REGION 4
ATLANTA, GA 30303

July 2, 2024

Mr. Matthew Jones, E.I.
Smith Gardner. Inc.
14 N. Boylan Avenue
Raleigh, North Carolina 27603

Dear Mr. Jones:

The U.S. Environmental Protection Agency is providing this regulatory interpretation (RI) in response to your letter dated February 21, 2024, acting on behalf of North Wake County Municipal Solid Waste (MSW) Landfill (Landfill) located in Raleigh, North Carolina, to the EPA. Your letter requests to use an alternative landfill gas flowrate calculation procedure for determining when a gas collection and control system (GCCS) may be removed for a closed landfill under provisions of Title 40, Code of Federal Regulation (C.F.R.), Part 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*. In addition to Subpart OOO, the Landfill is also regulated under the provisions of Title 40 C.F.R. Part 63, Subpart AAAA, *National Emission Standards for Hazardous Air Pollutants: MSW Landfills*. On May 8, 2024, Mr. Matthew Lamb of Smith Gardner's staff provided additional information to support the request. Based on the information provided, and additional consideration by the EPA, your proposal is acceptable. The details of our approval are explained in the remainder of this letter.

Overview of the Landfill

The Landfill consists of one unlined MSW landfill unit (33 acres) and two lined MSW Units [Phase 1 and Phase 2) (70 acres), all of which are closed. Closure Construction Quality Assurance reports for the unlined, Phase 1, and Phase 2 units were submitted to North Carolina's Department of Environmental Quality (NCDEQ) dated December 1997, March 2005, and February 2010, respectively. The Phase 2 unit stopped receiving waste in 2008. As a result, the actual control periods of the landfill gas collection and control system exceeds the regulatory minimum 15-year control period standard (unlined – 27+ years, Phase 1 – 19+ years, and Phase 2 – 16 years).

Description of the Landfill's Request

Currently, the landfill gas collection piping system is located beneath grade and testing nozzles are absent. Additionally, Smith Gardner indicated that working beneath grade potentially presents several safety concerns related to installing nozzles and conducting testing beneath grade. As an alternative to USEPA RM2E (RM 2E) testing, the Landfill proposes to use a landfill gas flow rate determined by the EPA's Landfill Gas Emissions Model (LandGEM). The installed piping arrangement does include an above ground nozzle which allows nonmethane organic compound (NMOC) testing by the EPA Reference Method 25 or 25C (RM 25 or 25C) of Appendix 7 to 40 C.F.R. Part 60. Considering the circumstances, the Landfill is seeking the EPA's approval to use LandGEM to determine the landfill gas flow rate. To supplement your request, you provided a copy of a similar EPA approval issued to Wayne Disposal, Inc., in Bellview, Michigan (USEPA ADI Control No. 1700011). Additionally, you provided a similar approval from the State of North Carolina for the Sampson County Landfill located in Roseboro, North Carolina, showing that LandGEM generated flow rates were moderately higher than measured flow rates.

The EPA's Review of Subparts OOO and AAAA

1) Subpart OOO

Under 40 C.F.R. § 62.16710(a), if you own or operate a designated facility as described in 40 C.F.R. § 62.16711, then you must comply with Subpart OOO. Under 40 C.F.R. §62.16711(a), the designated facility to which Subpart OOO applies is each municipal solid waste landfill in each state, protectorate, and portion of Indian country whose design capacity is equal to or greater than 2.5 million megagrams (Mg) and 2.5 million cubic meters (m^3) and that commenced construction, reconstruction, or modification on or before July 17, 2014, and has accepted waste at any time since November 8, 1987.

Under 40 C.F.R. §62.16714(f), the GCCS at a landfill within the closed landfill subcategory may be capped, removed, or decommissioned if: (1) the GCCS has been in operation a minimum of 15 years; and (2) the landfill's calculated NMOC emission rate, using the procedures specified in 40 C.F.R. §62.16718(b), is less than 50 Mg per year (Mg/Yr) based on three successive test dates, where the test dates must be no less than 90 days apart, and no more than 180 days apart. Under 40 C.F.R. §62.16730, the closed landfill subcategory includes closed landfills for which a closure report, as described in 40 C.F.R. §62.16724(f), was submitted on or before September 27, 2017.

Testing flow rate and NMOC concentration results must be used in Equation 3 of 40 C.F.R. §62.16718(b) for the purposes of determining when the system can be capped, removed, or decommissioned. The testing must be conducted at a common header pipe before the gas is sent to gas moving (e.g., compressor) or condensate removal equipment (e.g., condenser, knockout pot). The average NMOC concentration must be determined by RM 25 or 25C of Appendix A-7 of 40 CFR Part 60 or another method which has been approved by the Administrator (e.g., gas chromatography). The NMOC concentration result obtained by the test must be divided by six to convert from a carbon-basis NMOC (as carbon) to a hexane carbon-basis NMOC (as hexane). The flow rate of landfill gas must be determined using a gas flow measuring device calibrated according to the provisions of Section 10 of EPA Method 2E of Appendix A-1 of 40 CFR Part 60 or *by another method which has been approved by the Administrator* (e.g., compliance demonstration flowmeter). Within 60 days after the date of

calculating the NMOC emission rate for purposes of determining when the system can be capped or removed, the owner or operator must submit the results according to 40 C.F.R. §62.16724(j)(2).

Under 40 C.F.R. §62.16724(g), each owner or operator of a controlled closed landfill must submit an equipment removal report to the Administrator 30 days prior to the cessation of operation of the control equipment. The equipment removal report must contain: (1) a copy of the closure report; (2) a copy of the initial performance test report; and (3) dated copies of three successive NMOC emission rate reports demonstrating that the landfill is no longer producing 50 Mg NMOC/Yr, or greater. Under 40 C.F.R. §62.16711(f), the owner or operator of a closed landfill is no longer subject to the requirement to maintain an operating permit under 40 CFR Parts 70 or 71 for the purposes of Subpart OOO if the landfill meets the conditions for control system removal specified in §62.16714(f).

2) Subpart AAAA

Under 40 C.F.R. § 63.16935(a), you are subject to Subpart AAAA if you own or operate an MSW landfill that has accepted waste since November 8, 1987, and meets any one of the three criteria: (1) Your MSW landfill is a major source as defined in § 63.2 of subpart A; (2) Your MSW landfill is collocated with a major source as defined in § 63.2 of subpart A; or (3) Your MSW landfill is an area source landfill that has a design capacity equal to or greater than 2.5 million megagrams and 2.5 m^3 and has estimated uncontrolled emissions equal to or greater than 50 megagrams per year NMOC as calculated according to 40 C.F.R. §63.1959.

Under 40 C.F.R. §63.1957(b), a GCCS may be capped, removed, or decommissioned if: (1) the landfill is a closed landfill and a closure report was submitted to the Administrator as provided in 40 C.F.R. §63.1981(f); (2) the GCCS has been in operation a minimum of 15 years; and (3) the calculated NMOC emission rate at the landfill, following the procedures specified in 40 C.F.R. §63.1959(c), is less than 50 Mg/yr on three successive test dates where the test dates must be no less than 90 days apart, and no more than 180 days apart. Under 40 C.F.R. §63.1990, closed landfill means “a landfill in which solid waste is no longer being placed.” The standards specified in 40 C.F.R. §§ 63.1959(c) and 63.1958(a)(2) are equivalent to the standards of 40 C.F.R. §§ 62.16718(b) and 62.16716(a)(2), respectively.

Testing flow rate and NMOC concentration results must be used in Equation 3 of 40 C.F.R. §63.1959(c) for the purposes of determining when the system can be capped, removed, or decommissioned. The testing must be conducted at a common header pipe before the gas is sent to gas moving (e.g., compressor) or condensate removal equipment (e.g., condenser, knockout pot). The average NMOC concentration must be determined by RM 25 or 25C of Appendix A-7 of 40 CFR Part 60 or another method which has been approved by the Administrator (e.g., gas chromatography). The NMOC concentration result obtained by the test must be divided by six to convert from a carbon-basis NMOC (as carbon) to a hexane carbon-basis NMOC (as hexane). The flow rate of landfill gas must be determined using a gas flow measuring device calibrated according to the provisions of Section 10 of EPA Method 2E of Appendix A-1 of 40 CFR Part 60 or *by another method which has been approved by the Administrator* (e.g., compliance demonstration flowmeter). Within 60 days after the date of calculating the NMOC emission rate for purposes of determining when the system can be capped or removed, the owner or operator must submit the results according to 40 C.F.R. §62.16724(j)(2).

Under 40 C.F.R. §63.1981(g), each owner or operator of a controlled landfill must submit an equipment removal report as provided in 40 C.F.R. §60.757(e). Each owner or operator of a controlled landfill must submit an equipment removal report to the Administrator 30 days prior to removal or cessation of operation of the control equipment. Beginning no later than September 27, 2021, the equipment removal report must contain the following items: (1) a copy of the closure report submitted in accordance with 40 C.F.R. §63.1981(f); (2) a copy of the initial performance test report demonstrating that the 15-year minimum control period has expired; and (3) dated copies of three successive NMOC emission rate reports demonstrating that the landfill is no longer producing 50 Mg or greater of NMOC per year.

Under 40 C.F.R. §63.1950, owners/operators are no longer required to comply with the requirements of Subpart AAAA when the landfill meets the collection and control system removal criteria in 40 C.F.R. §63.1957(b).

The EPA's Regulatory Interpretation

Based on the site-specific supporting information, the EPA approves the Landfill's request to use LandGEM to determine the flow rate parameter for use in Equation 3.

The basis of EPA's determination is as follows:

i) Based on discussions with you, the site-specific physical circumstance at the Landfill technically prevents the Landfill from conducting the EPA RM 2E testing since the pipe is beneath grade and contains no RM 2E protocol nozzles to enable the testing. Additionally, you note credible safety and technical concerns related to installation of testing nozzles and the conduct of testing beneath grade.

ii) Based on the EPA's experience, and as documented in the referenced ADI document provided by the Landfill, the landfill gas flow rate for NMOC emissions estimates generated by use of LandGEM is a conservative estimate and typically results in emission rates which are moderately higher than emissions rates determined by use of RM 2E.

iii) Consistent with 40 C.F.R. §§62.16718(a)(1) and 63.1959(a)(1), values to be used in LandGEM are 0.05 per year for k and 170 m^3/Mg for LO, and the NMOC concentration(s) must be determined using RM 25 or 25C of Appendix A-7 of 40 CFR Part 60. For landfills located in geographical areas with a 30-year annual average precipitation of less than 25 inches, as measured at the nearest representative official meteorologic site, the k value to be used is 0.02 per year.

This RI was coordinated with the EPA's Office of Enforcement and Compliance Assurance (OECA) and Office of Air Quality Planning and Standards (OAQPS). If you have any questions about this RI, please contact Tracy Watson at (404) 562-8998 or by email at watson.marion@epa.gov.

Sincerely,

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Denisse D. Diaz
Director
Air and Radiation Division

cc: Elizabeth Leturgey, EPA OECA
Brian Phillips, NCDEQ
Mark Turner, EPA OAQPS