

**MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY
AIR QUALITY DIVISION**

EFFECTIVE DATE: June 5, 2023
REVISION DATE: February 8, 2024

ISSUED TO

**South Kent Landfill
And
Energy Developments Byron Center, LLC**

State Registration Number (SRN): N1324

LOCATED AT

10300 South Kent Drive SW, Byron Center, Kent County, Michigan 49315

RENEWABLE OPERATING PERMIT

Permit Number: MI-ROP-N1324-2023a

Expiration Date: June 5, 2028

Administratively Complete ROP Renewal Application
Due Between December 5, 2026 and December 5, 2027

This Renewable Operating Permit (ROP) is issued in accordance with and subject to Section 5506(3) of Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Act 451). Pursuant to Rule 210(1) of the administrative rules promulgated under Act 451, this ROP constitutes the permittee's authority to operate the stationary source identified above in accordance with the general conditions, special conditions and attachments contained herein. Operation of the stationary source and all emission units listed in the permit are subject to all applicable future or amended rules and regulations pursuant to Act 451 and the federal Clean Air Act.

SOURCE-WIDE PERMIT TO INSTALL

Permit Number: MI-PTI-N1324-2023a

This Permit to Install (PTI) is issued in accordance with and subject to Section 5505(1) of Act 451. Pursuant to Rule 214a of the administrative rules promulgated under Act 451, the terms and conditions herein, identified by the underlying applicable requirement citation of Rule 201(1)(a), constitute a federally enforceable PTI. The PTI terms and conditions do not expire and remain in effect unless the criteria of Rule 201(6) are met. Operation of all emission units identified in the PTI is subject to all applicable future or amended rules and regulations pursuant to Act 451 and the federal Clean Air Act.

Michigan Department of Environment, Great Lakes, and Energy

Brad Myott, Field Operations Manager

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AUTHORITY AND ENFORCEABILITY

For the purpose of this permit, the **permittee** is defined as any person who owns or operates an emission unit at a stationary source for which this permit has been issued. The **department** is defined in Rule 104(d) as the Director of the Michigan Department of Environment, Great Lakes, and Energy (EGLE) or his or her designee.

The permittee shall comply with all specific details in the permit terms and conditions and the cited underlying applicable requirements. All terms and conditions in this ROP are both federally enforceable and state enforceable unless otherwise footnoted. Certain terms and conditions are applicable to most stationary sources for which an ROP has been issued. These general conditions are included in Part A of this ROP. Other terms and conditions may apply to a specific emission unit, several emission units which are represented as a flexible group, or the entire stationary source which is represented as a Source-Wide group. Special conditions are identified in Parts B, C, D and/or the appendices.

In accordance with Rule 213(2)(a), all underlying applicable requirements are identified for each ROP term or condition. All terms and conditions that are included in a PTI are streamlined, subsumed and/or is state-only enforceable will be noted as such.

In accordance with Section 5507 of Act 451, the permittee has included in the ROP application a compliance certification, a schedule of compliance, and a compliance plan. For applicable requirements with which the source is in compliance, the source will continue to comply with these requirements. For applicable requirements with which the source is not in compliance, the source will comply with the detailed schedule of compliance requirements that are incorporated as an appendix in this ROP. Furthermore, for any applicable requirements effective after the date of issuance of this ROP, the stationary source will meet the requirements on a timely basis, unless the underlying applicable requirement requires a more detailed schedule of compliance.

Issuance of this permit does not obviate the necessity of obtaining such permits or approvals from other units of government as required by law.

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Section 1 – South Kent Landfill

A. GENERAL CONDITIONS

Permit Enforceability

- All conditions in this permit are both federally enforceable and state enforceable unless otherwise noted. **(R 336.1213(5))**
- Those conditions that are hereby incorporated in a state-only enforceable Source-Wide PTI pursuant to Rule 201(2)(d) are designated by footnote one. **(R 336.1213(5)(a), R 336.1214a(5))**
- Those conditions that are hereby incorporated in a federally enforceable Source-Wide PTI pursuant to Rule 201(2)(c) are designated by footnote two. **(R 336.1213(5)(b), R 336.1214a(3))**

General Provisions

1. The permittee shall comply with all conditions of this ROP. Any ROP noncompliance constitutes a violation of Act 451, and is grounds for enforcement action, for ROP revocation or revision, or for denial of the renewal of the ROP. All terms and conditions of this ROP that are designated as federally enforceable are enforceable by the Administrator of the United States Environmental Protection Agency (USEPA) and by citizens under the provisions of the federal Clean Air Act (CAA). Any terms and conditions based on applicable requirements which are designated as “state-only” are not enforceable by the USEPA or citizens pursuant to the CAA. **(R 336.1213(1)(a))**
2. It shall not be a defense for the permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this ROP. **(R 336.1213(1)(b))**
3. This ROP may be modified, revised, or revoked for cause. The filing of a request by the permittee for a permit modification, revision, or termination, or a notification of planned changes or anticipated noncompliance does not stay any ROP term or condition. This does not supersede or affect the ability of the permittee to make changes, at the permittee’s own risk, pursuant to Rule 215 and Rule 216. **(R 336.1213(1)(c))**
4. The permittee shall allow the department, or an authorized representative of the department, upon presentation of credentials and other documents as may be required by law and upon stating the authority for and purpose of the investigation, to perform any of the following activities: **(R 336.1213(1)(d))**
 - a. Enter, at reasonable times, a stationary source or other premises where emissions-related activity is conducted or where records must be kept under the conditions of the ROP.
 - b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of the ROP.
 - c. Inspect, at reasonable times, any of the following:
 - i. Any stationary source.
 - ii. Any emission unit.
 - iii. Any equipment, including monitoring and air pollution control equipment.
 - iv. Any work practices or operations regulated or required under the ROP.
 - d. As authorized by Section 5526 of Act 451, sample or monitor at reasonable times substances or parameters for the purpose of assuring compliance with the ROP or applicable requirements.
5. The permittee shall furnish to the department, within a reasonable time, any information the department may request, in writing, to determine whether cause exists for modifying, revising, or revoking the ROP or to determine compliance with this ROP. Upon request, the permittee shall also furnish to the department copies of any records that are required to be kept as a term or condition of this ROP. For information which is claimed by the permittee to be confidential, consistent with the requirements of the 1976 PA 442, MCL §15.231 et seq., and known as the Freedom of Information Act, the person may also be required to furnish the records directly to the USEPA together with a claim of confidentiality. **(R 336.1213(1)(e))**

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6. A challenge by any person, the Administrator of the USEPA, or the department to a particular condition or a part of this ROP shall not set aside, delay, stay, or in any way affect the applicability or enforceability of any other condition or part of this ROP. **(R 336.1213(1)(f))**
7. The permittee shall pay fees consistent with the fee schedule and requirements pursuant to Section 5522 of Act 451. **(R 336.1213(1)(g))**
8. This ROP does not convey any property rights or any exclusive privilege. **(R 336.1213(1)(h))**

Equipment & Design

9. Any collected air contaminants shall be removed as necessary to maintain the equipment at the required operating efficiency. The collection and disposal of air contaminants shall be performed in a manner so as to minimize the introduction of contaminants to the outer air. Transport of collected air contaminants in Priority I and II areas requires the use of material handling methods specified in Rule 370(2).² **(R 336.1370)**
10. Any air cleaning device shall be installed, maintained, and operated in a satisfactory manner and in accordance with the Michigan Air Pollution Control rules and existing law. **(R 336.1910)**

Emission Limits

11. Unless otherwise specified in this ROP, the permittee shall comply with Rule 301, which states, in part, “Except as provided in Subrules 2, 3, and 4 of this rule, a person shall not cause or permit to be discharged into the outer air from a process or process equipment a visible emission of a density greater than the most stringent of the following:”² **(R 336.1301(1))**
 - a. A 6-minute average of 20% opacity, except for one 6-minute average per hour of not more than 27% opacity.
 - b. A limit specified by an applicable federal new source performance standard.

The grading of visible emissions shall be determined in accordance with Rule 303.

12. The permittee shall not cause or permit the emission of an air contaminant or water vapor in quantities that cause, alone or in reaction with other air contaminants, either of the following:
 - a. Injurious effects to human health or safety, animal life, plant life of significant economic value, or property.¹ **(R 336.1901(a))**
 - b. Unreasonable interference with the comfortable enjoyment of life and property.¹ **(R 336.1901(b))**

Testing/Sampling

13. The department may require the owner or operator of any source of an air contaminant to conduct acceptable performance tests, at the owner’s or operator’s expense, in accordance with Rule 1001 and Rule 1003, under any of the conditions listed in Rule 1001(1).² **(R 336.2001)**
14. Any required performance testing shall be conducted in accordance with Rule 1001(2), Rule 1001(3) and Rule 1003. **(R 336.2001(2), R 336.2001(3), R 336.2003(1))**
15. Any required test results shall be submitted to the Air Quality Division (AQD) in the format prescribed by the applicable reference test method within 60 days following the last date of the test. **(R 336.2001(5))**

Monitoring/Recordkeeping

16. Records of any periodic emission or parametric monitoring required in this ROP shall include the following information specified in Rule 213(3)(b)(i), where appropriate. **(R 336.1213(3)(b))**
 - a. The date, location, time, and method of sampling or measurements.
 - b. The dates the analyses of the samples were performed.
 - c. The company or entity that performed the analyses of the samples.
 - d. The analytical techniques or methods used.
 - e. The results of the analyses.
 - f. The related process operating conditions or parameters that existed at the time of sampling or measurement.
17. All required monitoring data, support information and all reports, including reports of all instances of deviation from permit requirements, shall be kept and furnished to the department upon request for a period of not less than 5 years from the date of the monitoring sample, measurement, report or application. Support information includes all calibration and maintenance records and all original strip-chart recordings, or other original data records, for continuous monitoring instrumentation and copies of all reports required by the ROP. **(R 336.1213(1)(e), R 336.1213(3)(b)(ii))**

Certification & Reporting

18. Except for the alternate certification schedule provided in Rule 213(3)(c)(iii)(B), any document required to be submitted to the department as a term or condition of this ROP shall contain an original certification by a Responsible Official which state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete. **(R 336.1213(3)(c))**
19. A Responsible Official shall certify to the appropriate AQD District Office and to the USEPA that the stationary source is and has been in compliance with all terms and conditions contained in the ROP except for deviations that have been or are being reported to the appropriate AQD District Office pursuant to Rule 213(3)(c). This certification shall include all the information specified in Rule 213(4)(c)(i) through (v) and shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the certification are true, accurate, and complete. The USEPA address is: USEPA, Air Compliance Data - Michigan, Air and Radiation Division, 77 West Jackson Boulevard, Chicago, Illinois 60604-3507. **(R 336.1213(4)(c))**
20. The certification of compliance shall be submitted annually for the term of this ROP as detailed in the special conditions, or more frequently if specified in an applicable requirement or in this ROP. **(R 336.1213(4)(c))**
21. The permittee shall promptly report any deviations from ROP requirements and certify the reports. The prompt reporting of deviations from ROP requirements is defined in Rule 213(3)(c)(ii) as follows, unless otherwise described in this ROP. **(R 336.1213(3)(c))**
 - a. For deviations that exceed the emissions allowed under the ROP, prompt reporting means reporting consistent with the requirements of Rule 912 as detailed in Condition 25. All reports submitted pursuant to this paragraph shall be promptly certified as specified in Rule 213(3)(c)(iii).
 - b. For deviations which exceed the emissions allowed under the ROP and which are not reported pursuant to Rule 912 due to the duration of the deviation, prompt reporting means the reporting of all deviations in the semiannual reports required by Rule 213(3)(c)(i). The report shall describe reasons for each deviation and the actions taken to minimize or correct each deviation.
 - c. For deviations that do not exceed the emissions allowed under the ROP, prompt reporting means the reporting of all deviations in the semiannual reports required by Rule 213(3)(c)(i). The report shall describe the reasons for each deviation and the actions taken to minimize or correct each deviation.

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22. For reports required pursuant to Rule 213(3)(c)(ii), prompt certification of the reports is described in Rule 213(3)(c)(iii) as either of the following: **(R 336.1213(3)(c))**
 - a. Submitting a certification by a Responsible Official with each report which states that, based on information and belief formed after reasonable inquiry, the statements and information in the report are true, accurate, and complete.
 - b. Submitting, within 30 days following the end of a calendar month during which one or more prompt reports of deviations from the emissions allowed under the ROP were submitted to the department pursuant to Rule 213(3)(c)(ii), a certification by a Responsible Official which states that; “based on information and belief formed after reasonable inquiry, the statements and information contained in each of the reports submitted during the previous month were true, accurate, and complete.” The certification shall include a listing of the reports that are being certified. Any report submitted pursuant to Rule 213(3)(c)(ii) that will be certified on a monthly basis pursuant to this paragraph shall include a statement that certification of the report will be provided within 30 days following the end of the calendar month.
23. Semiannually for the term of the ROP as detailed in the special conditions, or more frequently if specified, the permittee shall submit certified reports of any required monitoring to the appropriate AQD District Office. All instances of deviations from ROP requirements during the reporting period shall be clearly identified in the reports. **(R 336.1213(3)(c)(i))**
24. On an annual basis, the permittee shall report the actual emissions, or the information necessary to determine the actual emissions, of each regulated air pollutant as defined in Rule 212(6) for each emission unit utilizing the emissions inventory forms provided by the department. **(R 336.1212(6))**
25. The permittee shall provide notice of an abnormal condition, start-up, shutdown, or malfunction that results in emissions of a hazardous or toxic air pollutant which continue for more than one hour in excess of any applicable standard or limitation, or emissions of any air contaminant continuing for more than two hours in excess of an applicable standard or limitation, as required in Rule 912, to the appropriate AQD District Office. The notice shall be provided not later than two business days after the start-up, shutdown, or discovery of the abnormal conditions or malfunction. Notice shall be by any reasonable means, including electronic, telephonic, or oral communication. Written reports, if required under Rule 912, must be submitted to the appropriate AQD District Supervisor within 10 days after the start-up or shutdown occurred, within 10 days after the abnormal conditions or malfunction has been corrected, or within 30 days of discovery of the abnormal conditions or malfunction, whichever is first. The written reports shall include all of the information required in Rule 912(5) and shall be certified by a Responsible Official in a manner consistent with the CAA.² **(R 336.1912)**

Permit Shield

26. Compliance with the conditions of the ROP shall be considered compliance with any applicable requirements as of the date of ROP issuance if either of the following provisions is satisfied. **(R 336.1213(6)(a)(i), R 336.1213(6)(a)(ii))**
 - a. The applicable requirements are included and are specifically identified in the ROP.
 - b. The permit includes a determination or concise summary of the determination by the department that other specifically identified requirements are not applicable to the stationary source.

Any requirements identified in Part E of this ROP have been identified as non-applicable to this ROP and are included in the permit shield.

27. Nothing in this ROP shall alter or affect any of the following:
 - a. The provisions of Section 303 of the CAA, emergency orders, including the authority of the USEPA under Section 303 of the CAA. **(R 336.1213(6)(b)(i))**
 - b. The liability of the owner or operator of this source for any violation of applicable requirements prior to or at the time of this ROP issuance. **(R 336.1213(6)(b)(ii))**
 - c. The applicable requirements of the acid rain program, consistent with Section 408(a) of the CAA. **(R 336.1213(6)(b)(iii))**

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- d. The ability of the USEPA to obtain information from a source pursuant to Section 114 of the CAA. **(R 336.1213(6)(b)(iv))**
28. The permit shield shall not apply to provisions incorporated into this ROP through procedures for any of the following:
 - a. Operational flexibility changes made pursuant to Rule 215. **(R 336.1215(5))**
 - b. Administrative Amendments made pursuant to Rule 216(1)(a)(i)-(iv). **(R 336.1216(1)(b)(iii))**
 - c. Administrative Amendments made pursuant to Rule 216(1)(a)(v) until the amendment has been approved by the department. **(R 336.1216(1)(c)(iii))**
 - d. Minor Permit Modifications made pursuant to Rule 216(2). **(R 336.1216(2)(f))**
 - e. State-Only Modifications made pursuant to Rule 216(4) until the changes have been approved by the department. **(R 336.1216(4)(e))**
29. Expiration of this ROP results in the loss of the permit shield. If a timely and administratively complete application for renewal is submitted not more than 18 months, but not less than 6 months, before the expiration date of the ROP, but the department fails to take final action before the end of the ROP term, the existing ROP does not expire until the renewal is issued or denied, and the permit shield shall extend beyond the original ROP term until the department takes final action. **(R 336.1217(1)(c), R 336.1217(1)(a))**

Revisions

30. For changes to any process or process equipment covered by this ROP that do not require a revision of the ROP pursuant to Rule 216, the permittee must comply with Rule 215. **(R 336.1215, R 336.1216)**
31. A change in ownership or operational control of a stationary source covered by this ROP shall be made pursuant to Rule 216(1). **(R 336.1219(2))**
32. For revisions to this ROP, an administratively complete application shall be considered timely if it is received by the department in accordance with the time frames specified in Rule 216. **(R 336.1210(10))**
33. Pursuant to Rule 216(1)(b)(iii), Rule 216(2)(d) and Rule 216(4)(d), after a change has been made, and until the department takes final action, the permittee shall comply with both the applicable requirements governing the change and the ROP terms and conditions proposed in the application for the modification. During this time period, the permittee may choose to not comply with the existing ROP terms and conditions that the application seeks to change. However, if the permittee fails to comply with the ROP terms and conditions proposed in the application during this time period, the terms and conditions in the ROP are enforceable. **(R 336.1216(1)(c)(iii), R 336.1216(2)(d), R 336.1216(4)(d))**

Reopenings

34. A ROP shall be reopened by the department prior to the expiration date and revised by the department under any of the following circumstances:
 - a. If additional requirements become applicable to this stationary source with three or more years remaining in the term of the ROP, but not if the effective date of the new applicable requirement is later than the ROP expiration date. **(R 336.1217(2)(a)(i))**
 - b. If additional requirements pursuant to Title IV of the CAA become applicable to this stationary source. **(R 336.1217(2)(a)(ii))**
 - c. If the department determines that the ROP contains a material mistake, information required by any applicable requirement was omitted, or inaccurate statements were made in establishing emission limits or the terms or conditions of the ROP. **(R 336.1217(2)(a)(iii))**
 - d. If the department determines that the ROP must be revised to ensure compliance with the applicable requirements. **(R 336.1217(2)(a)(iv))**

Renewals

35. For renewal of this ROP, an administratively complete application shall be considered timely if it is received by the department not more than 18 months, but not less than 6 months, before the expiration date of the ROP. **(R 336.1210(9))**

Stratospheric Ozone Protection

36. If the permittee is subject to Title 40 of the Code of Federal Regulations (CFR), Part 82 and services, maintains, or repairs appliances except for motor vehicle air conditioners (MVAC), or disposes of appliances containing refrigerant, including MVAC and small appliances, or if the permittee is a refrigerant reclaimer, appliance owner or a manufacturer of appliances or recycling and recovery equipment, the permittee shall comply with all applicable standards for recycling and emissions reduction pursuant to 40 CFR Part 82, Subpart F.
37. If the permittee is subject to 40 CFR Part 82 and performs a service on motor (fleet) vehicles when this service involves refrigerant in the MVAC, the permittee is subject to all the applicable requirements as specified in 40 CFR Part 82, Subpart B, Servicing of Motor Vehicle Air Conditioners. The term “motor vehicle” as used in Subpart B does not include a vehicle in which final assembly of the vehicle has not been completed by the original equipment manufacturer. The term MVAC as used in Subpart B does not include the air-tight sealed refrigeration system used for refrigerated cargo or an air conditioning system on passenger buses using Hydrochlorofluorocarbon-22 refrigerant.

Risk Management Plan

38. If subject to Section 112(r) of the CAA and 40 CFR Part 68, the permittee shall register and submit to the USEPA the required data related to the risk management plan for reducing the probability of accidental releases of any regulated substances listed pursuant to Section 112(r)(3) of the CAA as amended in 40 CFR 68.130. The list of substances, threshold quantities, and accident prevention regulations promulgated under 40 CFR Part 68, do not limit in any way the general duty provisions under Section 112(r)(1).
39. If subject to Section 112(r) of the CAA and 40 CFR Part 68, the permittee shall comply with the requirements of 40 CFR Part 68, no later than the latest of the following dates as provided in 40 CFR 68.10(a):
- June 21, 1999,
 - Three years after the date on which a regulated substance is first listed under 40 CFR 68.130, or
 - The date on which a regulated substance is first present above a threshold quantity in a process.
40. If subject to Section 112(r) of the CAA and 40 CFR Part 68, the permittee shall submit any additional relevant information requested by any regulatory agency necessary to ensure compliance with the requirements of 40 CFR Part 68.
41. If subject to Section 112(r) of the CAA and 40 CFR Part 68, the permittee shall annually certify compliance with all applicable requirements of Section 112(r) as detailed in Rule 213(4)(c)). **(40 CFR Part 68)**

Emission Trading

42. Emission averaging and emission reduction credit trading are allowed pursuant to any applicable interstate or regional emission trading program that has been approved by the Administrator of the USEPA as a part of Michigan's State Implementation Plan. Such activities must comply with Rule 215 and Rule 216. **(R 336.1213(12))**

Permit to Install (PTI)

43. The process or process equipment included in this permit shall not be reconstructed, relocated, or modified unless a PTI authorizing such action is issued by the department, except to the extent such action is exempt from the PTI requirements by any applicable rule.² **(R 336.1201(1))**
44. The department may, after notice and opportunity for a hearing, revoke PTI terms or conditions if evidence indicates the process or process equipment is not performing in accordance with the terms and conditions of the PTI or is violating the department's rules or the CAA.² **(R 336.1201(8), Section 5510 of Act 451)**
45. The terms and conditions of a PTI shall apply to any person or legal entity that now or hereafter owns or operates the process or process equipment at the location authorized by the PTI. If a new owner or operator submits a written request to the department pursuant to Rule 219 and the department approves the request, this PTI will be amended to reflect the change of ownership or operational control. The request must include all of the information required by Subrules (1)(a), (b) and (c) of Rule 219. The written request shall be sent to the appropriate AQD District Supervisor, EGLE.² **(R 336.1219)**
46. If the installation, reconstruction, relocation, or modification of the equipment for which PTI terms and conditions have been approved has not commenced within 18 months of the original PTI issuance date, or has been interrupted for 18 months, the applicable terms and conditions from that PTI, as incorporated into the ROP, shall become void unless otherwise authorized by the department. Furthermore, the person to whom that PTI was issued, or the designated authorized agent, shall notify the department via the Supervisor, Permit Section, EGLE, AQD, P. O. Box 30260, Lansing, Michigan 48909, if it is decided not to pursue the installation, reconstruction, relocation, or modification of the equipment allowed by the terms and conditions from that PTI.² **(R 336.1201(4))**

Footnotes:

¹This condition is state-only enforceable and was established pursuant to Rule 201(1)(b).

²This condition is federally enforceable and was established pursuant to Rule 201(1)(a).

B. SOURCE-WIDE CONDITIONS

Part B outlines the Source-Wide Terms and Conditions that apply to this stationary source. The permittee is subject to these special conditions for the stationary source in addition to the general conditions in Part A and any other terms and conditions contained in this ROP.

The permittee shall comply with all specific details in the special conditions and the underlying applicable requirements cited. If a specific condition type does not apply to this source, NA (not applicable) has been used in the table. If there are no Source-Wide Conditions, this section will be left blank.

C. EMISSION UNIT SPECIAL CONDITIONS

Part C outlines terms and conditions that are specific to individual emission units listed in the Emission Unit Summary Table. The permittee is subject to the special conditions for each emission unit in addition to the General Conditions in Part A and any other terms and conditions contained in this ROP.

The permittee shall comply with all specific details in the special conditions and the underlying applicable requirements cited. If a specific condition type does not apply, NA (not applicable) has been used in the table. If there are no conditions specific to individual emission units, this section will be left blank.

EMISSION UNIT SUMMARY TABLE

The descriptions provided below are for informational purposes and do not constitute enforceable conditions.

Emission Unit ID	Emission Unit Description (Including Process Equipment & Control Device(s))	Installation Date/ Modification Date	Flexible Group ID
EULANDFILL	A Municipal Solid Waste (MSW) landfill that commenced construction, reconstruction, or modification after July 17, 2014. The MSW landfill has a design capacity greater than 2.5 million megagrams and 2.5 million cubic meters, and actual NMOC emissions less than 34 megagrams per year. This MSW landfill is subject to the requirements of 40 CFR Part 60, Subpart XXX.	09-01-1982 / 05-13-2019	FGLANDFILL-XXX<34 FGLANDFILL-AAAA<50

D. FLEXIBLE GROUP SPECIAL CONDITIONS

Part D outlines the terms and conditions that apply to more than one emission unit. The permittee is subject to the special conditions for each flexible group in addition to the General Conditions in Part A and any other terms and conditions contained in this ROP.

The permittee shall comply with all specific details in the special conditions and the underlying applicable requirements cited. If a specific condition type does not apply, NA (not applicable) has been used in the table. If there are no special conditions that apply to more than one emission unit, this section will be left blank.

FLEXIBLE GROUP SUMMARY TABLE

The descriptions provided below are for informational purposes and do not constitute enforceable conditions.

Flexible Group ID	Flexible Group Description	Associated Emission Unit IDs
FGLANDFILL-XXX<34	A MSW landfill that commenced construction, reconstruction, or modification after July 17, 2014. The MSW landfill has a design capacity greater than 2.5 million megagrams and 2.5 million cubic meters, and actual NMOC emissions less than 34 megagrams per year. This MSW landfill is subject to the requirements of 40 CFR Part 60, Subpart XXX.	EULANDFILL
FGLANDFILL-AAAA<50	A Municipal Solid Waste (MSW) landfill that has accepted waste at any time since November 8, 1987. The MSW landfill has a design capacity greater than 2.5 million megagrams (Mg) and 2.5 million cubic meters, actual NMOC emissions less than 50 Mg per year as calculated according to 40 CFR 63.1959 and is collocated at a major source as defined in 40 CFR 63.2. This MSW landfill is subject to the requirements of 40 CFR Part 63, Subpart AAAA.	EULANDFILL

FGLANDFILL-XXX<34 EMISSION UNIT CONDITIONS
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DESCRIPTION

A MSW landfill that commenced construction, reconstruction, or modification after July 17, 2014. The MSW landfill has a design capacity greater than 2.5 million megagrams and 2.5 million cubic meters, and actual NMOC emissions less than 34 megagrams per year. This MSW landfill is subject to the requirements of 40 CFR Part 60, Subpart XXX.

Emission Units: EULANDFILL

POLLUTION CONTROL EQUIPMENT

Open flare control (exempt under Rule 285(2)(aa))

I. EMISSION LIMIT(S)

NA

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

NA

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. The permittee must determine NMOC mass emission rate by testing at owner's expense, in accordance with Department requirements. Testing must be performed using procedures and calculations, as described in Appendices 5-1 and 7-1. No less than 30 days prior to testing, the permittee must submit a complete test plan to the AQD Technical Programs Unit and the appropriate AQD District Office. The AQD must approve the final plan prior to testing, including any modifications to the method in the test protocol that are proposed after initial submittal. The permittee must submit a complete report of the test results to the AQD Technical Programs Unit and the appropriate AQD District Office within 60 days following the last date of the test. **(R 336.2001, R 336.2003, R 336.2004, 40 CFR 60.762(b)(1), 40 CFR 60.764(a))**
 - a. Upon completion of each Tier test, the permittee must compare the results to the NMOC mass emission rate standard of 34 Mg per year. If the results are equal to or greater than 34 Mg, then the permittee must move to the next higher tier in accordance with the following: Tier 1 and Tier 2 NMOC mass emission rate must be recalculated annually if the NMOC mass emission rate is less than the standard. **(40 CFR 60.764(a)(2) and (3))**
 - b. Tier 2 testing to establish a site-specific NMOC concentration must be performed at least once every five years. **(40 CFR 60.764(a)(3))**
 - c. Tier 3 testing must be performed to establish a site-specific methane generation rate constant. **(40 CFR 60.764(a)(4))**

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- d. Tier 4 testing to determine surface methane emissions, as described in Appendix 5-1, may be used if Tiers 1 through 3 testing demonstrate NMOC mass emissions equal to or greater than 34 Mg per year. **(40 CFR 60.764(a)(6))**
- e. Tier 4 testing must be performed to establish surface methane emissions are below the standard of 500 ppm. **(40 CFR 60.764(a)(6))**
2. Each permittee seeking to use other methods to determine the NMOC concentration or a site-specific methane generation rate constant as an alternative to methods in Tier 2 and Tier 3 must request and have received approval from USEPA prior to submitting a test protocol to AQD. **(40 CFR 60.764(a)(5))**

See Appendices 5-1 and 7-1

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. The permittee must calculate the annual NMOC emission rates using methods outlined in Appendix 7-1. **(40 CFR 60.764(a)(1))**
2. The permittee must maintain up-to-date, readily accessible, on-site records of the design capacity report which triggered 40 CFR 60.762(b), the current amount of solid waste in place, and the year-by-year waste acceptance rate. Off-site records may be maintained if they are retrievable within 4 hours. The permittee must keep all records on file in a format acceptable to the AQD District Supervisor and make them available upon request. **(40 CFR 60.768(a))**

See Appendix 7-1

VII. REPORTING

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**
2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(R 336.1213(3)(c)(i))**
3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**
4. The permittee must submit an annual NMOC emission rate report to the appropriate AQD District Office. This report must contain an annual or 5-year estimate of the NMOC emission rate and all the data, calculations, sample reports and measurements used to estimate the annual or 5-year emissions. **(40 CFR 60.767(b)(1) and (2))**
5. The permittee must submit any performance test reports to the AQD Technical Programs Unit and the appropriate AQD District Office, in a format approved by the AQD. **(R 336.2001(5))**
6. The permittee must submit an initial design capacity report no later than 90 days after the date of commenced construction, modification, or reconstruction. This report must contain the information described in 40 CFR 60.767(a)(2). **(40 CFR 60.767(a)(1) and (2))**
7. The permittee must submit an amended design capacity report providing notification of an increase in the design capacity of the landfill within 90 days of an increase in the maximum design capacity of the landfill to meet or exceed 2.5 million megagrams and 2.5 million cubic meters. **(40 CFR 60.767(a)(3))**

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8. If the permittee elects to recalculate the NMOC emission rate after Tier 2 NMOC sampling and analysis and the resulting rate is less than 34 Mg per year, a revised NMOC emission rate report with the recalculated emission rate must be submitted within 180 days of the first calculated exceedance of 34 Mg per year. **(40 CFR 60.767(c)(4)(i))**
9. If the permittee elects to recalculate the NMOC emission rate after determining a site-specific methane generation rate constant k, as provided in Tier 3 and the resulting NMOC emission rate is less than 34 Mg per year, a revised NMOC emission rate report and the resulting site-specific methane generation rate constant k must be submitted within 1 year of the first calculated emission rate equaling or exceeding 34 Mg per year. **(40 CFR 60.767(c)(4)(ii))**
10. If the permittee elects to demonstrate that site-specific surface methane emissions are below 500 ppm methane, then the owner or operator must submit annually a Tier 4 surface emissions report. The initial Tier 4 surface emissions report must be submitted annually, starting within 30 days of completing the fourth quarter of Tier 4 surface emissions monitoring that demonstrates that site-specific surface methane emissions are below 500 ppm methane. **(40 CFR 60.767(c)(4)(iii))**
11. The permittee must submit a closure report to the appropriate AQD District Office within 30 days of waste acceptance cessation. The AQD may request additional information as may be necessary to verify that permanent closure has taken place in accordance with the requirements of 40 CFR 258.60. If a closure report has been submitted to the AQD, no additional wastes may be placed into the landfill without filing a notification of modification as described under 40 CFR 60.7(a)(4). **(40 CFR 60.767(e))**
12. Within 60 days after the date of completing each performance test (as defined in 40 CFR 60.8), the owner or operator must submit the results of each performance test for data collected using test methods supported by the USEPA's Electronic Reporting Tool (ERT) as listed on the USEPA's ERT Web site (<https://www.epa.gov/electronic-reporting-air-emissions/electronic-reporting-tool-ert>) at the time of the test. The permittee must submit the results of the performance test to the USEPA via the Compliance and Emissions Data Reporting Interface (CEDRI). CEDRI can be accessed through the USEPA's Central Data Exchange (CDX) (<https://cdx.epa.gov/>). **(40 CFR 60.767(i))**

See Appendix 8-1

VIII. STACK/VENT RESTRICTION(S)

NA

IX. OTHER REQUIREMENT(S)

1. If the calculated NMOC emission rate is calculated to be equal to or greater than 34 Mg per year or the methane concentration from the surface of the landfill is 500 ppm or greater, the permittee must install a collection and control system in compliance with 40 CFR 60.752(b)(2). Additionally, within 90 days the permittee must apply for a revision of this permit to reflect applicable requirements of 40 CFR Part 60, Subpart XXX. **(R 336.1216(2), 40 CFR 60.762(b)(1)(ii)(A))**
2. The permittee must comply with all applicable provisions of the federal Standards of Performance for New Stationary Sources as specified in 40 CFR Part 60, Subparts A and XXX. **(40 CFR Part 60, Subparts A and XXX)**
3. The permittee must comply with all applicable provisions of the National Emissions Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills as specified in 40 CFR Part 63, Subparts A and AAAA. **(40 CFR Part 63, Subparts A and AAAA)**

FGLANDFILL-AAAA<50 FLEXIBLE GROUP CONDITIONS
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DESCRIPTION

A Municipal Solid Waste (MSW) landfill that has accepted waste at any time since November 8, 1987. The MSW landfill has a design capacity greater than 2.5 million megagrams (Mg) and 2.5 million cubic meters, actual NMOC emissions less than 50 Mg per year as calculated according to 40 CFR 63.1959 and is collocated at a major source as defined in 40 CFR 63.2. This MSW landfill is subject to the requirements of 40 CFR Part 63, Subpart AAAA.

Emission Units: EULANDFILL

POLLUTION CONTROL EQUIPMENT

Open flare control (exempt under Rule 285(2)(aa))

I. EMISSION LIMIT(S)

NA

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee must operate and maintain any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. **(40 CFR 63.1955(c))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. The permittee shall determine the NMOC mass emission rate utilizing procedures and calculations as described in Appendices 5-1 and 7-1 and in accordance with the Department requirements. **(R 336.1213(3), 40 CFR 63.1959(a)(1))**
2. For Tier 2 NMOC emissions determination, no less than 30 days prior to testing, the permittee shall submit a complete test plan to the appropriate AQD District Office. The AQD must approve the final plan prior to testing, including any modifications to the method in the test protocol that are proposed after initial submittal. The permittee must submit a complete report of the test results to the appropriate AQD District Office within 60 days following the last date of the test. **(R 336.1213(3), R 336.2001, R 336.2003, R 336.2004, 40 CFR 63.1959(a)(3)(i))**

3. Upon completion of any Tier 1, 2, or 3 NMOC determination, the permittee must compare the results to the NMOC mass emission rate standard of 50 Mg per year. If the results are equal to or greater than 50 Mg per year, then the permittee may perform the next higher tier determination or submit a gas collection and control system design plan within one year as specified in 40 CFR 63.1981(d) and install and operate a gas collection and control system within 30 months according to 40 CFR 63.1959(b)(2)(ii) and (iii). **(40 CFR 63.1959(a)(2)(i and ii), 40 CFR 63.1959(a)(3)(iv), 40 CFR 63.1959(a)(4)(i), 40 CFR 63.1959(b)(1)(ii)(A))**
4. NMOC emission results must be recalculated annually if the NMOC mass emission rate is less than 50 Mg per year. **(40 CFR 63.1959(a))**
5. Tier 2 testing to determine site specific NMOC concentration must be performed at least once every five years when being used to demonstrate the facility NMOC emissions are less than 50 Mg per year. **(40 CFR 63.1959(a)(3)(iii))**
6. Tier 3 testing must be performed to determine a site-specific methane generation rate constant if the NMOC mass emission rate as calculated using the Tier 2 site-specific NMOC concentration is greater than or equal to 50 Mg/yr. **(40 CFR 63.1959(a)(4))**

See Appendices 5-1 and 7-1

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. The permittee must calculate the annual NMOC emission rates using methods outlined in Appendices 5-1 and 7-1. This shall be performed annually until such time as the calculated NMOC emission rate is equal to or greater than 50 Mg/yr or the landfill is closed. **(40 CFR 63.1959(b)(1)(ii))**
2. Except as provided in 40 CFR 63.1981(d)(2), each MSW landfill subject to the provisions of 40 CFR 63.1959(b)(ii) and (iii) must keep for at least 5 years up-to-date, readily accessible, on-site records of the design capacity report that triggered 40 CFR 63.1959(b), the current amount of solid waste in-place, and the year-by-year waste acceptance rate. Off-site records may be maintained if they are retrievable within 4 hours. Either paper copy or electronic formats are acceptable. **(40 CFR 63.1983(a))**
3. If the landfill is permanently closed, a closure notification shall be submitted to the appropriate AQD District Supervisor within 30 days, except for exemption allowed under 40 CFR 63.1981(f). **(40 CFR 63.1959(b)(1)(ii)(B))**

See Appendices 5-1 and 7-1

VII. REPORTING

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**
2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(R 336.1213(3)(c)(i))**
3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**
4. The permittee must submit an NMOC emission rate report to the Administrator annually following the procedure specified in 40 CFR 63.1981(c)(1)(ii). **(40 CFR 63.1981(c))**

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- a. The NMOC emission rate report must contain an annual or 5-year estimate of the NMOC emission rate calculated using the formula and procedures provided in 40 CFR 63.1959(a) or (b), as applicable. **(40 CFR 63.1981(c)(1))**
 - b. The NMOC emission rate report must include all the data, calculations, sample reports and measurements used to estimate the annual or 5-year emissions. **(40 CFR 63.1981(c)(2))**
 - c. If the estimated NMOC emission rate as reported in the annual report is less than 50 Mg per year in each of the next 5 consecutive years, the permittee may elect to submit an estimate of the NMOC emission rate for the next 5-year period in lieu of the annual report. This estimate must include the current amount of solid waste in place and the estimated waste acceptance rate for each year of the 5 years for which an NMOC emission rate is estimated. All data and calculations upon which this estimate is based must be provided. This estimate must be revised at least once every 5 years. If the actual waste acceptance rate exceeds the estimated waste acceptance rate in any year reported in the 5-year estimate, a revised 5-year estimate must be submitted. The revised estimate must cover the 5-year period beginning with the year in which the actual waste acceptance rate exceeded the estimated waste acceptance rate. **(40 CFR 63.1981(c)(1)(ii)(A))**
5. The permittee must submit reports electronically according to 40 CFR 63.1981(l)(1) and (2) as follows:
- a. Within 60 days after the date of completing each performance test, the permittee must submit the results of each performance test. For data collected using test methods supported by the USEPA's Electronic Reporting Tool (ERT) as listed on the EPA's ERT website (<https://www.epa.gov/electronic-reporting-air-emissions/electronic-reporting-tool-ert>) at the time of the test, submit the results of the performance test to the USEPA via the Compliance and Emissions Data Reporting Interface (CEDRI). The CEDRI can be accessed through the EPA's CDX (<https://cdx.epa.gov/>). Performance test data must be submitted in a file format generated through the use of the EPA's ERT or an alternative file format consistent with the extensible markup language (XML) schema listed on the EPA's ERT website, once the XML schema is available. For data collected using test methods that are not supported by the EPA's ERT as listed on the EPA's ERT website at the time of the test, include the results of the performance test as an attachment in the ERT or an alternate electronic file consistent with the XML schema listed on the EPA's ERT website and submit the ERT generated package or alternative file to the EPA via CEDRI. **(40 CFR 63.1981(l)(1)(i) and (ii))**
 - b. Each permittee must submit reports to the USEPA via the CEDRI (CEDRI can be accessed through the EPA's CDX). The permittee must use the appropriate electronic report in CEDRI for this subpart or an alternate electronic file format consistent with the XML schema listed on the CEDRI website (<https://www.epa.gov/electronic-reporting-air-emissions/compliance-and-emissions-data-reporting-interface-cedri>). If the reporting form specific to this subpart is not available in CEDRI at the time that the report is due, the permittee must submit the report to the USEPA at the appropriate address listed in 40 CFR 63.13. Once the form has been available in CEDRI for 90 calendar days, the permittee must begin submitting all subsequent reports via CEDRI. The NMOC emission rate reports, semi-annual reports, and bioreactor 40-percent moisture reports should be electronically reported as a spreadsheet template upload/form to CEDRI. **(40 CFR 63.1981(l)(2))**
6. The permittee shall submit any NMOC test reports to the appropriate AQD District Office, in a format approved by the AQD. **(R 336.1213(3)(c), R 336.2001(5))**

See Appendix 8-1

VIII. STACK/VENT RESTRICTION(S)

NA

IX. OTHER REQUIREMENT(S)

1. If the NMOC emission rate is calculated to be equal to or greater than 50 Mg per year using Tier 1, 2, or 3 procedures, the permittee must either calculate NMOC emissions using the next higher tier procedure or submit a collection and control system design plan within one year as specified in 40 CFR 63.1981(d) and install and operate a gas collection and control system within 30 months according to 40 CFR 63.1959(b)(2)(ii)(B) or (C) and 40 CFR 63.1959(b)(2)(iii). Additionally, within 90 days of determining NMOC emissions are above 50 Mg per year, the permittee shall apply for a revision of this permit to reflect applicable requirements of 40 CFR Part 63, Subpart AAAAA. **(R 336.1216(2), 40 CFR 63.1959(a)(2)(i) and (ii))**
2. The permittee is exempted from the requirements to submit an NMOC emission rate report, after installing a collection and control system that complies with 40 CFR 63.1959(b)(2), during such time as the collection and control system is in operation and in compliance with 40 CFR 63.1958 and 40 CFR 63.1960. **(40 CFR 63.1981(c)(3))**
3. The permittee must comply with all applicable provisions of the National Emissions Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills as specified in 40 CFR Part 63, Subparts A and AAAAA. **(40 CFR Part 63, Subparts A and AAAAA)**

E. NON-APPLICABLE REQUIREMENTS

At the time of the ROP issuance, the AQD has determined that no non-applicable requirements have been identified for incorporation into the permit shield provisions set forth in the General Conditions in Part A pursuant to Rule 213(6)(a)(ii).

APPENDICES

Appendix 1-1. Acronyms and Abbreviations

Common Acronyms		Pollutant / Measurement Abbreviations	
AQD	Air Quality Division	acfm	Actual cubic feet per minute
BACT	Best Available Control Technology	BTU	British Thermal Unit
CAA	Clean Air Act	°C	Degrees Celsius
CAM	Compliance Assurance Monitoring	CO	Carbon Monoxide
CEM	Continuous Emission Monitoring	CO ₂ e	Carbon Dioxide Equivalent
CEMS	Continuous Emission Monitoring System	dscf	Dry standard cubic foot
CFR	Code of Federal Regulations	dscm	Dry standard cubic meter
COM	Continuous Opacity Monitoring	°F	Degrees Fahrenheit
Department/ department	Michigan Department of Environment, Great Lakes, and Energy	gr	Grains
EGLE	Michigan Department of Environment, Great Lakes, and Energy	HAP	Hazardous Air Pollutant
EU	Emission Unit	Hg	Mercury
FG	Flexible Group	hr	Hour
GACS	Gallons of Applied Coating Solids	HP	Horsepower
GC	General Condition	H ₂ S	Hydrogen Sulfide
GHGs	Greenhouse Gases	kW	Kilowatt
HVLP	High Volume Low Pressure*	lb	Pound
ID	Identification	m	Meter
IRSL	Initial Risk Screening Level	mg	Milligram
ITSL	Initial Threshold Screening Level	mm	Millimeter
LAER	Lowest Achievable Emission Rate	MM	Million
MACT	Maximum Achievable Control Technology	MW	Megawatts
MAERS	Michigan Air Emissions Reporting System	NMOC	Non-methane Organic Compounds
MAP	Malfunction Abatement Plan	NO _x	Oxides of Nitrogen
MSDS	Material Safety Data Sheet	ng	Nanogram
NA	Not Applicable	PM	Particulate Matter
NAAQS	National Ambient Air Quality Standards	PM10	Particulate Matter equal to or less than 10 microns in diameter
NESHAP	National Emission Standard for Hazardous Air Pollutants	PM2.5	Particulate Matter equal to or less than 2.5 microns in diameter
NSPS	New Source Performance Standards	pph	Pounds per hour
NSR	New Source Review	ppm	Parts per million
PS	Performance Specification	ppmv	Parts per million by volume
PSD	Prevention of Significant Deterioration	ppmw	Parts per million by weight
PTE	Permanent Total Enclosure	%	Percent
PTI	Permit to Install	psia	Pounds per square inch absolute
RACT	Reasonable Available Control Technology	psig	Pounds per square inch gauge
ROP	Renewable Operating Permit	scf	Standard cubic feet
SC	Special Condition	sec	Seconds
SCR	Selective Catalytic Reduction	SO ₂	Sulfur Dioxide
SDS	Safety Data Sheet	TAC	Toxic Air Contaminant
SNCR	Selective Non-Catalytic Reduction	Temp	Temperature
SRN	State Registration Number	THC	Total Hydrocarbons
TEQ	Toxicity Equivalence Quotient	tpy	Tons per year
USEPA/EPA	United States Environmental Protection Agency	µg	Microgram
VE	Visible Emissions	µm	Micrometer or Micron
		VOC	Volatile Organic Compounds
		yr	Year

*For HVLP applicators, the pressure measured at the gun air cap shall not exceed 10 psig.

Appendix 2-1. Schedule of Compliance

The permittee certified in the ROP application that this stationary source is in compliance with all applicable requirements and the permittee shall continue to comply with all terms and conditions of this ROP. A Schedule of Compliance is not required. **(R 336.1213(4)(a), R 336.1119(a)(ii))**

Appendix 3-1. Monitoring Requirements

Specific monitoring requirement procedures, methods or specifications are detailed in Part A or the appropriate Source-Wide, Emission Unit and/or Flexible Group Special Conditions. Therefore, this appendix is not applicable.

Appendix 4-1. Recordkeeping

Specific recordkeeping requirement formats and procedures are detailed in Part A or the appropriate Source-Wide, Emission Unit and/or Flexible Group Special Conditions. Therefore, this appendix is not applicable.

Appendix 5-1. Testing Procedures

The permittee shall use the following approved procedures, to measure the pollutant emissions for the applicable requirements referenced in FGLANDFILL-XXX<34.

Tier 1

The owner or operator must calculate NMOC mass emission rate utilizing Equation 1 or 2 in Appendix 7-1, as applicable, and compare it to the standard of 34 Mg per year. **(40 CFR 60.764(a)(2))**

Tier 2

The permittee must determine the NMOC concentration using the following sampling procedure:

The permittee must install at least two sample probes per hectare of landfill surface that has retained waste for at least 2 years. If the landfill is larger than 25 hectares in area, only 50 samples are required. The sample probes should be located to avoid known areas of nondegradable solid waste.

The permittee must collect and analyze one sample of landfill gas from each probe to determine the NMOC concentration using 40 CFR Part 60, Appendix A, Methods 25 or 25C. Taking composite samples from different probes into a single cylinder is allowed; however, equal sample volumes must be taken from each probe. For each composite, the sampling rate, collection times, beginning and ending cylinder vacuums, or alternative volume measurements must be recorded to verify that composite volumes are equal. Composite sample volumes should not be less than one liter unless evidence can be provided to substantiate the accuracy of smaller volumes. Terminate compositing before the cylinder approaches ambient pressure where measurement accuracy diminishes.

The permittee must divide the NMOC concentration from 40 CFR Part 60, Method 25 or 25C by six (6) to convert from C_{NMOC} as carbon to C_{NMOC} as hexane. If the landfill has an active or passive gas removal system in place, Method 25 or 25C samples may be collected from these systems instead of surface probes provided the removal system can be shown to provide sampling as representative as the two-sampling probe per hectare requirement. For active collection systems, samples may be collected from the common header pipe before the gas moving or condensate removal equipment. For these systems, a minimum of three samples must be collected from the header pipe.

The permittee must recalculate the NMOC mass emission rate using Equation 1 or Equation 2 in Appendix 7 using the average site-specific NMOC concentration from the collected samples. The permittee must compare results to the standard of 34 Mg per year. **(40 CFR 60.764(a)(3))**

Tier 3

The site-specific methane generation rate constant must be determined using the procedures provided in 40 CFR Part 60, Appendix A, Method 2E. The permittee must estimate the NMOC mass emission rate using **Equation 1** (40 CFR 60.764(a)(1)(i)) or **Equation 2** (40 CFR 60.764(a)(1)(ii)) and using a site-specific methane generation rate constant (k), and the site-specific NMOC concentration as determined in 40 CFR 60.764(a)(3) instead of the default values provided in 40 CFR 60.764(a)(1). The permittee must compare the resulting NMOC mass emission rate to the standard of 34 Mg per year. **(40 CFR 60.764(a)(4))**

Tier 4

The landfill owner or operator must demonstrate that surface methane emissions are below 500 ppm. Surface emission monitoring must be conducted on a quarterly basis using the following procedures. Tier 4 is allowed only if the landfill owner or operator can demonstrate that NMOC emissions are greater than or equal to 34 Mg/yr but less than 50 Mg/yr using Tier 1 or Tier 2. If both Tier 1 and Tier 2 indicate NMOC emissions are 50 Mg/yr or greater, then Tier 4 cannot be used.

The owner or operator must measure surface concentrations of methane along the entire perimeter of the landfill and along a pattern that traverses the landfill at no more than 30-meter intervals using an organic vapor analyzer, flame ionization detector, or other portable monitor meeting the specifications provided in 40 CFR 60.765(d). The background concentration must be determined by moving the probe inlet upwind and downwind at least 30 meters from the waste mass boundary of the landfill.

Surface emission monitoring (SEM) must be performed in accordance with 40 CFR Part 60, Appendix A, Section 8.3.1 of Method 21 except that the probe inlet must be placed no more than 5 centimeters above the landfill surface; the constant measurement of distance above the surface should be based on a mechanical device such as with a wheel on a pole, except, the owner or operator must use a wind barrier, similar to a funnel, when onsite average wind speed exceeds 4 miles per hour or 2 meters per second or gust exceeding 10 miles per hour. Average on-site wind speed must also be determined in an open area at 5-minute intervals using an on-site anemometer with a continuous recorder and data logger for the entire duration of the monitoring event. The wind barrier must surround the SEM, and must be placed on the ground, to ensure wind turbulence is blocked. SEM cannot be conducted if average wind speed exceeds 25 miles per hour.

Landfill surface areas where visual observations indicate elevated concentrations of landfill gas, such as distressed vegetation and cracks or seeps in the cover, and all cover penetrations must also be monitored using a device meeting the specifications provided in 40 CFR 60.765(d).

Each owner or operator seeking to comply with the Tier 4 provisions must maintain records of surface emission monitoring as provided in 40 CFR 60.768(g) and submit a Tier 4 surface emissions report as provided in 40 CFR 60.767(c)(4)(iii).

If after four consecutive quarterly monitoring periods at a landfill, other than a closed landfill, there is no measured concentration of methane of 500 ppm or greater from the surface of the landfill, the owner or operator must continue quarterly surface emission monitoring using the methods specified in this section.

If after four consecutive quarterly monitoring periods at a closed landfill there is no measured concentration of methane of 500 ppm or greater from the surface of the landfill, the owner or operator must conduct annual surface emission monitoring.

If a landfill has installed and operates a collection and control system that is not required by this subpart, then the collection and control system must meet the following criteria: **(40 CFR 60.764(a)(6)(vii))**

- (A) The gas collection and control system must have operated for 6,570 out of 8,760 hours preceding the Tier 4 surface emissions monitoring demonstration.
- (B) During the Tier 4 surface emissions monitoring demonstration, the gas collection and control system must operate as it normally would to collect and control as much landfill gas as possible.

Section 1 – South Kent Landfill

ROP No: MI-ROP-N1324-2023a

Expiration Date: June 5, 2028

PTI No: MI-PTI-N1324-2023a

The permittee must use the following approved procedures, to measure the pollutant emissions for the applicable requirements referenced in FGLANDFILL-AAAA<50. **(40 CFR 63.1959(a))**

Tier 2

The permittee must determine the site-specific NMOC concentration using the following sampling procedure. The permittee must install at least two sample probes per hectare, evenly distributed over the landfill surface that has retained waste for at least 2 years. If the landfill is larger than 25 hectares in area, only 50 samples are required. The sample probes should be evenly distributed across the sample area. The sample probes should be located to avoid known areas of nondegradable solid waste.

The permittee must collect and analyze one sample of landfill gas from each probe to determine the NMOC concentration using 40 CFR Part 60, Appendix A-7, Methods 25 or 25C. Taking composite samples from different probes into a single cylinder is allowed; however, equal sample volumes must be taken from each probe. For each composite, the sampling rate, collection times, beginning and ending cylinder vacuums, or alternative volume measurements must be recorded to verify that composite volumes are equal. Composite sample volumes should not be less than one liter unless evidence can be provided to substantiate the accuracy of smaller volumes. Terminate compositing before the cylinder approaches ambient pressure where measurement accuracy diminishes. If more than the required number of samples is taken, all samples must be used in the analysis. The permittee must divide the NMOC concentration from 40 CFR Part 60, Appendix A-7, Method 25 or 25C by six (6) to convert from CNMOC as carbon to CNMOC as hexane. If the landfill has an active or passive gas removal system in place, Method 25 or 25C samples may be collected from these systems instead of surface probes provided the removal system can be shown to provide sampling as representative as the two-sampling probes per hectare requirement. For active collection systems, samples may be collected from the common header pipe. The sample location on the common header pipe must be before any gas moving, condensate removal, or treatment system equipment. For active collection systems, a minimum of three (3) samples must be collected from the header pipe. **(40 CFR 63.1959(a)(3))**

Tier 3

The site-specific methane generation rate constant must be determined using the procedures provided in 40 CFR Part 60, Appendix A-1, Method 2E. The permittee must estimate the NMOC mass emission rate using **Equation 1** (40 CFR 63.1959(a)(1)(i)) or **Equation 2** (40 CFR 63.1959(a)(1)(ii)) and using a site-specific methane generation rate constant (k), and the site-specific NMOC concentration as determined in 40 CFR 63.1959(a)(3) instead of the default values provided in 40 CFR 63.1959(a)(1). The permittee must compare the resulting NMOC mass emission rate to the standard of 50 Mg per year. **(40 CFR 63.1959(a)(4))**

Tier 4

The landfill owner or operator must demonstrate that surface methane emissions are below 500 ppm. Surface emission monitoring must be conducted on a quarterly basis using the following procedures. Tier 4 is allowed only if the landfill owner or operator can demonstrate that NMOC emissions are greater than or equal to 34 Mg/yr but less than 50 Mg/yr using Tier 1 or Tier 2. If both Tier 1 and Tier 2 indicate NMOC emissions are 50 Mg/yr or greater, then Tier 4 cannot be used.

The owner or operator must measure surface concentrations of methane along the entire perimeter of the landfill and along a pattern that traverses the landfill at no more than 30-meter intervals using an organic vapor analyzer, flame ionization detector, or other portable monitor meeting the specifications provided in 40 CFR 60.765(d). The background concentration must be determined by moving the probe inlet upwind and downwind at least 30 meters from the waste mass boundary of the landfill.

Surface emission monitoring (SEM) must be performed in accordance with 40 CFR Part 60, Appendix A, Section 8.3.1 of Method 21 except that the probe inlet must be placed no more than 5 centimeters above the landfill surface; the constant measurement of distance above the surface should be based on a mechanical device such as with a wheel on a pole, except, the owner or operator must use a wind barrier, similar to a funnel, when onsite average wind speed exceeds 4 miles per hour or 2 meters per second or gust exceeding 10 miles per hour. Average on-site wind speed must also be determined in an open area at 5-minute intervals using an on-site anemometer with a continuous recorder and data logger for the entire duration of the monitoring event. The wind barrier must surround the SEM,

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and must be placed on the ground, to ensure wind turbulence is blocked. SEM cannot be conducted if average wind speed exceeds 25 miles per hour.

Landfill surface areas where visual observations indicate elevated concentrations of landfill gas, such as distressed vegetation and cracks or seeps in the cover, and all cover penetrations must also be monitored using a device meeting the specifications provided in 40 CFR 60.765(d).

Each owner or operator seeking to comply with the Tier 4 provisions must maintain records of surface emission monitoring as provided in 40 CFR 60.768(g) and submit a Tier 4 surface emissions report as provided in 40 CFR 60.767(c)(4)(iii).

If after four consecutive quarterly monitoring periods at a landfill, other than a closed landfill, there is no measured concentration of methane of 500 ppm or greater from the surface of the landfill, the owner or operator must continue quarterly surface emission monitoring using the methods specified in this section.

If after four consecutive quarterly monitoring periods at a closed landfill there is no measured concentration of methane of 500 ppm or greater from the surface of the landfill, the owner or operator must conduct annual surface emission monitoring.

If a landfill has installed and operates a collection and control system that is not required by this subpart, then the collection and control system must meet the following criteria: **(40 CFR 60.764(a)(6)(vii))**

- (A) The gas collection and control system must have operated for 6,570 out of 8,760 hours preceding the Tier 4 surface emissions monitoring demonstration.
- (B) During the Tier 4 surface emissions monitoring demonstration, the gas collection and control system must operate as it normally would to collect and control as much landfill gas as possible.

Appendix 6-1. Permits to Install

The following table lists any PTIs issued or ROP revision applications received since the effective date of the previously issued ROP No. MI-ROP-N1324-2018. Those ROP revision applications that are being issued concurrently with this ROP renewal are identified by an asterisk (*). Those revision applications not listed with an asterisk were processed prior to this renewal.

Source-Wide PTI No MI-PTI-N1324-2018b is being reissued as Source-Wide PTI No. MI-PTI-N1324-2023.

Permit to Install Number	ROP Revision Application Number	Description of Equipment or Change	Corresponding Emission Unit(s) or Flexible Group(s)
NA	NA	NA	NA

Appendix 7-1. Emission Calculations

The permittee must use the following calculations in conjunction with monitoring, testing or recordkeeping data to determine compliance with the applicable requirements referenced in FGLANDFILL-XXX<34.

Default Values

The permittee must calculate the NMOC emission rate using either **Equation 1** (the equation provided in 40 CFR 60.764(a)(1)(i)) or **Equation 2** (the equation provided in 40 CFR 60.764(a)(1)(ii)). Both equations may be used if the actual year-to-year solid waste acceptance rate is known, as specified in **Equation 1** (40 CFR 60.764(a)(1)(i)), for part of the life of the landfill and the actual year-to-year solid waste acceptance rate is unknown, as specified in **Equation 2** (the equation provided in 40 CFR 60.764(a)(1)(ii)), for part of the life of the landfill. The values to be used in both equations are 0.05 per year for k, 170 cubic meters per Mg for L₀, and 4,000 ppm by volume as hexane for the C_{NMOC}. For landfills located in geographical areas with a thirty-year annual average precipitation

of less than 25 inches, as measured at the nearest representative official meteorological site, the k value to be used is 0.02 per year. **(40 CFR 60.764(a)(1))**

Equation 1

The following equation must be used if the actual year-to-year solid waste acceptance rate is known. **(40 CFR 60.764(a)(1)(i))**

$$M_{NMOC} = \sum_{i=1}^n 2 k L_o M_i (e^{-kt_i}) (C_{NMOC}) (3.6 \times 10^{-9})$$

Where:

M_{NMOC} = Total NMOC emission rate from the landfill, Mg per year

k = methane generation rate constant, year⁻¹

L_o = methane generation potential, cubic meters per Mg solid waste

M_i = mass of solid waste in the *i*th section, Mg

t_i = age of the *i*th section, years

C_{NMOC} = concentration of NMOC, ppmv as hexane

3.6×10^{-9} = conversion factor

The mass of nondegradable solid waste may be subtracted from the total mass of solid waste in a particular section of the landfill when calculating the value for M_i if documentation of the nature and amount of such wastes is maintained.

Equation 2

The following equation must be used if the actual year-to-year solid waste acceptance rate is unknown. **(40 CFR 60.764(a)(1)(ii))**

$$M_{NMOC} = 2L_o R (e^{-kc} - e^{-kt}) (C_{NMOC}) (3.6 \times 10^{-9})$$

Where:

M_{NMOC} = mass emission rate of NMOC, Mg per year

L_o = methane generation potential, cubic meters per Mg solid waste

R = average annual acceptance rate, Mg per year

k = methane generation rate constant, year⁻¹

t = age of landfill, years

C_{NMOC} = concentration of NMOC, ppmv as hexane

c = time since closure, years; for active landfill c = 0 and $e^{-kc} = 1$

3.6×10^{-9} = conversion factor

The mass of nondegradable solid waste may be subtracted from the total mass of solid waste in a particular section of the landfill when calculating the value of R, if documentation of the nature and amount of such wastes is maintained.

Tier 1

The owner or operator must calculate NMOC mass emission rate utilizing Equation 1 or 2 in **Appendix 7-1**, as applicable, and compare it to the standard of 34 Mg per year. **(40 CFR 60.764(a)(2))**

Tier 2

The permittee must recalculate the NMOC mass emission rate using the **Equation 1** or **Equation 2** in **Appendix 7-1** and using the average NMOC concentration from the collected samples (**Tier 2** testing in **Appendix 5-1**) instead of the default value in the equation provided in 40 CFR 60.764(a)(1). **(40 CFR 60.764(a)(3)(i))**

If the resulting **Tier 2** NMOC mass emission rate is less than 34 Mg per year, the permittee must submit a periodic estimate of NMOC emissions in an NMOC emission rate report as provided in 40 CFR 60.767(b)(1) and must recalculate the NMOC mass emission rate annually as required under 40 CFR 60.762(b). The site-specific NMOC concentration must be retested every 5 years. **(40 CFR 60.764(a)(3)(iii))**

If the NMOC mass emission rate as calculated using the Tier 2 site-specific NMOC concentration is equal to or greater than 34 Mg per year, then the permittee must either:

1. Comply with 40 CFR 60.767(c) (submit a gas collection and control system design plan prepared by a professional engineer within 1 year); **(40 CFR 60.764(a)(3)(iv)(A))** or
2. Determine the site-specific methane generation rate constant and recalculate the NMOC emission rate using the site-specific methane generation rate using the procedure specified in **Tier 3** (40 CFR 60.764(a)(4); **(40 CFR 60.764(a)(3)(iv)(B))**) or
3. Conduct a surface emission monitoring demonstration using the Tier 4 procedures specified in 40 CFR 60.764(a)(6). **(40 CFR 60.764(a)(3)(iv)(C))**

Tier 3

If the NMOC mass emission rate is less than 34 Mg per year, then the permittee must submit a periodic emission rate report as provided in 40 CFR 60.757(b)(1) and must recalculate the NMOC mass emission rate annually, as provided in 40 CFR 60.757(b)(1) using **Equation 1** or **Equation 2**, and using the site-specific methane generation rate constant (**Tier 3**) and NMOC concentration (**Tier 2**) obtained in 40 CFR 60.764(a)(3). The calculation of the methane generation rate constant (**Tier 3**) is performed only once, and the value obtained from this test must be used in all subsequent annual NMOC emission rate calculations. **(40 CFR 60.764(a)(4)(ii))**

Calculating expected gas generation flow rates from the landfill

For the purposes of calculating the maximum expected gas generation flow rate from the landfill to determine compliance with 40 CFR 60.752(b)(2)(ii)(A)(1), either **Equation 3** or **Equation 4**, below, must be used. The k and L_0 kinetic factors should be those published in the most recent Compilation of Air Pollutant Emission Factors (AP-42) or other site-specific values demonstrated to be appropriate and approved by the Administrator. If k has been determined as specified in 40 CFR 60.764(a)(4), the value of k determined from the test must be used. A value of no more than 15 years must be used for the intended use period of the gas mover equipment. The active life of the landfill is the age of the landfill plus the estimated number of years until closure. **(40 CFR 60.765(a)(1))**

If a collection and control system has been installed, actual flow data may be used to project the maximum expected gas generation flow rate instead of, or in conjunction with, **Equation 3** or **Equation 4**. If the landfill is still accepting waste, the actual measured flow data will not equal the maximum expected gas generation rate, so calculations using **Equation 3** or **Equation 4** or other methods must be used to predict the maximum expected gas generation rate over the intended period of use of the gas control system equipment. **(40 CFR 60.765(a)(1))**

Equation 3

For sites with unknown year-to-year solid waste acceptance rate:

$$Q_m = 2L_0 R (e^{-kc} - e^{-kt})$$

Where:

Q_m = maximum expected gas generation flow rate, cubic meters per year

L_o = methane generation potential, cubic meters per Mg solid waste

R = average annual acceptance rate, Mg per year

k = methane generation rate constant, year⁻¹

t = age of the landfill at equipment installation plus the time the owner or operator intends to use the gas mover equipment or active life of the landfill, whichever is less. If the equipment is installed after closure, t is the age of the landfill at installation, years

c = time since closure, years (for an active landfill $c = 0$ and $e^{-kc} = 1$)

Equation 4

For sites with known year-to-year solid waste acceptance rate:

$$Q_m = \sum_{i=1}^n 2 k L_o M_i (e^{-kt_i})$$

Where,

Q_M = maximum expected gas generation flow rate, cubic meters per year

k = methane generation rate constant, year⁻¹

L_o = methane generation potential, cubic meters per Mg solid waste

M_i = mass of solid waste in the i th section, Mg

t_i = age of the i th section, years

The permittee shall use the following calculations in conjunction with monitoring, testing or recordkeeping data to determine compliance with the applicable requirements referenced in FGLANDFILL-AAAA<50.

Default Values

The permittee must calculate the NMOC emission rate using either **Equation 1** (the equation provided in 40 CFR 63.1959(a)(1)(i)(A)) or **Equation 2** (the equation provided in 40 CFR 63.1959(a)(1)(ii)(A)). Both equations may be used if the actual year-to-year solid waste acceptance rate is known, as specified in **Equation 1** (40 CFR 63.1959 (a)(1)(i)(A)), for part of the life of the landfill and the actual year-to-year solid waste acceptance rate is unknown, as specified in **Equation 2** (the equation provided in 40 CFR 63.1959 (a)(1)(ii)(A)), for part of the life of the landfill. The values to be used in both equations are 0.05 per year for k , 170 cubic meters per megagram for L_o , and 4,000 ppm by volume as hexane for the C_{NMOC} . For landfills located in geographical areas with a thirty-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. **(40 CFR 63.1959(a)(1))**

Equation 1

The following equation must be used if the actual year-to-year solid waste acceptance rate is known. **(40 CFR 63.1959(a)(1)(i)(A))**

$$M_{NMOC} = \sum_{i=1}^n 2 k L_o M_i (e^{-kt_i}) (C_{NMOC}) (3.6 \times 10^{-9})$$

Where:

M_{NMOC} = Total NMOC emission rate from the landfill, megagrams per year

k = methane generation rate constant, year⁻¹

L_o = methane generation potential, cubic meters per megagram solid waste

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M_i = mass of solid waste in the i^{th} section, megagrams

t_i = age of the i^{th} section, years

C_{NMOC} = concentration of NMOC, parts per million by volume as hexane

3.6×10^{-9} = conversion factor

The mass of nondegradable solid waste may be subtracted from the total mass of solid waste in a particular section of the landfill when calculating the value for M_i if documentation of the nature and amount of such wastes is maintained.

Equation 2

The following equation shall be used if the actual year-to-year solid waste acceptance rate is unknown. **(40 CFR 63.1959 (a)(1)(ii)(A))**

$$M_{\text{NMOC}} = 2L_o R (e^{-kc} - e^{-kt}) (C_{\text{NMOC}}) (3.6 \times 10^{-9})$$

Where:

M_{NMOC} = mass emission rate of NMOC, megagrams per year

L_o = methane generation potential, cubic meters per megagram solid waste

R = average annual acceptance rate, megagrams per year

k = methane generation rate constant, year⁻¹

t = age of landfill, years

C_{NMOC} = concentration of NMOC, parts per million by volume as hexane

c = time since closure, years; for active landfill $c = 0$ and $e^{-kc} = 1$

3.6×10^{-9} = conversion factor

The mass of nondegradable solid waste may be subtracted from the total mass of solid waste in a particular section of the landfill when calculating the value of R , if documentation of the nature and amount of such wastes is maintained.

Tier 1

The permittee must calculate NMOC mass emission rate utilizing Equation 1 or 2 in **Appendix 7-1**, as applicable, and compare it to the standard of 50 Mg per year. **(40 CFR 63.1959(a)(1)(ii)(A), (a)(2))**

If the resulting **Tier 1** calculated NMOC mass emission rate is less than 50 Mg per year, the permittee must submit annually an estimate of NMOC emissions in an NMOC emission rate report as provided in 40 CFR 63.1981(c) and must recalculate the NMOC mass emission rate annually as required under 40 CFR 63.1959(b). **(40 CFR 63.1959(a)(2)(i))**

If the NMOC mass emission rate as calculated using the Tier 2 site-specific NMOC concentration is equal to or greater than 50 Mg per year, then the permittee must either:

4. Submit a gas collection and control system design plan within 1 year as specified in 40 CFR 63.1981(d) and install and operate a gas collection and control system within 30 months of the first annual report in which the NMOC emission rate equals or exceeds 50 Mg/yr according to 40 CFR 63.1959(b)(2)(ii) and (iii). **(40 CFR 63.1959(a)(2)(ii)(A))**
5. Determine a site-specific NMOC concentration and recalculate the NMOC emission rate using **Tier 2** procedures (40 CFR 63.1959(a)(3)). **(40 CFR 63.1959(a)(2)(ii)(B))**, or

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6. Determine the site-specific methane generation rate constant and recalculate the NMOC emission rate using the procedure specified in **Tier 3** procedures (40 CFR 63.1959(a)(4)). **(40 CFR 63.1959(a)(2)(ii)(C))**

Tier 2

The permittee must recalculate the NMOC mass emission rate using **Equation 1** or **Equation 2** in **Appendix 7-1** and using the average site-specific NMOC concentration from the collected samples (**Tier 2** testing in **Appendix 5-1**) instead of the default value in the equation provided in 40 CFR 63.1959(a)(1). **(40 CFR 63.1959(a)(3)(ii))**

If the resulting **Tier 2** NMOC mass emission rate is less than 50 Mg per year, the permittee must submit a periodic estimate of NMOC emissions in an NMOC emission rate report as provided in 40 CFR 63.1981(c) and must recalculate the NMOC mass emission rate annually as required under 40 CFR 63.1959(b). The site-specific NMOC concentration must be retested every 5 years. **(40 CFR 63.1959(a)(3)(iii))**

If the NMOC mass emission rate as calculated using the Tier 2 site-specific NMOC concentration is equal to or greater than 50 Mg per year, then the permittee must either:

1. Submit a gas collection and control system design plan within 1 year as specified in 40 CFR 63.1981(d) and install and operate a gas collection and control system within 30 months of the first annual report in which the NMOC emission rate equals or exceeds 50 Mg/yr according to 40 CFR 63.1959(b)(2)(ii) and (iii). **(40 CFR 63.1959(a)(3)(iv)(A))** or
2. Determine the site-specific methane generation rate constant and recalculate the NMOC emission rate using the site-specific methane generation rate using the procedure specified in **Tier 3** (40 CFR 63.1959(a)(4)). **(40 CFR 63.1959(a)(3)(iv)(B))**

Tier 3

The site-specific methane generation rate constant must be determined using the procedures provided in 40 CFR Part 60, Appendix A-1, Method 2E. The permittee must estimate the NMOC mass emission rate using **Equation 1** (40 CFR 63.1959(a)(1)(i)) or **Equation 2** (40 CFR 63.1959(a)(1)(ii)) and using a site-specific methane generation rate constant (k), and the site-specific NMOC concentration as determined in 40 CFR 63.1959(a)(3) instead of the default values provided in 40 CFR 63.1959(a)(1). The permittee must compare the resulting NMOC mass emission rate to the standard of 50 Mg per year. **(40 CFR 63.1959(a)(4))**

If the NMOC mass emission rate as calculated using the Tier 2 site-specific NMOC concentration and Tier 3 site-specific methane generation rate is equal to or greater than 50 Mg per year, the permittee must submit a gas collection and control system design plan within 1 year as specified in 40 CFR 63.1981(d) and install and operate a gas collection and control system within 30 months of the first annual report in which the NMOC emission rate equals or exceeds 50 Mg/yr according to 40 CFR 63.1959(b)(2)(ii) and (iii).. **(40 CFR 63.1959(a)(4)(i)(A))**

If the NMOC mass emission rate is less than 50 Mg per year, then the permittee must recalculate the NMOC mass emission rate annually, using **Equation 1** or **Equation 2** in **Appendix 7-1**, and using the site-specific Tier 2 NMOC concentration and Tier 3 methane generation rate constant and submit a periodic NMOC emission rate report as provided in 40 CFR 63.1981(c). The calculation of the methane generation rate constant (**Tier 3**) is performed only once, and the value obtained from this test must be used in all subsequent annual NMOC emission rate calculations. **(40 CFR 63.1959(a)(4)(ii))**

Appendix 8-1. Reporting

A. Annual, Semiannual, and Deviation Certification Reporting

The permittee shall use EGLE, AQD, Report Certification form (EQP 5736) and EGLE, AQD, Deviation Report form (EQP 5737) for the annual, semiannual and deviation certification reporting referenced in the Reporting Section of the Source-Wide, Emission Unit and/or Flexible Group Special Conditions. Alternative formats must meet the provisions of Rule 213(4)(c) and Rule 213(3)(c)(i), respectively, and be approved by the AQD District Supervisor.

B. Other Reporting

Specific reporting requirement formats and procedures are detailed in Part A or the appropriate Source-Wide, Emission Unit and/or Flexible Group Special Conditions. Therefore, Part B of this appendix is not applicable.

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Section 2 – Energy Developments Byron Center, LLC

A. GENERAL CONDITIONS

Permit Enforceability

- All conditions in this permit are both federally enforceable and state enforceable unless otherwise noted. **(R 336.1213(5))**
- Those conditions that are hereby incorporated in a state-only enforceable Source-Wide PTI pursuant to Rule 201(2)(d) are designated by footnote one. **(R 336.1213(5)(a), R 336.1214a(5))**
- Those conditions that are hereby incorporated in a federally enforceable Source-Wide PTI pursuant to Rule 201(2)(c) are designated by footnote two. **(R 336.1213(5)(b), R 336.1214a(3))**

General Provisions

1. The permittee shall comply with all conditions of this ROP. Any ROP noncompliance constitutes a violation of Act 451, and is grounds for enforcement action, for ROP revocation or revision, or for denial of the renewal of the ROP. All terms and conditions of this ROP that are designated as federally enforceable are enforceable by the Administrator of the United States Environmental Protection Agency (USEPA) and by citizens under the provisions of the federal Clean Air Act (CAA). Any terms and conditions based on applicable requirements which are designated as “state-only” are not enforceable by the USEPA or citizens pursuant to the CAA. **(R 336.1213(1)(a))**
2. It shall not be a defense for the permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this ROP. **(R 336.1213(1)(b))**
3. This ROP may be modified, revised, or revoked for cause. The filing of a request by the permittee for a permit modification, revision, or termination, or a notification of planned changes or anticipated noncompliance does not stay any ROP term or condition. This does not supersede or affect the ability of the permittee to make changes, at the permittee’s own risk, pursuant to Rule 215 and Rule 216. **(R 336.1213(1)(c))**
4. The permittee shall allow the department, or an authorized representative of the department, upon presentation of credentials and other documents as may be required by law and upon stating the authority for and purpose of the investigation, to perform any of the following activities: **(R 336.1213(1)(d))**
 - a. Enter, at reasonable times, a stationary source or other premises where emissions-related activity is conducted or where records must be kept under the conditions of the ROP.
 - b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of the ROP.
 - c. Inspect, at reasonable times, any of the following:
 - i. Any stationary source.
 - ii. Any emission unit.
 - iii. Any equipment, including monitoring and air pollution control equipment.
 - iv. Any work practices or operations regulated or required under the ROP.
 - d. As authorized by Section 5526 of Act 451, sample or monitor at reasonable times substances or parameters for the purpose of assuring compliance with the ROP or applicable requirements.
5. The permittee shall furnish to the department, within a reasonable time, any information the department may request, in writing, to determine whether cause exists for modifying, revising, or revoking the ROP or to determine compliance with this ROP. Upon request, the permittee shall also furnish to the department copies of any records that are required to be kept as a term or condition of this ROP. For information which is claimed by the permittee to be confidential, consistent with the requirements of the 1976 PA 442, MCL §15.231 et seq., and known as the Freedom of Information Act, the person may also be required to furnish the records directly to the USEPA together with a claim of confidentiality. **(R 336.1213(1)(e))**

6. A challenge by any person, the Administrator of the USEPA, or the department to a particular condition or a part of this ROP shall not set aside, delay, stay, or in any way affect the applicability or enforceability of any other condition or part of this ROP. **(R 336.1213(1)(f))**
7. The permittee shall pay fees consistent with the fee schedule and requirements pursuant to Section 5522 of Act 451. **(R 336.1213(1)(g))**
8. This ROP does not convey any property rights or any exclusive privilege. **(R 336.1213(1)(h))**

Equipment & Design

9. Any collected air contaminants shall be removed as necessary to maintain the equipment at the required operating efficiency. The collection and disposal of air contaminants shall be performed in a manner so as to minimize the introduction of contaminants to the outer air. Transport of collected air contaminants in Priority I and II areas requires the use of material handling methods specified in Rule 370(2).² **(R 336.1370)**
10. Any air cleaning device shall be installed, maintained, and operated in a satisfactory manner and in accordance with the Michigan Air Pollution Control rules and existing law. **(R 336.1910)**

Emission Limits

11. Unless otherwise specified in this ROP, the permittee shall comply with Rule 301, which states, in part, "Except as provided in Subrules 2, 3, and 4 of this rule, a person shall not cause or permit to be discharged into the outer air from a process or process equipment a visible emission of a density greater than the most stringent of the following:"² **(R 336.1301(1))**
 - a. A 6-minute average of 20% opacity, except for one 6-minute average per hour of not more than 27% opacity.
 - b. A limit specified by an applicable federal new source performance standard.

The grading of visible emissions shall be determined in accordance with Rule 303.

12. The permittee shall not cause or permit the emission of an air contaminant or water vapor in quantities that cause, alone or in reaction with other air contaminants, either of the following:
 - a. Injurious effects to human health or safety, animal life, plant life of significant economic value, or property.¹ **(R 336.1901(a))**
 - b. Unreasonable interference with the comfortable enjoyment of life and property.¹ **(R 336.1901(b))**

Testing/Sampling

13. The department may require the owner or operator of any source of an air contaminant to conduct acceptable performance tests, at the owner's or operator's expense, in accordance with Rule 1001 and Rule 1003, under any of the conditions listed in Rule 1001(1).² **(R 336.2001)**
14. Any required performance testing shall be conducted in accordance with Rule 1001(2), Rule 1001(3) and Rule 1003. **(R 336.2001(2), R 336.2001(3), R 336.2003(1))**
15. Any required test results shall be submitted to the Air Quality Division (AQD) in the format prescribed by the applicable reference test method within 60 days following the last date of the test. **(R 336.2001(5))**

Monitoring/Recordkeeping

16. Records of any periodic emission or parametric monitoring required in this ROP shall include the following information specified in Rule 213(3)(b)(i), where appropriate. **(R 336.1213(3)(b))**
 - a. The date, location, time, and method of sampling or measurements.
 - b. The dates the analyses of the samples were performed.
 - c. The company or entity that performed the analyses of the samples.
 - d. The analytical techniques or methods used.
 - e. The results of the analyses.
 - f. The related process operating conditions or parameters that existed at the time of sampling or measurement.
17. All required monitoring data, support information and all reports, including reports of all instances of deviation from permit requirements, shall be kept and furnished to the department upon request for a period of not less than 5 years from the date of the monitoring sample, measurement, report or application. Support information includes all calibration and maintenance records and all original strip-chart recordings, or other original data records, for continuous monitoring instrumentation and copies of all reports required by the ROP. **(R 336.1213(1)(e), R 336.1213(3)(b)(ii))**

Certification & Reporting

18. Except for the alternate certification schedule provided in Rule 213(3)(c)(iii)(B), any document required to be submitted to the department as a term or condition of this ROP shall contain an original certification by a Responsible Official which state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete. **(R 336.1213(3)(c))**
19. A Responsible Official shall certify to the appropriate AQD District Office and to the USEPA that the stationary source is and has been in compliance with all terms and conditions contained in the ROP except for deviations that have been or are being reported to the appropriate AQD District Office pursuant to Rule 213(3)(c). This certification shall include all the information specified in Rule 213(4)(c)(i) through (v) and shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the certification are true, accurate, and complete. The USEPA address is: USEPA, Air Compliance Data - Michigan, Air and Radiation Division, 77 West Jackson Boulevard, Chicago, Illinois 60604-3507. **(R 336.1213(4)(c))**
20. The certification of compliance shall be submitted annually for the term of this ROP as detailed in the special conditions, or more frequently if specified in an applicable requirement or in this ROP. **(R 336.1213(4)(c))**
21. The permittee shall promptly report any deviations from ROP requirements and certify the reports. The prompt reporting of deviations from ROP requirements is defined in Rule 213(3)(c)(ii) as follows, unless otherwise described in this ROP. **(R 336.1213(3)(c))**
 - a. For deviations that exceed the emissions allowed under the ROP, prompt reporting means reporting consistent with the requirements of Rule 912 as detailed in Condition 25. All reports submitted pursuant to this paragraph shall be promptly certified as specified in Rule 213(3)(c)(iii).
 - b. For deviations which exceed the emissions allowed under the ROP and which are not reported pursuant to Rule 912 due to the duration of the deviation, prompt reporting means the reporting of all deviations in the semiannual reports required by Rule 213(3)(c)(i). The report shall describe reasons for each deviation and the actions taken to minimize or correct each deviation.
 - c. For deviations that do not exceed the emissions allowed under the ROP, prompt reporting means the reporting of all deviations in the semiannual reports required by Rule 213(3)(c)(i). The report shall describe the reasons for each deviation and the actions taken to minimize or correct each deviation.

22. For reports required pursuant to Rule 213(3)(c)(ii), prompt certification of the reports is described in Rule 213(3)(c)(iii) as either of the following: **(R 336.1213(3)(c))**
- Submitting a certification by a Responsible Official with each report which states that, based on information and belief formed after reasonable inquiry, the statements and information in the report are true, accurate, and complete.
 - Submitting, within 30 days following the end of a calendar month during which one or more prompt reports of deviations from the emissions allowed under the ROP were submitted to the department pursuant to Rule 213(3)(c)(ii), a certification by a Responsible Official which states that; “based on information and belief formed after reasonable inquiry, the statements and information contained in each of the reports submitted during the previous month were true, accurate, and complete.” The certification shall include a listing of the reports that are being certified. Any report submitted pursuant to Rule 213(3)(c)(ii) that will be certified on a monthly basis pursuant to this paragraph shall include a statement that certification of the report will be provided within 30 days following the end of the calendar month.
23. Semiannually for the term of the ROP as detailed in the special conditions, or more frequently if specified, the permittee shall submit certified reports of any required monitoring to the appropriate AQD District Office. All instances of deviations from ROP requirements during the reporting period shall be clearly identified in the reports. **(R 336.1213(3)(c)(i))**
24. On an annual basis, the permittee shall report the actual emissions, or the information necessary to determine the actual emissions, of each regulated air pollutant as defined in Rule 212(6) for each emission unit utilizing the emissions inventory forms provided by the department. **(R 336.1212(6))**
25. The permittee shall provide notice of an abnormal condition, start-up, shutdown, or malfunction that results in emissions of a hazardous or toxic air pollutant which continue for more than one hour in excess of any applicable standard or limitation, or emissions of any air contaminant continuing for more than two hours in excess of an applicable standard or limitation, as required in Rule 912, to the appropriate AQD District Office. The notice shall be provided not later than two business days after the start-up, shutdown, or discovery of the abnormal conditions or malfunction. Notice shall be by any reasonable means, including electronic, telephonic, or oral communication. Written reports, if required under Rule 912, must be submitted to the appropriate AQD District Supervisor within 10 days after the start-up or shutdown occurred, within 10 days after the abnormal conditions or malfunction has been corrected, or within 30 days of discovery of the abnormal conditions or malfunction, whichever is first. The written reports shall include all of the information required in Rule 912(5) and shall be certified by a Responsible Official in a manner consistent with the CAA.² **(R 336.1912)**

Permit Shield

26. Compliance with the conditions of the ROP shall be considered compliance with any applicable requirements as of the date of ROP issuance if either of the following provisions is satisfied. **(R 336.1213(6)(a)(i), R 336.1213(6)(a)(ii))**
- The applicable requirements are included and are specifically identified in the ROP.
 - The permit includes a determination or concise summary of the determination by the department that other specifically identified requirements are not applicable to the stationary source.
- Any requirements identified in Part E of this ROP have been identified as non-applicable to this ROP and are included in the permit shield.
27. Nothing in this ROP shall alter or affect any of the following:
- The provisions of Section 303 of the CAA, emergency orders, including the authority of the USEPA under Section 303 of the CAA. **(R 336.1213(6)(b)(i))**
 - The liability of the owner or operator of this source for any violation of applicable requirements prior to or at the time of this ROP issuance. **(R 336.1213(6)(b)(ii))**
 - The applicable requirements of the acid rain program, consistent with Section 408(a) of the CAA. **(R 336.1213(6)(b)(iii))**

- d. The ability of the USEPA to obtain information from a source pursuant to Section 114 of the CAA. **(R 336.1213(6)(b)(iv))**
28. The permit shield shall not apply to provisions incorporated into this ROP through procedures for any of the following:
- a. Operational flexibility changes made pursuant to Rule 215. **(R 336.1215(5))**
 - b. Administrative Amendments made pursuant to Rule 216(1)(a)(i)-(iv). **(R 336.1216(1)(b)(iii))**
 - c. Administrative Amendments made pursuant to Rule 216(1)(a)(v) until the amendment has been approved by the department. **(R 336.1216(1)(c)(iii))**
 - d. Minor Permit Modifications made pursuant to Rule 216(2). **(R 336.1216(2)(f))**
 - e. State-Only Modifications made pursuant to Rule 216(4) until the changes have been approved by the department. **(R 336.1216(4)(e))**
29. Expiration of this ROP results in the loss of the permit shield. If a timely and administratively complete application for renewal is submitted not more than 18 months, but not less than 6 months, before the expiration date of the ROP, but the department fails to take final action before the end of the ROP term, the existing ROP does not expire until the renewal is issued or denied, and the permit shield shall extend beyond the original ROP term until the department takes final action. **(R 336.1217(1)(c), R 336.1217(1)(a))**

Revisions

30. For changes to any process or process equipment covered by this ROP that do not require a revision of the ROP pursuant to Rule 216, the permittee must comply with Rule 215. **(R 336.1215, R 336.1216)**
31. A change in ownership or operational control of a stationary source covered by this ROP shall be made pursuant to Rule 216(1). **(R 336.1219(2))**
32. For revisions to this ROP, an administratively complete application shall be considered timely if it is received by the department in accordance with the time frames specified in Rule 216. **(R 336.1210(10))**
33. Pursuant to Rule 216(1)(b)(iii), Rule 216(2)(d) and Rule 216(4)(d), after a change has been made, and until the department takes final action, the permittee shall comply with both the applicable requirements governing the change and the ROP terms and conditions proposed in the application for the modification. During this time period, the permittee may choose to not comply with the existing ROP terms and conditions that the application seeks to change. However, if the permittee fails to comply with the ROP terms and conditions proposed in the application during this time period, the terms and conditions in the ROP are enforceable. **(R 336.1216(1)(c)(iii), R 336.1216(2)(d), R 336.1216(4)(d))**

Reopenings

34. A ROP shall be reopened by the department prior to the expiration date and revised by the department under any of the following circumstances:
- a. If additional requirements become applicable to this stationary source with three or more years remaining in the term of the ROP, but not if the effective date of the new applicable requirement is later than the ROP expiration date. **(R 336.1217(2)(a)(i))**
 - b. If additional requirements pursuant to Title IV of the CAA become applicable to this stationary source. **(R 336.1217(2)(a)(ii))**
 - c. If the department determines that the ROP contains a material mistake, information required by any applicable requirement was omitted, or inaccurate statements were made in establishing emission limits or the terms or conditions of the ROP. **(R 336.1217(2)(a)(iii))**
 - d. If the department determines that the ROP must be revised to ensure compliance with the applicable requirements. **(R 336.1217(2)(a)(iv))**

Renewals

35. For renewal of this ROP, an administratively complete application shall be considered timely if it is received by the department not more than 18 months, but not less than 6 months, before the expiration date of the ROP. **(R 336.1210(9))**

Stratospheric Ozone Protection

36. If the permittee is subject to Title 40 of the Code of Federal Regulations (CFR), Part 82 and services, maintains, or repairs appliances except for motor vehicle air conditioners (MVAC), or disposes of appliances containing refrigerant, including MVAC and small appliances, or if the permittee is a refrigerant reclaimer, appliance owner or a manufacturer of appliances or recycling and recovery equipment, the permittee shall comply with all applicable standards for recycling and emissions reduction pursuant to 40 CFR Part 82, Subpart F.
37. If the permittee is subject to 40 CFR Part 82 and performs a service on motor (fleet) vehicles when this service involves refrigerant in the MVAC, the permittee is subject to all the applicable requirements as specified in 40 CFR Part 82, Subpart B, Servicing of Motor Vehicle Air Conditioners. The term “motor vehicle” as used in Subpart B does not include a vehicle in which final assembly of the vehicle has not been completed by the original equipment manufacturer. The term MVAC as used in Subpart B does not include the air-tight sealed refrigeration system used for refrigerated cargo or an air conditioning system on passenger buses using Hydrochlorofluorocarbon-22 refrigerant.

Risk Management Plan

38. If subject to Section 112(r) of the CAA and 40 CFR Part 68, the permittee shall register and submit to the USEPA the required data related to the risk management plan for reducing the probability of accidental releases of any regulated substances listed pursuant to Section 112(r)(3) of the CAA as amended in 40 CFR 68.130. The list of substances, threshold quantities, and accident prevention regulations promulgated under 40 CFR Part 68, do not limit in any way the general duty provisions under Section 112(r)(1).
39. If subject to Section 112(r) of the CAA and 40 CFR Part 68, the permittee shall comply with the requirements of 40 CFR Part 68, no later than the latest of the following dates as provided in 40 CFR 68.10(a):
- June 21, 1999,
 - Three years after the date on which a regulated substance is first listed under 40 CFR 68.130, or
 - The date on which a regulated substance is first present above a threshold quantity in a process.
40. If subject to Section 112(r) of the CAA and 40 CFR Part 68, the permittee shall submit any additional relevant information requested by any regulatory agency necessary to ensure compliance with the requirements of 40 CFR Part 68.
41. If subject to Section 112(r) of the CAA and 40 CFR Part 68, the permittee shall annually certify compliance with all applicable requirements of Section 112(r) as detailed in Rule 213(4)(c)). **(40 CFR Part 68)**

Emission Trading

42. Emission averaging and emission reduction credit trading are allowed pursuant to any applicable interstate or regional emission trading program that has been approved by the Administrator of the USEPA as a part of Michigan’s State Implementation Plan. Such activities must comply with Rule 215 and Rule 216. **(R 336.1213(12))**

Permit to Install (PTI)

43. The process or process equipment included in this permit shall not be reconstructed, relocated, or modified unless a PTI authorizing such action is issued by the department, except to the extent such action is exempt from the PTI requirements by any applicable rule.² **(R 336.1201(1))**
44. The department may, after notice and opportunity for a hearing, revoke PTI terms or conditions if evidence indicates the process or process equipment is not performing in accordance with the terms and conditions of the PTI or is violating the department's rules or the CAA.² **(R 336.1201(8), Section 5510 of Act 451)**
45. The terms and conditions of a PTI shall apply to any person or legal entity that now or hereafter owns or operates the process or process equipment at the location authorized by the PTI. If a new owner or operator submits a written request to the department pursuant to Rule 219 and the department approves the request, this PTI will be amended to reflect the change of ownership or operational control. The request must include all of the information required by Subrules (1)(a), (b) and (c) of Rule 219. The written request shall be sent to the appropriate AQD District Supervisor, EGLE.² **(R 336.1219)**
46. If the installation, reconstruction, relocation, or modification of the equipment for which PTI terms and conditions have been approved has not commenced within 18 months of the original PTI issuance date, or has been interrupted for 18 months, the applicable terms and conditions from that PTI, as incorporated into the ROP, shall become void unless otherwise authorized by the department. Furthermore, the person to whom that PTI was issued, or the designated authorized agent, shall notify the department via the Supervisor, Permit Section, EGLE, AQD, P. O. Box 30260, Lansing, Michigan 48909, if it is decided not to pursue the installation, reconstruction, relocation, or modification of the equipment allowed by the terms and conditions from that PTI.² **(R 336.1201(4))**

Footnotes:

¹This condition is state-only enforceable and was established pursuant to Rule 201(1)(b).

²This condition is federally enforceable and was established pursuant to Rule 201(1)(a).

B. SOURCE-WIDE CONDITIONS

Part B outlines the Source-Wide Terms and Conditions that apply to this stationary source. The permittee is subject to these special conditions for the stationary source in addition to the general conditions in Part A and any other terms and conditions contained in this ROP.

The permittee shall comply with all specific details in the special conditions and the underlying applicable requirements cited. If a specific condition type does not apply to this source, NA (not applicable) has been used in the table. If there are no Source-Wide Conditions, this section will be left blank.

C. EMISSION UNIT SPECIAL CONDITIONS

Part C outlines terms and conditions that are specific to individual emission units listed in the Emission Unit Summary Table. The permittee is subject to the special conditions for each emission unit in addition to the General Conditions in Part A and any other terms and conditions contained in this ROP.

The permittee shall comply with all specific details in the special conditions and the underlying applicable requirements cited. If a specific condition type does not apply, NA (not applicable) has been used in the table. If there are no conditions specific to individual emission units, this section will be left blank.

EMISSION UNIT SUMMARY TABLE

The descriptions provided below are for informational purposes and do not constitute enforceable conditions.

Emission Unit ID	Emission Unit Description (Including Process Equipment & Control Device(s))	Installation Date/ Modification Date	Flexible Group ID
EUICEENGINE1	The emission unit, and any replacement of this unit as applicable under R 336.1285(2)(a)(vi), is for a Caterpillar G3520C reciprocating internal combustion engine rated at 2,233 bhp fueled with treated landfill/digester gas to produce electricity.	03-23-2009 / 07-12-2019 / 05-30-2020	FGICEENGINES FGRICENSPS FGRICEMACT
EUICEENGINE2	The emission unit, and any replacement of this unit as applicable under R 336.1285(2)(a)(vi), is for a Caterpillar G3520C reciprocating internal combustion engine rated at 2,233 bhp fueled with treated landfill/digester gas to produce electricity.	03-23-2009 / 07-12-2019 / 05-30-2020	FGICEENGINES FGRICENSPS FGRICEMACT
EUICEENGINE3	This emission unit, and any replacement of this unit as applicable under R 336.1285(2)(a)(vi), is for a Caterpillar G3520C reciprocating internal combustion engine rated at 2,242 bhp fueled with treated landfill/digester gas to produce electricity.	10-13-2023	FGICEENGINES, FGRICENSPS, FGRICEMACT

D. FLEXIBLE GROUP SPECIAL CONDITIONS

Part D outlines the terms and conditions that apply to more than one emission unit. The permittee is subject to the special conditions for each flexible group in addition to the General Conditions in Part A and any other terms and conditions contained in this ROP.

The permittee shall comply with all specific details in the special conditions and the underlying applicable requirements cited. If a specific condition type does not apply, NA (not applicable) has been used in the table. If there are no special conditions that apply to more than one emission unit, this section will be left blank.

FLEXIBLE GROUP SUMMARY TABLE

The descriptions provided below are for informational purposes and do not constitute enforceable conditions.

Flexible Group ID	Flexible Group Description	Associated Emission Unit IDs
FGICEENGINES	Reciprocating internal combustion engine(s) fueled with treated landfill/digester gas and used to produce electricity. This flexible group includes the emission units below and any subsequent replacements for those units as applicable under R 336.1285(2)(a)(vi).	EUICEENGINE1 EUICEENGINE2 EUICEENGINE3
FGRICENSPS	Non-emergency engine(s) greater than 500 hp, fueled with landfill/digester gas. Engine(s) ordered after June 12, 2006 and manufactured on or after July 1, 2007.	EUICEENGINE1 EUICEENGINE2 EUICEENGINE3
FGRICEMACT	New and reconstructed non-emergency engines greater than 500 hp fueled with landfill/digester gas, located at a major source of HAPs. Construction or reconstruction commenced on or after December 19, 2002.	EUICEENGINE1 EUICEENGINE2 EUICEENGINE3

**FGICEENGINES
FLEXIBLE GROUP CONDITIONS**

DESCRIPTION

Reciprocating internal combustion engine(s) fueled with treated landfill/digester gas and used to produce electricity. This flexible group includes the emission units below and any subsequent replacements for those units as applicable under R 336.1285(2)(a)(vi).

Emission Units: EUICEENGINE1, EUICEENGINE2, EUICEENGINE3

POLLUTION CONTROL EQUIPMENT

Air-to-fuel ratio controller on each engine.

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Monitoring / Testing Method	Underlying Applicable Requirements
1. CO	16.23 pph ² per engine	Hourly	EUICEENGINE1 EUICEENGINE2	SC V.1, SC VI.2, SC VI.5	40 CFR 52.21(d)
2. CO	16.30 pph ²	Hourly	EUICEENGINE3	SC V.1, SC VI.2, SC VI.5	40 CFR 52.21(d)
3. NO _x	4.92 pph ² per engine	Hourly	EUICEENGINE1 EUICEENGINE2	SC V.1, SC VI.2, SC VI.5	40 CFR 52.21(c) & (d)
4. NO _x	4.94 pph ²	Hourly	EUICEENGINE3	SC V.1, SC VI.2, SC VI.5	40 CFR 52.21(c) & (d)
5. SO ₂	5.55 pph ² (Limit applies to each engine)	Hourly	Each Engine in FGICEENGINES	SC V.1, SC VI.2, SC VI.5	40 CFR 52.21(c) & (d)
6. SO ₂	72.95 tpy ²	12-month rolling time period as determined and the end of each month	FGICEENGINES	SC V.3, SC VI.1, SC VI.3, SC VI.5	R 336.1205(3)

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Monitoring / Testing Method	Underlying Applicable Requirements
7. Formaldehyde	2.10 pph ¹ per engine	Hourly	EUICEEENGINE1 EUICEEENGINE2	SC V.2, SC VI.5	R 336.1225(2)
8. Formaldehyde	2.42 pph ¹	Hourly	EUICEEENGINE3	SC V.2, SC VI.5	R 336.1225(2)

II. MATERIAL LIMIT(S)

Material	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. Treated Landfill Gas	853.05 MMscf per year ²	12-month rolling time period as determined at the end of each calendar month	FGICEENGINES	SC VI.2 SC VI.5	R 336.1205(1)(a)

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall only burn treated landfill gas in FGICEENGINES.² (**R 336.1225, R 336.1331, R 336.1702**)
2. The permittee shall not operate FGICEENGINES unless an approved malfunction abatement/preventative maintenance plan, or an alternative plan approved by the AQD District Supervisor, is implemented and maintained. The plan shall incorporate procedures recommended by the equipment manufacturer as well as incorporating standard industry practices. At a minimum, the plan shall include:
 - a. Identification of the equipment and, if applicable, air-cleaning device, and the supervisory personnel responsible for overseeing the inspection, maintenance, and repair.
 - b. Description of the items or conditions to be inspected and frequency of the inspections or repairs.
 - c. Identification of the equipment and, if applicable, air-cleaning device, operating parameters that shall be monitored to detect a malfunction or failure, the normal operating range of these parameters and a description of the method of monitoring or surveillance procedures.
 - d. Identification of the major replacement parts that shall be maintained in inventory for quick replacement.
 - e. A description of the corrective procedures or operational changes that shall be taken in the event of a malfunction or failure to achieve compliance with the applicable emission limits.

If the plan fails to address or inadequately addresses an event that meets the characteristics of a malfunction at the time the plan is initially developed, the owner or operator shall revise the plan within 45 days after such an event occurs and submit the revised plan for approval to the AQD District Supervisor. Should the AQD determine the malfunction abatement/preventative maintenance plan to be inadequate, the AQD District Supervisor may request modification of the plan to address those inadequacies.² (**R 336.1702(a), R 336.1910, R 336.1911, R 336.1912, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d)**)

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall not operate any engine in FGICEENGINES unless an air-to-fuel ratio controller is installed, maintained and operated in a satisfactory manner.² (**R 336.1702, R 336.1910**)

2. The design capacity of each engine of EUICEENGINE1 and EUICEENGINE2 shall not exceed 2,233 bhp, as specified by the equipment manufacturer.² (R 336.1205(1)(a), R 336.1225, R 336.1702, 40 CFR 52.21(c) & (d))
3. The design capacity of EUICEENGINE3 shall not exceed 2,242 bhp, as specified by the equipment manufacturer.² (R 336.1205(1)(a), R 336.1225, R 336.1702, 40 CFR 52.21(c) & (d))
4. The permittee shall equip and maintain FGICEENGINES with a device to monitor and record the daily fuel usage.² (R 336.1205, R 336.1225, R 336.1702)

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. (R 336.1213(3)(b)(ii))

1. Within every 5 years from the date of completion of the most recent stack test, the permittee shall verify CO, NOx, and SO₂ emission rates from each engine in FGICEENGINES, by testing at owner’s expense, in accordance with Department requirements. Testing shall be performed using an approved EPA Method listed in the table below:

Pollutant	Test Method Reference
NOx	40 CFR Part 60, Appendix A
CO	40 CFR Part 60, Appendix A
SO ₂	40 CFR Part 60, Appendix A

An alternative method or a modification to the approved EPA Method, may be specified in an AQD approved Test Protocol. No less than 30 days prior to testing, the permittee shall submit a complete test plan to the AQD Technical Programs Unit and District Office. The AQD must approve the final plan prior to testing, including any modifications to the method in the test protocol that are proposed after initial submittal. Verification of emission rates includes the submittal of a complete report of the test results to the AQD Technical Programs Unit and District Office within 60 days following the last date of the test.² (R 336.1205, R 336.1225, R 336.2001, R 336.2003, R 336.2004, 40 CFR 52.21(c) & (d))

2. Within every 5 years from the date of completion of the most recent stack test, the permittee shall verify formaldehyde emission rates from one or more engines in FGICEENGINES, by testing at owner’s expense, in accordance with Department requirements. Testing shall be performed using an approved EPA Method listed in the table below:

Pollutant	Test Method Reference
Formaldehyde	40 CFR Part 60, Appendix A; or Method 320 of Appendix A of 40 CFR Part 63

An alternative method or a modification to the approved EPA Method, may be specified in an AQD approved Test Protocol. No less than 30 days prior to testing, the permittee shall submit a complete test plan to the AQD Technical Programs Unit and District Office. The AQD must approve the final plan prior to testing, including any modifications to the method in the test protocol that are proposed after initial submittal. Verification of emission rates includes the submittal of a complete report of the test results to the AQD Technical Programs Unit and District Office with 60 days following the last date of the test.² (R 336.1225, R 336.2001, R 336.2003, R 336.2004)

3. The permittee shall verify the hydrogen sulfide (H₂S) or total reduced sulfur (TRS) content of the landfill gas burned in FGICEENGINES monthly by gas sampling (e.g. Draeger Tubes, Tedlar Sampling Bags, etc.) and semi-annually by gas sampling using an EPA approved method and laboratory analysis, at the owner’s expense, in accordance with Department requirements. If at any time, the H₂S (TRS equivalent) concentration of the landfill gas sample exceeds 1,000 ppmv, the permittee shall sample and record the H₂S (TRS equivalent) concentration of the landfill gas weekly and shall review all operating and maintenance activities for the landfill gas collection and treatment system along with keeping records of corrective actions taken. Once the H₂S (TRS equivalent) concentration of the landfill gas (determined from 4 weekly samples) is maintained below 1,000 ppmv for one month after an exceedance, the permittee may resume monthly monitoring and recordkeeping. No less than 30

days prior to the initial test for each type of gas sampling, the permittee shall submit a complete test plan to the AQD Technical Programs Unit and District Office. The AQD must approve the final plan prior to the first test for each type of gas sampling. Thereafter, the permittee shall submit a test plan upon the request of the AQD District Supervisor or if any changes are made to the approved testing protocol. The permittee shall keep all records on file at the facility and make them available to the Department upon request.² **(R 336.1205(3), R 336.1225, R 336.2001, R 336.2003, R 336.2004, 40 CFR 52.21(c) & (d))**

4. The permittee shall verify the NO_x, CO, SO₂ and formaldehyde emission rates from each engine in FGICEENGINES, at a minimum, every five years from the date of the last test. **(R 336.1213(3), R 336.2001, R 336.2003, R 336.2004)**
5. The permittee shall notify the AQD Technical Programs Unit Supervisor and the District Supervisor not less than 30 days before testing of the time and place performance tests will be conducted. **(R 336.1213(3))**

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. The permittee shall complete all required calculations in a format acceptable to the AQD District Supervisor and make them available by the last day of the calendar month, for the previous calendar month, unless otherwise specified in any monitoring/recordkeeping special condition.² **(R 336.1205, R 336.1225, R 336.1702, 40 CFR 52.21(c) & (d))**
2. The permittee shall continuously monitor and record, in a satisfactory manner, the landfill gas usage for FGICEENGINES.² **(R 336.1205(1)(a) & (3), 40 CFR 52.21(c) & (d))**
3. The permittee shall calculate and record the SO₂ emission rates from FGICEENGINES using the equation in Appendix 7-2. The calculations shall utilize, at a minimum, monthly gas sampling data collected for SC V.3, the monthly gas usage, and the monthly hours of operation. All records shall be kept on file at the facility and make them available to the Department upon request.² **(R 336.1205(3), 40 CFR 52.21(c) & (d))**
4. The permittee shall maintain the following record for each engine in FGICEENGINES. The following information shall be recorded and kept on file at the facility:
 - a. Engine manufacturer.
 - b. Date engine was manufactured.
 - c. Engine model number.
 - d. Engine horsepower.
 - e. Engine serial number.
 - f. Engine specification sheet.
 - g. Date of initial startup of the engine.
 - h. Date engine was removed from service at this stationary source.

All of the above information shall be stored in a format acceptable to the AQD District Supervisor.² **(R 336.1205, R 336.1225, R 336.1301, R 336.1331, R 336.1702, R 336.1910, R 336.1911, R 336.1912, 40 CFR 52.21(c) & (d))**

5. The permittee shall maintain records of all information necessary for all notifications and reports for each engine in FGICEENGINES, as specified in these special conditions as well as that information necessary to demonstrate compliance with the emission limits of this permit. This information shall include, but shall not be limited to the following:
 - a. Compliance tests and any testing required under the special conditions of this permit.
 - b. Monitoring data for the hours of operation, volumetric flow rate and landfill gas usage.
 - c. Calculated amount of landfill gas combusted in each engine on a monthly and 12-month rolling basis.
 - d. Hours of operation on a monthly and 12-month rolling basis.
 - e. Monthly average methane content of the landfill gas burned.
 - f. Manufacturer's data, specifications, and operating and maintenance procedures.
 - g. Maintenance activities conducted according to the PM/MAP.
 - h. All calculations necessary to show compliance with the limits contained in this permit.

All of the above information shall be stored in a format acceptable to the AQD District Supervisor.² **(R 336.1205, R 336.1225, R 336.1301, R 336.1331, R 336.1702(a), R 336.1910, R 336.1911, R 336.1912, 40 CFR 52.21(c) & (d))**

See Appendix 7-2

VII. REPORTING

- Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**
- Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(R 336.1213(3)(c)(i))**
- Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**
- The permittee shall submit any performance test reports to the AQD Technical Programs Unit and District Office, in a format approved by the AQD. **(R 336.1213(3)(c), R 336.2001(5))**
- The permittee shall notify the AQD District Office within 10 business days of when the frequency of the gas sampling changes for any reason.² **(R 336.1201(3))**
- The permittee shall notify the AQD District Supervisor of an engine change-out and submit a description of the engine and acceptable emissions data to show that the alternate engine is equivalent-emitting or lower-emitting. The data shall be submitted within 30-days of the engine change out.² **(R 336.1205, R 336.1702(a), R 336.1911, 40 CFR 52.21(c) & (d))**

See Appendix 8-2

VIII. STACK/VENT RESTRICTION(S)

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Diameter / Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SVICEENG1	14.0 ²	65.0 ²	R 336.1225 40 CFR 52.21(c) & (d)
2. SVICEENG2	14.0 ²	65.0 ²	R 336.1225 40 CFR 52.21(c) & (d)
3. SVICEENG3	14.0 ²	60.0 ²	R 336.1225 40 CFR 52.21(c) & (d)

IX. OTHER REQUIREMENT(S)

NA

Footnotes:

¹ This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

² This condition is federally enforceable and was established pursuant to Rule 201(1)(a).

**FGRICENSPS
FLEXIBLE GROUP CONDITIONS**

DESCRIPTION

Non-emergency engine(s) greater than 500 hp, fueled with landfill/digester gas. Engine(s) ordered after June 12, 2006 and manufactured on or after July 1, 2007.

Emission Units: EUICEENGINE1, EUICEENGINE2, EUICEENGINE3

POLLUTION CONTROL EQUIPMENT

Air-to-fuel ratio controller on each engine.

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Monitoring / Testing Method	Underlying Applicable Requirements
1. NOx	3.0 g/hp-hr ² or 220 ppmvd at 15% O ₂ ² (Limit applies to each engine)	Hourly	Each engine in FGRICENSPS	SC V.1	40 CFR 60.4233(e) Table 1 to Subpart JJJJ of Part 60
2. CO	5.0 g/hp-hr ² or 610 ppmvd at 15% O ₂ ² (Limit applies to each engine)	Hourly	Each engine in FGRICENSPS	SC V.1	40 CFR 60.4233(e) Table 1 to Subpart JJJJ of Part 60
3. VOC*	1.0 g/hp-hr ² or 80 ppmvd at 15% O ₂ ² (Limit applies to each engine)	Hourly	Each engine in FGRICENSPS	SC V.1	40 CFR 60.4233(e) Table 1 to Subpart JJJJ of Part 60

*per the NSPS, formaldehyde is not included

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

- The permittee shall operate and maintain each engine in FGRICENSPS such that it meets the emission limits established, over the entire life of the engine.² **(40 CFR 60.4234, 40 CFR 60.4243(b))**

2. If the permittee purchased a non-certified engine or a certified engine operating in a non-certified manner, the permittee shall keep a maintenance plan for each engine in FGRICENSPS and shall, to the extent practicable, maintain and operate each engine in a manner consistent with good air pollution control practice for minimizing emissions.² **(40 CFR 60.4243(b))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall equip and maintain each engine in FGRICENSPS with non-resettable hours meters to track the operating hours.² **(40 CFR 60.4243)**

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. Except as provided in 40 CFR 60.4243(b), the permittee shall verify NO_x, CO, and VOC emission rates from each engine in FGRICENSPS every 8760 hours of operation (as determined through the use of a non-resettable hour meter) or three years, whichever occurs first, to demonstrate compliance with the emission limits in 40 CFR 60.4233(e). The performance tests shall be conducted according to 40 CFR 60.4244. No less than 30 days prior to testing, the permittee shall submit a complete test plan to the AQD Technical Programs Unit and District Office. The AQD must approve the final plan prior to testing. Verification of emission rates includes the submittal of a complete report of the test results to the AQD Technical Programs Unit and District Office within 60 days following the last date of the test. **(R 336.1213(3), R 336.2001, R 336.2003, R 336.2004, 40 CFR 60.8, 40 CFR 60.4243, 40 CFR 60.4244, 40 CFR 60.4245, 40 CFR Part 60, Subpart JJJJ)**
2. The permittee shall notify the AQD Technical Programs Unit Supervisor and the District Supervisor not less than 30 days before testing of the time and place performance tests will be conducted. **(R 336.1213(3))**

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. If the permittee purchased a non-certified engine or a certified engine operating in a non-certified manner, the permittee shall keep a maintenance plan and records of conducted maintenance for each engine in FGRICENSPS and shall, to the extent practicable, maintain and operate each engine in a manner consistent with good air pollution control practice for minimizing emissions.² **(40 CFR 60.4243(b))**
2. The permittee shall continuously monitor and record, in a satisfactory manner, the hours of operation for each engine in FGRICENSPS. **(R 336.1213(3))**

VII. REPORTING

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**
2. Semiannual reporting of monitoring and deviations pursuant to General Condition 232 to Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(R 336.1213(3)(c)(i))**
3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**
4. The permittee shall submit any performance test reports to the AQD Technical Programs Unit and District Office, in a format approved by the AQD. **(R 336.1213(3)(c), R 336.2001(5))**

See Appendix 8-2

VIII. STACK/VENT RESTRICTION(S)

NA

IX. OTHER REQUIREMENT(S)

1. The permittee shall comply with all applicable provisions of the New Source Performance Standards, as specified in 40 CFR Part 60, Subparts A and JJJJ, as they apply to each engine in FGRICENSPS.² **(40 CFR Part 60, Subparts A and JJJJ)**

Footnotes:

¹ This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

² This condition is federally enforceable and was established pursuant to Rule 201(1)(a).

FGRICEMACT FLEXIBLE GROUP CONDITIONS

DESCRIPTION

New, existing, and reconstructed non-emergency engines greater than 500 hp fueled with landfill/digester gas, located at a major source of HAPs. Construction or reconstruction commenced on or after December 19, 2002.

Emission Units: EUICEENGINE1, EUICEENGINE2, EUICEENGINE3

POLLUTION CONTROL EQUIPMENT

Air-to-fuel ratio controller on each engine.

I. EMISSION LIMIT(S)

NA

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. Each engine in FGRICEMACT shall operate in a manner which reasonably minimizes HAP emissions.² **(40 CFR 63.6625(c))**
2. Each engine in FGRICEMACT shall operate in a manner which minimizes time spent at idle during startup and minimize the startup time to a period needed for appropriate and safe loading of each engine, not to exceed 30 minutes.² **(40 CFR 63.6625(h))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. FGRICEMACT shall equip and maintain a fuel meter to monitor and record the daily fuel usage and volumetric flow rate of the landfill gas used.² **(40 CFR 63.6625(c))**

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

NA

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. Each engine in FGRICEMACT, which fires landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis, must monitor and record the daily fuel usage with separate fuel meters to measure the volumetric flow rate of each fuel.² **(40 CFR 63.6625(c), 40 CFR 63.6655(c))**

VII. REPORTING

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**
2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(R 336.1213(3)(c)(i))**
3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**
4. The permittee shall submit an annual report in accordance with Table 7 of 40 CFR Part 63, Subpart ZZZZ to the appropriate AQD District Office by March 15 for the reporting period from January 1 to December 31. The following information shall be included in this annual report:
 - a. The fuel flow rate and the heating values that were used in the permittee's calculations. Also, 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 total fuel consumption on an annual basis.² **(40 CFR 63.6650(g)(1))**
 - b. The operating limits provided in the permittee's federally enforceable permit, and any deviations from these limits.² **(40 CFR 63.6650(g)(2))**
 - c. Any problems or errors suspected from the fuel flow rate meters.² **(40 CFR 63.6650(g)(3))**

See Appendix 8-2

VIII. STACK/VENT RESTRICTION(S)

NA

IX. OTHER REQUIREMENT(S)

1. The permittee shall comply with the provisions of the National Emission Standards for Hazardous Air Pollutants, as specified in 40 CFR Part 63, Subpart A and ZZZZ, as they apply to each engine in FGRICEMACT.² **(40 CFR Part 63, Subparts A and ZZZZ)**

Footnotes:

¹ This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

² This condition is federally enforceable and was established pursuant to Rule 201(1)(a).

E. NON-APPLICABLE REQUIREMENTS

At the time of the ROP issuance, the AQD has determined that no non-applicable requirements have been identified for incorporation into the permit shield provision set forth in the General Conditions in Part A pursuant to Rule 213(6)(a)(ii).

APPENDICES

Appendix 1-2. Acronyms and Abbreviations

Common Acronyms		Pollutant / Measurement Abbreviations	
AQD	Air Quality Division	acfm	Actual cubic feet per minute
BACT	Best Available Control Technology	BTU	British Thermal Unit
CAA	Clean Air Act	°C	Degrees Celsius
CAM	Compliance Assurance Monitoring	CO	Carbon Monoxide
CEM	Continuous Emission Monitoring	CO ₂ e	Carbon Dioxide Equivalent
CEMS	Continuous Emission Monitoring System	dscf	Dry standard cubic foot
CFR	Code of Federal Regulations	dscm	Dry standard cubic meter
COM	Continuous Opacity Monitoring	°F	Degrees Fahrenheit
Department/ department	Michigan Department of Environment, Great Lakes, and Energy	gr	Grains
EGLE	Michigan Department of Environment, Great Lakes, and Energy	HAP	Hazardous Air Pollutant
EU	Emission Unit	Hg	Mercury
FG	Flexible Group	hr	Hour
GACS	Gallons of Applied Coating Solids	HP	Horsepower
GC	General Condition	H ₂ S	Hydrogen Sulfide
GHGs	Greenhouse Gases	kW	Kilowatt
HVLP	High Volume Low Pressure*	lb	Pound
ID	Identification	m	Meter
IRSL	Initial Risk Screening Level	mg	Milligram
ITSL	Initial Threshold Screening Level	mm	Millimeter
LAER	Lowest Achievable Emission Rate	MM	Million
MACT	Maximum Achievable Control Technology	MW	Megawatts
MAERS	Michigan Air Emissions Reporting System	NMOC	Non-methane Organic Compounds
MAP	Malfunction Abatement Plan	NO _x	Oxides of Nitrogen
MSDS	Material Safety Data Sheet	ng	Nanogram
NA	Not Applicable	PM	Particulate Matter
NAAQS	National Ambient Air Quality Standards	PM10	Particulate Matter equal to or less than 10 microns in diameter
NESHAP	National Emission Standard for Hazardous Air Pollutants	PM2.5	Particulate Matter equal to or less than 2.5 microns in diameter
NSPS	New Source Performance Standards	pph	Pounds per hour
NSR	New Source Review	ppm	Parts per million
PS	Performance Specification	ppmv	Parts per million by volume
PSD	Prevention of Significant Deterioration	ppmw	Parts per million by weight
PTE	Permanent Total Enclosure	%	Percent
PTI	Permit to Install	psia	Pounds per square inch absolute
RACT	Reasonable Available Control Technology	psig	Pounds per square inch gauge
ROP	Renewable Operating Permit	scf	Standard cubic feet
SC	Special Condition	sec	Seconds
SCR	Selective Catalytic Reduction	SO ₂	Sulfur Dioxide
SDS	Safety Data Sheet	TAC	Toxic Air Contaminant
SNCR	Selective Non-Catalytic Reduction	Temp	Temperature
SRN	State Registration Number	THC	Total Hydrocarbons
TEQ	Toxicity Equivalence Quotient	tpy	Tons per year
USEPA/EPA	United States Environmental Protection Agency	µg	Microgram
VE	Visible Emissions	µm	Micrometer or Micron
		VOC	Volatile Organic Compounds
		yr	Year

*For HVLP applicators, the pressure measured at the gun air cap shall not exceed 10 psig.

Appendix 2-2. Schedule of Compliance

The permittee certified in the ROP application that this stationary source is in compliance with all applicable requirements and the permittee shall continue to comply with all terms and conditions of this ROP. A Schedule of Compliance is not required. (R 336.1213(4)(a), R 336.1119(a)(ii))

Appendix 3-2. Monitoring Requirements

Specific monitoring requirement procedures, methods or specifications are detailed in Part A or the appropriate Source-Wide, Emission Unit and/or Flexible Group Special Conditions. Therefore, this appendix is not applicable.

Appendix 4-2. Recordkeeping

Specific recordkeeping requirement formats and procedures are detailed in Part A or the appropriate Source-Wide, Emission Unit and/or Flexible Group Special Conditions. Therefore, this appendix is not applicable.

Appendix 5-2. Testing Procedures

There are no specific testing requirement plans or procedures for this ROP. Therefore, this appendix is not applicable.

Appendix 6-2. Permits to Install

The following table lists any PTIs issued or ROP revision applications received since the effective date of the previously issued ROP No. MI-ROP-N1324-2018. Those ROP revision applications that are being issued concurrently with this ROP renewal are identified by an asterisk (*). Those revision applications not listed with an asterisk were processed prior to this renewal.

Source-Wide PTI No MI-PTI-N1324-2018b is being reissued as Source-Wide PTI No. MI-PTI-N1324-2023a.

Permit to Install Number	ROP Revision Application Number	Description of Equipment or Change	Corresponding Emission Unit(s) or Flexible Group(s)
212-08B	202000118	To incorporate PTI No. 212-08B, which addressed the unanticipated increase in hydrogen sulfide concentrations in the incoming landfill gas. The PTI increased SO ₂ emissions from the two existing CAT G3520C RICE in Section 2 of the ROP. The engines identified as FGICEENGINES, did not have SO ₂ limits due to a lower AP-42 default value assumed when the company initially permitted the RICEs. The PTI revised the potential to emit of SO ₂ and set a permitted SO ₂ limit of 48.66 tpy for the engines combined.	EUICEENGINE1 EUICEENGINE2 FGICEENGINES FGRICENSPS FGRICEMACT

The following table lists the ROP amendments or modifications issued after the effective date of ROP No. MI-ROP-N1324-2023.

Permit to Install Number	ROP Revision Application Number - Issuance Date	Description of Equipment or Change	Corresponding Emission Unit(s) or Flexible Group(s)
212-08C	202300162 / February 8, 2024	To incorporate PTI No. 212-08C into Section 2 of the ROP, which is to install a third landfill engine. The proposed engine is a CAT 3520 RICE, same as the existing engines, but is rated at 2,242 bhp, slightly higher than the existing engines.	EUICEENGINE3 FGICEENGINES FGRICENSPS FGRICEMACT

Appendix 7-2. Emission Calculations

The permittee shall use the following calculations in conjunction with monitoring, testing or recordkeeping data to determine compliance with the applicable requirements referenced in FGICEENGINES.

Procedures for Calculating Emissions

The permittee shall demonstrate compliance with the emission limits in this permit by vendor data, stack testing, and/or gas testing.

Vendor Data or Stack Testing:

The permittee shall use emission factors from vendor data or from source specific testing (if stack test data is available, use most recent stack test data), as available for each engine.

Calculation for Monthly SO₂ Emissions using gas sampling:

The following calculation for SO₂ emissions shall utilize the monthly H₂S concentration measurements from test data collected, the monthly gas usage, monthly hours of operation, and the ratio of total sulfur to sulfur as H₂S from the most recent laboratory test.

Equation 1

$$SO_2 \text{ Emissions (tons per month)} = \frac{(X \text{ scf } H_2S)}{MMcf \text{ LFG}} \times \frac{1.1733 \text{ mols } S}{1 \text{ ft}^3 \text{ H}_2S} \times \frac{34.08 \text{ grams } H_2S}{1 \text{ mol } S} \times \frac{1 \text{ lb}}{453.59 \text{ grams}} \times \frac{1 \text{ ton}}{2,000 \text{ lbs}} \times \frac{1.88 \text{ SO}_2}{H_2S} MW \times LFG$$

Where:

X = ppm sulfur content, as H₂S

S = Sulfur

MW = Molecular Weight of SO₂ to H₂S

LFG_{monthly} = Actual Landfill Gas Usage per month (ft³/month)

Equation 2

$$SO_2 \text{ Emission Factor } \left(\frac{\text{lbs } SO_2}{MMcf \text{ LFG}} \right) = \frac{\frac{(X \text{ scf } H_2S)}{MMcf \text{ LFG}} \times \frac{1 \text{ scf } SO_2}{\text{scf } H_2S} \times \frac{64.06 \text{ lb } SO_2}{\text{mol}}}{\frac{385 \text{ ft}^3}{\text{mol}}}$$

Where:

X = ppm sulfur content, as H₂S

Appendix 8-2. Reporting

A. Annual, Semiannual, and Deviation Certification Reporting

The permittee shall use EGLE, AQD, Report Certification form (EQP 5736) and EGLE, AQD, Deviation Report form (EQP 5737) for the annual, semiannual and deviation certification reporting referenced in the Reporting Section of the Source-Wide, Emission Unit and/or Flexible Group Special Conditions. Alternative formats must meet the provisions of Rule 213(4)(c) and Rule 213(3)(c)(i), respectively, and be approved by the AQD District Supervisor.

B. Other Reporting

Specific reporting requirement formats and procedures are detailed in Part A or the appropriate Source-Wide, Emission Unit and/or Flexible Group Special Conditions. Therefore, Part B of this appendix is not applicable.