UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 7
11201 Renner Boulevard
Lenexa, Kansas 66219

February 8, 2023

Mr. Juene Franklin, PE
President
Franklin Engineers & Consultants, LLC
2734 Sunrise Boulevard, Suite 308
Pearland, Texas 77584

Dear Mr. Franklin:

The U.S. Environmental Protection Agency is providing this response to your letter dated January 20, 2022, requesting the use of an alternative procedure for calculating the nonmethane organic compound emission rate at the Timber Ridge Landfill located in Richwoods, Missouri, subject to the Federal Plan Requirements for Municipal Solid Waste Landfills pursuant to 40 CFR Part 62, Subpart OOO.

Timber Ridge has an operational Gas Collection and Control System that was voluntarily installed to generate Greenhouse Gas reduction credits. In your letter, you requested to perform the Tier 2 test and calculate the NMOC emissions by collecting at least three samples of landfill gas from the common header pipe before any condensate removal or other gas refining units. The samples would be tested in accordance with test methods 25C/3C. NMOC calculations would then be made using the equation 3 which is used to determine if a GCCS can be capped, removed, or decommissioned to determine the NMOC emissions rate in lieu of using equations 1 or 2 based on known or unknown actual year-to-year solid waste acceptance rates.

As the support for the proposed alternative methodology, the facility provided a recent regulatory interpretation issued by EPA Region 4, dated November 18, 2021, for the Hopkins County Regional Landfill (HCRL) located in White Plains, Kentucky. Based on our review of the facility's request and submittal, the request is approved with the conditions outlined in the attachment to this letter.

The owner or operator of the Timber Ridge Landfill shall apply for a Part 70 permit modification to reflect this alternative calculation method.

This response was coordinated with the EPA Region 7 Air and Radiation Division, the EPA's Office of Enforcement and Compliance Assurance and the EPA's Office of Air Quality Planning and Standards. If you have any questions about the response, please contact Mr. Ward Burns at (913) 551-7960 or burns.ward@epa.gov.

Sincerely,

TRACEY CASBURN

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Date: 2023.02.08 08:44:14 -06'00'

Tracey Casburn, Chief
Air Branch
Enforcement and Compliance Assurance Division
US EPA Region 7

Enclosure

cc: Mr. Andrew Brown, Timber Ridge Landfill
Mr. Richard Swartz, Missouri Department of Natural Resources

Enclosure
Submission, Regulatory Background, EPA Response, Conditions
Timber Ridge Landfill

Submission

Under the alternative proposed, Timber Ridge Landfill would determine the annual NMOC emission rate consistent with the Region 4 regulatory interpretation as follows:

1. Tier 2 site-specific NMOC concentration testing will be conducted as required under § 62.16718(a)(3)(ii). During testing events, Tier 2 samples will be collected at the flare station that is part of the landfill's existing GCCS; additionally, sampling will be conducted before any gas moving, condensate removal, or treatment system equipment other than the condensate knockout/dripleg marked K0-1 on the site diagram included as Attachment A to the facility's submission. At least three samples will be collected.

2. Landfill gas collected at the Timber Ridge Landfill will be burned in an onsite flare, and a factory calibrated mass flow meter will continuously measure the amount of landfill gas sent to the flare. This mass flow meter will be used to determine the volume of landfill gas collected and burned at the Timber Ridge Landfill on an annual basis.

3. The annual NMOC emission rate for the Timber Ridge Landfill will be calculated using the equation 3 in § 62.16718(b) as an alternative to the equations 1 or 2 in § 62.16718(a). The inputs for the equation will be the NMOC concentration from the Tier 2 testing and the annual flow rate of the landfill gas measured at the flare inlet.

Regulatory Background

Subpart OOO requires that owners and operators of landfills with a design capacity equal to or greater than 2.5 million megagrams (Mg) and equal to or greater than 2.5 million cubic meters, calculate their facilities' NMOC emission rates on an annual basis. Under Subpart OOO, owners and operators of landfills with calculated NMOC emission rates that are equal to or greater than 34 Mg/year are required to install, operate, and maintain a GCCS. Your letter requested approval to use an alternative NMOC emission rate calculation method pursuant to 40 CFR § 62.16718(a)(5) for an area of the Timber Ridge Landfill where a GCCS is installed and operating.

In 40 CFR § 62.16718, two equations for calculating NMOC emission rates are provided. The equation in 40 CFR §62.16178(a)(1)(i)(A) (referred to as Equation 1) is for landfills that have known actual year-to-year solid waste acceptance rates, and the equation in 40 CFR §62.16178(a)(1)(ii)(A) (referred to as Equation 2) is for landfills where the actual year-to-year solid waste acceptance information is not available. The facility is requesting an alternative to using either of these equations to calculate the NMOC emission rate for the Timber Ridge Landfill; the facility requests approval to use the equation promulgated at 40 CFR §62.16718(b) (referred to as Equation 3). Under Subpart OOO, this equation is used for calculating NMOC emission rates when determining whether a GCCS, installed to comply with Subpart OOO, can be capped, removed, or decommissioned.

Landfill rule implementation guidance issued by the EPA indicates that, if a landfill has an existing GCCS, the equation normally used for calculating NMOC emission rates to determine whether a GCCS can be removed, can also be used for determining whether a landfill's NMOC emission rate exceeds the threshold which triggers the requirement for installation of a GCCS. The guidance document which discussed this option is titled *Municipal Solid Waste Landfill New Source Performance Standards and Emission Guidelines Questions and Answers*. This guidance was initially published in 1998[1].

The NMOC emission rates using the alternative equation should be more accurate than those calculated using the equation that has the same format as the one in § 62.16718(a). This is because landfill gas flow rates in the alternative equation are measured directly, rather than calculated using multiple parameters (*i.e.,* waste acceptance rates, waste age, and methane generation rates constants), which can cause errors in the calculated emission rate if accurate site-specific information is not available. EPA's Questions and Answers guidance indicates the presence of a properly designed and operated gas collection system should be a prerequisite to calculating NMOC emission rates using an equation formatted like the one in § 62.16718(b).

Subpart OOO requires that NMOC emission rates be calculated and reported annually for landfills whose emissions are below 34 Mg/year. Based upon this annual reporting requirement, the EPA determined that the quarterly monitoring specified below as a condition for approval for your request is needed to provide assurance that the gas collection at the Timber Ridge Landfill is designed and operated in a manner that will prevent NMOC emission rates from being underestimated when using the equation in § 62.16718(b).

EPA Conclusion

Based upon its review of the submission and the fact that the voluntary GCCS was collecting gas from 100% of the area(s) that have retained waste for at least two (2) years at the time of the request, the EPA has determined that the proposed alternative will be acceptable under the following conditions:

1. The owner/operator of Timber Ridge Landfill must install, operate, and maintain a continuous flow meter capable of measuring the volumetric flow rate of the landfill gas at the inlet to the flare. The flow meter shall be calibrated using methods specified by the manufacturer or one of the 8 methods, if applicable, specified in 40 CFR § 98.344(c)(1)-(8). The meter must be capable of correcting for temperature and if necessary, pressure. Currently the Timber Ridge Landfill uses a thermal mass flow meter that is unaffected by pressure changes less than 15 atmospheres; therefore, pressure corrections would not be necessary. The flow meter shall be recalibrated either biennially (every 2 years) or at the minimum frequency specified by the manufacturer. Documentation regarding flow meter maintenance and calibration must be included with each annual emission rate report submitted to satisfy the reporting requirement in § 62.16724(c).

2. At this time, there are no dedicated temperature, pressure, and moisture content monitors required to calculate flow. If any temperature, pressure, and moisture content monitors are required in the future, these instruments must be calibrated using the procedures and frequencies

[1] Available at https://www.epa.gov/stationary-sources-air-pollution/municipal-solid-waste-landfill-new-source-performance-standards

specified by the manufacturer. Currently the Timber Ridge Landfill's flow monitor only uses temperature sensors that are part of the monitor therefore additional monitors for temperature, pressure, or moisture are not required.

3. The owner/operator of the Timber Ridge Landfill must have a monitoring program to demonstrate that a negative pressure is maintained at each wellhead in the GCCS. This demonstration shall be provided by conducting quarterly monitoring using procedures and corrective action provisions promulgated at § 62.16720(a)(3).

4. The owner/operator of the Timber Ridge Landfill must implement a monitoring program in areas of the landfill under the influence of the GCCS to demonstrate that the surface methane concentration at the facility is less than 500 parts per million by volume (ppmv). This demonstration shall be provided by conducting quarterly monitoring using procedures and corrective action provisions promulgated at § 62.16720(c). Monitoring shall be conducted in accordance with § 62.16716(d), which requires that the surface methane concentration be measured around the perimeter of the collection area, at 30-meter intervals across the landfill surface, and where visual observations indicate the potential for elevated landfill gas concentrations (*i.e.,* areas where distressed vegetation, cracks or seeps in the landfill cover, or cover penetrations are present). This approval terminates if Timber Ridge Landfill fails to perform this monitoring or if the corrective action provisions in § 62.16720(c) are not followed. The rule's standard procedures would be used to calculate the NMOC emission for the next and subsequent NMOC reports.

5. Emissions from the area(s) of the landfill that are currently under the influence of the GCCS shall be calculated by the following:
    a. The flow rate will be calculated by taking the volume of gas in standard cubic feet (scf), as measured by the gas flow meter, and dividing by the number of minutes the meter collected valid data over the time period (year) of the calculation giving the average scf per minute of flow (scfm).
    b. The flow will be converted from scfm to cubic meters per minute by dividing by 35.3147.
    c. Equation 3 in § 62.16718(b) will be used to mass emission rate in megagrams per year. Following the calibration requirement in § 62.16718(b)(1) is not necessary. The NMOC concentration of the collected gas will be determined at least every five years.
    d. The start date, stop date and the number of valid minutes shall be included in the report.

6. Emissions from the area(s) of the landfill that are not under the influence of the GCCS after completion of the most recent Tier 2 Test, shall be calculated using Equation 1 in § 62.16718(a) as indicated below:
    a. The Landfill Gas Emissions Model (LandGEM) may be used to complete the calculation.
    b. Only the waste that is deposited in the area(s) of the landfill that are not influenced by the existing GCCS will be used to calculate emissions. For example, if the facility accepts 30,000 tpy of waste in 2023 that is not influenced by the existing GCCS, the facility will only be required to input 30,000 tpy of waste into LandGEM to calculate the emissions from the uncontrolled area in 2023.

c. The NMOC concentration calculated in the most Recent Tier 2 Test will be used to calculate the NMOC emissions from any waste deposited in uncontrolled areas of the waste mass.
    i. The most recent NMOC concentration used for the area under the influence of the GCCS may be used if no additional surface probes would have been required by § 62.16718(a)(3) at the time the NMOC concentration testing is performed on the GCCS. For example, the most recent Tier 2 Test is completed at a facility that has 100% GCCS coverage of the area(s) with waste that has been in place for at least 2 years and the GCCS is shown to provide sampling as representative as the two sampling probes per hectare requirement.
    ii. If § 62.16718(a)(3) would have required additional surface probes, a site specific NMOC concentration will be determined by following the procedures in § 62.16718(a)(3) for just the areas of the landfill not under the influence of the GCCS.

7. The total NMOC emission rate for the Timber Ridge Landfill must be calculated as the sum of the emission rate in the portion of the landfill under the influence of the GCCS and the emission rate in the portion of the landfill not under the influence of the GCCS.