpart in the permit language. The facility is still required to comply with this subpart where applicable, including work practice standards for the handling of gasoline. Continued compliance is expected.

This subpart has been updated three times since the last renewal: on November 19, 2020; on December 7, 2020; and on January 18, 2021. As previously mentioned, all Subpart CCCCCC-applicable sources are insignificant, so there are no conditions in the permit language and no changes will be needed to apply these updates. The facility must still comply with the most recent form of these subpart where applicable, including work practice standards for the handling of gasoline.

Federal Plan Requirements

The facility is currently subject to one (1) Federal Plan Requirement: 40 CFR 62, Subpart OOO: Federal Plan Requirements for Municipal Solid Waste Landfills that Commenced Construction On or Before July 17, 2014 and Have Not Been Modified or Reconstructed Since July 17, 2014, which implements 40 CFR 60, Subpart Cf: Emission Guidelines and Compliance Timelines for Municipal Solid Waste Landfills. This permit renewal does not change the facility’s status with respect to any Federal Plan Requirements.

40 CFR 62, Subpart OOO: Federal Plan Requirements for Municipal Solid Waste Landfills that Commenced Construction On or Before July 17, 2014 and Have Not Been Modified or Reconstructed Since July 17, 2014 – The Rowan County MSW Landfill facility is considered an existing municipal solid waste (MSW) landfill according to 40 CFR 62.16711 as it was constructed prior to July 17, 2014, and has accepted waste since November 8, 1987. Furthermore, the facility has a design capacity greater than 2.5 million megagrams and 2.5 million cubic meters. This regulation replaces 40 CFR 60, Subpart WWW: Standards of Performance for Municipal Solid Waste Landfills That Commenced Construction, Reconstruction, or Modification on or After May 30, 1991, but Before July 18, 2014. According to 40 CFR 62.16711(b), MSW landfills regulated by EPA-approved state or tribal plans implementing 40 CFR 60, Subpart Cf are not subject to the requirements of this subpart. However, as of this permit issuance, North Carolina’s state implementation plan rules, codified in 15A NCAC 02D .1700, have not yet been approved by the EPA, so this subpart is used in their place. The addition of this subpart was the subject of a reopening for cause of this facility’s previous permit issuance (Air Permit No. 10405T02) in 2021. This subpart was included when the permit was reissued. See Booker T. Pullen’s Title V permit review¹ for Air Permit No. 10405T03, dated January 24, 2023. Until EPA approval of the NC SIP landfill rules implementing the federal emissions guidelines as described previously (40 CFR 60, Subpart Cf), the federal rules will apply. Note that physical or operational changes made to an existing MSW landfill solely to comply with an emission standard under this section are not considered a modification or reconstruction of the landfill, and do not subject the landfill to the requirements of 40 CFR 60, Subpart XXX.

To maintain compliance with 40 CFR 62 Subpart OOO, the facility is required to observe the emission limits, operating standards, and compliance schedule included in this subpart. The facility must also comply with the monitoring requirements and monitor the following: the gauge pressure in

the gas collection header on a monthly basis; the nitrogen and oxygen concentrations in captured landfill gas on a monthly basis; the temperature of the landfill gas on a monthly basis provided in 62.16720(a)(4); and the surface concentration of methane along the entire perimeter of the collection area for each collection area on a quarterly basis. Furthermore, the facility must maintain the following records: records of the design capacity, current amount of solid waste interred, and year-by-year waste acceptance rate for up to five years; records of the initial performance test data or compliance determination data, vendor specifications, and a plot map of each existing and planned collector in the system for the life of the control system; continuous records of the equipment operating parameters specified in 62.16722 as well as records for periods of operation during which the parameter boundaries established during the most recent performance test are exceeded; records of all collection and control system exceedances of operational standards, including readings in the subsequent month whether or not the second reading is an exceedance and the location of each exceedance; records of all SEM and information related to monitoring instrument calibrations conducted; and records of all collection and control system monitoring data for parameters measured. Finally, the facility shall submit annual reports of the following: value and length of time for exceedance of applicable parameters monitored under 62.16722(a)(1), (b), (c), (d), and (g); description and duration of all periods when the gas stream is diverted from the control device through a bypass line or the indication of bypass as specified in 62.16722; description and duration of all periods when the control device was not operating and length of time the control device was not operating; all periods when the collection system was not operating; the location of each exceedance of the 500 parts per million methane concentration as provided in 16.16716(d) and the concentration recorded at each location for which an exceedance was recorded in the previous month; the date of installation and the location of each well or collection system expansion added pursuant to 62.16720(a)(3), (4), (b), and (c)(4); and the root analysis conducted, including a description of the recommended corrective action, the date of the corrective action already completed following a positive pressure or elevated temperature reading, and, for action not already completed, a schedule for implementation, including proposed commencement and completion dates for any corrective action analysis for which corrective actions are required in 62.16720(a)(3) or (4) and that take more than 60 days to correct the exceedance. The most recent inspection report², prepared by engineer Karyn Kurek of the Mooresville Regional Office and dated April 25, 2024, indicates that the facility is compliant with this subpart and demonstrates compliance with this subpart by demonstrating compliance with 40 CFR 63, Subpart AAAA. See the regulatory review for Subpart AAAA in Section 6 under NESHAP/MACT below. The last periodic compliance report was received by the Mooresville Regional Office on July 26, 2024. Continued compliance is expected.

Subpart OOO was promulgated for the first time after the last permit renewal, on May 21, 2021. It was then updated twice, on June 21, 2021, and on February 14, 2022. The first change brought the subpart into existence from an amendment to Subpart XXX, and the second includes technical clarifications and revisions, clarifies timing for compliance involving gas collection and control systems, and clarifies the definition of “Administrator” for the purposes of the subpart. However, permit conditions related to this subpart were not included until the permit was reopened for cause, which was issued on January 24, 2023, after this subpart was last updated. No changes to the permit related to this subpart are needed in this renewal.

PSD

The Rowan County MSW landfill facility’s potential emissions do not meet PSD permitting thresholds. No change with respect to PSD is anticipated under this permit renewal.

The Rowan County airshed has triggered increment tracking under PSD for emissions of PM_{2.5}, PM₁₀, SO₂, and NO_x. The addition of the new emergency generator (**ID No. IES-EG2**) as part of this permit

renewal will result in an increase of 0.08 pounds per hour of PM₁₀ and PM_{2.5}, an increase of 0.002 pounds per hour of SO₂, and an increase of 1.12 pounds per hour of NO_x.

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 a facility required to hold a TV permit 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).

The facility is not subject to CAM regulations because the facility is regulated by NSPS, MACT, and Federal Plan standards that were promulgated after 1990 and control the pollutants that would otherwise be subject to CAM regulations. No change with respect to CAM is anticipated under this permit renewal.

7. Facility Wide Air Toxics

The Rowan County MSW landfill facility’s emissions were evaluated for calendar year 2024, and it has been determined that this renewal causes no increase in emissions of toxic air pollutants (TAPs) above the amounts the facility was initially permitted for in permit issuance T01. No toxics modeling demonstration is required, and no change is anticipated with regards to NC Air Toxics under this permit renewal.

8. Facility Emissions Review

The facility-wide potential emissions have not changed because of this TV permit renewal, outside of a marginal increase from the addition of one insignificant source, one diesel fuel-fired emergency generator (ID No. IES-EG2). The increase in potential emissions from this new source are as follows:

Pollutant	Potential Emissions (tpy)	PSD Major Source Threshold (tpy)
PM	0.02	250
PM ₁₀	0.02	250
PM _{2.5}	0.02	250
SO ₂	0.0005	250
NO _x	0.28	250
CO	0.36	250
VOC	0.28	250
Lead	0.000003	250
Carbon dioxide equivalent (CO ₂ e)	50	NA

The increase to total emissions as a result of the addition of this source are marginal. Total facility actual emissions for criteria pollutants and HAPs for the previous five years reporting periods are provided in the header of this permit review.

9. Compliance Status

DAQ has reviewed the compliance status of Rowan County Solid Waste Landfill. During the most recent inspection, conducted on August 25, 2024, the facility appeared to be in compliance with all applicable requirements. Further, the facility has had no air quality violations within the last five years. The facility's Annual Compliance Certification⁴ was received on March 1, 2024, and indicated compliance with all applicable requirements in 2023. The facility's Periodic Compliance Report⁵ was received on January 27, 2025, and certified compliance during the six-month period between July 1, 2024 and December 31, 2024.

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. The facility is in close proximity to Mecklenburg and Forsyth Counties, which have their own environmental programs, as well as the state of South Carolina. All possible affected states will be notified regardless of proximity in accordance with DAQ policy.

11. Other Regulatory Considerations

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 decisions⁶. Moreover, per EPA, the removal of these provisions is also consistent with other recent EPA actions involving affirmative defenses⁷ 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

⁴ <https://edocs.deq.nc.gov/AirQuality/DocView.aspx?id=476471&dbid=0&repo=AirQuality>

⁵ <https://edocs.deq.nc.gov/AirQuality/DocView.aspx?id=533412&dbid=0&repo=AirQuality>

⁶ NRDC v. EPA, 749 F.3d 1055 (D.C. Cir. 2014).

⁷ 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).

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.

- 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.
- DAQ's PFAS Questionnaire was sent to facility technical contact Emily Tucker on September 9, 2024, and a response was received on October 9, 2024. The facility's response is documented in Attachment 1 to this technical review. Based on the facility's response, it was determined that the facility should receive the PFAS disclosure condition. Under this condition, the facility has an ongoing duty to disclose the presence of materials containing fluorinated compounds to the DAQ. This condition can be found in Section 2.1 A.6 of the permit.

12. Recommendations

The permit renewal application for Rowan County Solid Waste Landfill 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. 10405T04.

Attachment 1:
Rowan County Solid Waste Landfill's Response to DAQ PFAS Questionnaire

DAQ Question 1:

Will your facility use any material or products in your operations that contain fluorinated chemicals? If so, please identify such materials or products and the fluorinated chemicals they contain.

The Rowan County Landfill (Permit No. 80-03) does not knowingly use any products in its solid waste landfill operation that contain fluorinated chemicals. The municipal solid waste and other waste materials disposed at the landfill do contain PFAS compounds, but the landfill is a passive receiver of these waste materials.

DAQ Question 2:

Will your facility formulate/create products or byproducts (directly or indirectly) that contain fluorinated chemicals (across multiple media)? If so, please identify such products or byproducts and the fluorinated chemicals they contain.

The Rowan County Landfill does not formulate or create products or byproducts that contain fluorinate chemicals.

DAQ Question 3:

Will your facility generate solid, liquid, or gaseous related emissions, discharges, or wastes/products containing fluorinated chemicals? If so, please identify such waste streams or materials and the fluorinated chemicals they contain.

The Rowan County Landfill generates leachate and landfill gas from the degradation of waste materials containing fluorinated chemicals.

The landfill gas is collected and controlled with flare combustion in accordance with its Title V Permit. The extent to which volatile fluorinated compounds are collected in the landfill gas has not yet been determined.

Per the March 2023 memorandum and as clarified in a July 2023 memorandum from the NC DEQ Solid Waste Section (SWS), PFAS samples were collected from the landfill leachate during the January or April 2024 sampling event. In accordance with the memoranda, PFAS samples were analyzed by using EPA Method 1633. 14 of the 40 PFAS compounds quantified by Method 1633 were detected in the leachate samples. A summary table of the detected concentrations in the landfill leachate are included in the attached **Table 1**.

DAQ Question 4:

Do your facility's processes or operations use equipment, material, or components that contain fluorinated chemicals (e.g., surface coating, clean room applications, solvents, lubricants, fitting, tubing, processing tools, packaging, facility infrastructure, air pollution control units)? Could these processes or operations directly or indirectly (e.g., through leaching, chemical process, heat treatment, pressurization, etc.) result in the release of fluorinated chemicals into the environment?

The Rowan County Landfill processes solid waste materials that contain fluorinated compounds through the landfill disposal operations. Landfill gas and leachate generated from the degradation of the waste materials contain fluorinated compounds. Landfill gas is collected and controlled in accordance with its

Title V Permit. The landfill leachate is collected and disposed of off-site at a municipal wastewater facility in accordance with its solid waste permit.

DAQ Question 5:

List the fluorinated chemicals identified (i.e., through testing or desktop review) above in your response under the appropriate methods/approaches? If one is not, are they on any other known US or International target lists? OTM-45 (air emissions) Methods 533 & 537.1 (drinking water) SW-846: Method 8327 (water) Draft Method 1633 (water, solids, tissue) Total PFAS” Draft Method 1621 for Adsorbable Organic Fluorine (wastewater) Non targeted analytical methods Qualitative approach through suspect screening.

See attached **Table 1** for the fluorinated compounds detected in the landfill leachate using Method 1633. Fluorinated compound concentrations in the landfill gas have not yet been determined.

DAQ Question 6:

Are there other facilities or operations in the U.S. or internationally engaged in the same or similar activities involving fluorinated chemicals addressed in your response to the above questions? If so, please provide facility identification information? In addition, are there any ISO (International Organization for Standardization) certification requirements?

All municipal solid waste landfills in the U.S. and internationally manage waste materials containing fluorinated compounds.

DAQ Question 7:

Do you plan to store AFFF on site, use it in fire training at the site, use it for fighting fires at the facility, or include it in a fire fighting system at the site?

The County does not plan to store AFFF or use it at its landfill facility for training or fighting fires.

DAQ Question 8:

Are other emerging contaminants (e.g., 1,4-dioxane, brome, perchlorate, 1,2,3-Trichloropropane) used in some capacity within your facility or operations?

The Rowan County Landfill does not knowingly use any of these products as part of its solid waste landfill operation.

DAQ Question 9: Do you need technical assistance to answer the questions above?

Rowan County does not require technical assistance to answer the above questions.

Table 1. Summary of Detected PFAS Constituents in Leachate⁸

Abbreviation	Analyte	Reporting Units	Sample Date	MRL	Leachate
3:3 FTCA	3-Fluoropropyl propanoic acid	ng/L ng/L	08/10/23 01/29/24	25.0 8.67	ND 181
5:3 FTCA	2H, 2H, 3H, 3H-Perfluorooctanoic acid	ng/L ng/L	08/10/23 01/29/24	125 8.67	4330 1840
7:3 FTCA	3-Perfluoroheptyl propanoic acid	ng/L ng/L	08/10/23 01/29/24	125 8.67	ND 142
NEtFOSAA	N-ethylperfluorooctanesulfonamidoacetic acid	ng/L ng/L	08/10/23 01/29/24	5.0 1.73	ND 94.6
NMeFOSAA	N-methylperfluorooctanesulfonamidoacetic acid	ng/L ng/L	08/10/23 01/29/24	5.00 1.73	75.3 86.1
PFBS	Perfluorobutanesulfonic acid	ng/L ng/L	08/10/23 01/29/24	5.00 1.54	156 105
PFHxA	Perfluorohexanoic acid	ng/L ng/L	08/10/23 01/29/24	5.00 1.73	1340 1240
PFBA	Perfluorobutanoic acid	ng/L ng/L	08/10/23 01/29/24	20.0 6.93	665 538
PFPeA	Perfluoropentanoic acid	ng/L ng/L	08/10/23 01/29/24	10.0 3.47	608 1000
PFHpA	Perfluoroheptanoic acid	ng/L ng/L	08/10/23 01/29/24	5.00 1.73	366 367
PFHxS	Perfluorohexanesulfonic acid	ng/L ng/L	08/10/23 01/29/24	5.00 1.58	213 249
PFNA	Perfluorononanoic acid	ng/L ng/L	08/10/23 01/29/24	5.00 1.73	ND 28.0
PFOS	Perfluorooctanesulfonic acid	ng/L ng/L	08/10/23 01/29/24	5.00 1.61	ND 69.3
PFOA	Perfluorooctanoic acid	ng/L ng/L	08/10/23 01/29/24	5.00 1.73	565 642

⁸ WSP USA Inc. First Semi-Annual 2024 Water Quality Monitoring Report. Active Rowan County Landfill, Permit No. 80-03. June 2024.