

January 23, 2024

EGLE – Air Quality Division
Warren District Office
27700 Donald Court
Warren, MI 48092

RE: Renewable Operating Permit Application - MI-ROP-N5984-2019
Pine Tree Acres Landfill, Inc. - SRN N5984
Fed Ex Tracking No. 7749 0548 2112

Waste Management of Michigan, Inc. respectfully submits this Renewable Operating Permit (ROP) application for the Pine Tree Acres Landfill in Lenox Township, Michigan.

Included in this application package are all required documents for an administratively complete ROP renewal package including:

- All required EGLE ROP Renewal Forms (with Responsible Official Certification)
- Existing ROP mark-up for requested revisions

One (1) hard copy with the original signature of the Responsible Official is included with this submittal. A copy of this renewal package is also being submitted electronically. If you have any questions, please contact Benjamin Kotrba of Environmental Information Logistics (EIL), LLC at (989) 415-3741 or the undersigned at (734) 652-5431.

Sincerely,
Pine Tree Acres Landfill, Inc.

Rich Clark

Rich Clark

Attachment: ROP Renewal Application

Cc: Rachael Gregory – Waste Management of Michigan, Inc. (Electronically)
Dana Oleniacz – EIL, LLC (Electronically)
Benjamin Kotrba – EIL, LLC (Electronically)



RENEWABLE OPERATING PERMIT RENEWAL APPLICATION FORM

This information is required by Article II, Chapter 1, Part 55 (Air Pollution Control) of P.A. 451 of 1994, as amended, and the Federal Clean Air Act of 1990. Failure to obtain a permit required by Part 55 may result in penalties and/or imprisonment. Refer to instructions for additional information to complete the Renewable Operating Permit Renewal Application Form.

GENERAL INSTRUCTIONS

This application form should be submitted as part of an administratively complete application package for renewal of a Renewable Operating Permit (ROP). This application form consists of nine parts. Parts A – H must be completed for all applications and must also be completed for each section of a sectioned ROP. Answer all questions in all parts of the form unless directed otherwise. Detailed instructions for this application form can be found at <http://michigan.gov/air> (select the Permits Tab, “Renewable Operating Permits (ROP)/Title V”, then “ROP Forms & Templates”).

PART A: GENERAL INFORMATION

Enter information about the source, owner, contact person and the responsible official.

SOURCE INFORMATION

SRN N5984	SIC Code	NAICS Code 562212	Existing ROP Number MI-ROP-N5984-2019	Section Number (if applicable) 01
Source Name Pine Tree Acres, Inc				
Street Address 36600 29 Mile Road				
City Lenox Township		State MI	ZIP Code 48048	County Macomb
Section/Town/Range (if address not available)				
Source Description This facility is a Municipal Solid Waste Landfill. It is co-located with a landfill gas to energy facility.				
<input type="checkbox"/> Check here if any of the above information is different than what appears in the existing ROP. Identify any changes on the marked-up copy of your existing ROP.				

OWNER INFORMATION

Owner Name Pine Tree Acres, Inc.	Section Number (if applicable)			
Mailing address (<input checked="" type="checkbox"/> check if same as source address)				
City	State	ZIP Code	County	Country

Check here if any information in this ROP renewal application is confidential. Confidential information should be identified on an Additional Information (AI-001) Form.

PART A: GENERAL INFORMATION (continued)

At least one contact and responsible official must be identified. Additional contacts and responsible officials may be included if necessary.

CONTACT INFORMATION

Contact 1 Name Rich Clark		Title Site Engineer		
Company Name & Mailing address (<input checked="" type="checkbox"/> check if same as source address)				
City	State	ZIP Code	County	Country
Phone number (734) 652-5431		E-mail address Rclark16@wm.com		

Contact 2 Name (optional)		Title		
Company Name & Mailing address (<input type="checkbox"/> check if same as source address)				
City	State	ZIP Code	County	Country
Phone number		E-mail address		

RESPONSIBLE OFFICIAL INFORMATION

Responsible Official 1 Name Rachael Gregory		Title District Manager		
Company Name & Mailing address (<input checked="" type="checkbox"/> check if same as source address)				
City	State	ZIP Code	County	Country
Phone number (262) 620-5073		E-mail address Rgregor2@wm.com		

Responsible Official 2 Name (optional)		Title		
Company Name & Mailing address (<input type="checkbox"/> check if same as source address)				
City	State	ZIP Code	County	Country
Phone number		E-mail address		


Check here if an AI-001 Form is attached to provide more information for Part A. Enter AI-001 Form ID:

PART B: APPLICATION SUBMITTAL and CERTIFICATION by Responsible Official

Identify the items that are included as part of your administratively complete application in the checklist below. For your application to be complete, it must include information necessary to evaluate the source and to determine all applicable requirements. Answer the compliance statements as they pertain to all the applicable requirements to which the source is subject. The source's Responsible Official must sign and date this form.

Listing of ROP Application Contents. Check the box for the items included with your application.	
<input checked="" type="checkbox"/> Completed ROP Renewal Application Form (and any AI-001 Forms) (required)	<input type="checkbox"/> Compliance Plan/Schedule of Compliance
<input checked="" type="checkbox"/> Mark-up copy of existing ROP using official version from the AQD website (required)	<input type="checkbox"/> Stack information
<input type="checkbox"/> Copies of all Permit(s) to Install (PTIs) that have not been incorporated into existing ROP (required)	<input type="checkbox"/> Acid Rain Permit Initial/Renewal Application
<input type="checkbox"/> Criteria Pollutant/Hazardous Air Pollutant (HAP) Potential to Emit Calculations	<input type="checkbox"/> Cross-State Air Pollution Rule (CSAPR) Information
<input type="checkbox"/> MAERS Forms (to report emissions not previously submitted)	<input type="checkbox"/> Confidential Information
<input type="checkbox"/> Copies of all Consent Order/Consent Judgments that have not been incorporated into existing ROP	<input checked="" type="checkbox"/> Paper copy of all documentation provided (required)
<input type="checkbox"/> Compliance Assurance Monitoring (CAM) Plan	<input checked="" type="checkbox"/> Electronic documents provided (optional)
<input checked="" type="checkbox"/> Other Plans (e.g., Malfunction Abatement, Fugitive Dust, Operation and Maintenance, etc.)	<input type="checkbox"/> Other, explain:

Compliance Statement	
This source is in compliance with all of its applicable requirements, including those contained in the existing ROP, Permits to Install that have not yet been incorporated into that ROP, and other applicable requirements not currently contained in the existing ROP.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
This source will continue to be in compliance with all of its applicable requirements, including those contained in the existing ROP, Permits to Install that have not yet been incorporated into that ROP, and other applicable requirements not currently contained in the existing ROP.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
This source will meet in a timely manner applicable requirements that become effective during the permit term.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
The method(s) used to determine compliance for each applicable requirement is/are the method(s) specified in the existing ROP, Permits to Install that have not yet been incorporated into that ROP, and all other applicable requirements not currently contained in the existing ROP.	
If any of the above are checked No, identify the emission unit(s) or flexible group(s) affected and the specific condition number(s) or applicable requirement for which the source is or will be out of compliance at the time of issuance of the ROP renewal on an AI-001 Form. Provide a compliance plan and schedule of compliance on an AI-001 Form.	

Name and Title of the Responsible Official (Print or Type)	
Rachael Gregory, District Manager	
<i>As a Responsible Official, I certify that, based on information and belief formed after reasonable inquiry, the statements and information in this application are true, accurate, and complete.</i>	
	11/18/2024
Signature of Responsible Official	Date

PART C: SOURCE REQUIREMENT INFORMATION

Answer the questions below for specific requirements or programs to which the source may be subject.

C1.	Actual emissions and associated data from all emission units with applicable requirements (including those identified in the existing ROP, Permits to Install and other equipment that have not yet been incorporated into the ROP) are required to be reported in MAERS. Are there any emissions and associated data that have not been reported in MAERS for the most recent emissions reporting year? If Yes , identify the emission unit(s) that was/were not reported in MAERS on an AI-001 Form. Applicable MAERS form(s) for unreported emission units must be included with this application.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
C2.	Is this source subject to the federal regulations on ozone-depleting substances? (40 CFR Part 82)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
C3.	Is this source subject to the federal Chemical Accident Prevention Provisions? (Section 112(r) of the Clean Air Act Amendments, 40 CFR Part 68) If Yes , a Risk Management Plan (RMP) and periodic updates must be submitted to the USEPA. Has an updated RMP been submitted to the USEPA?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
C4.	Has this stationary source added or modified equipment since the last ROP renewal that changes the potential to emit (PTE) for criteria pollutant (CO, NOx, PM10, PM2.5, SO ₂ , VOC, lead) emissions? If Yes , include potential emission calculations (or the PTI and/or ROP revision application numbers, or other references for the PTE demonstration) for the added or modified equipment on an AI-001 Form. If No , criteria pollutant potential emission calculations do not need to be included.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
C5.	Has this stationary source added or modified equipment since the last ROP renewal that changes the PTE for hazardous air pollutants (HAPs) regulated by Section 112 of the federal Clean Air Act? If Yes , include potential emission calculations (or the PTI and/or ROP revision application numbers or other references for the PTE demonstration) for the added or modified equipment on an AI-001 Form. Fugitive emissions must be included in HAP emission calculations. If No , HAP potential emission calculations do not need to be included.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
C6.	Are any emission units subject to the Cross-State Air Pollution Rule (CSAPR)? If Yes , identify the specific emission unit(s) subject to CSAPR on an AI-001 Form.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
C7.	Are any emission units subject to the federal Acid Rain Program? If Yes , identify the specific emission unit(s) subject to the federal Acid Rain Program on an AI-001 Form. Is an Acid Rain Permit Renewal Application included with this application?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
C8.	Are any emission units identified in the existing ROP subject to compliance assurance monitoring (CAM)? If Yes , identify the specific emission unit(s) subject to CAM on an AI-001 Form. If a CAM plan has not been previously submitted to EGLE, one must be included with the ROP renewal application on an AI-001 Form. If the CAM Plan has been updated, include an updated copy. Is a CAM plan included with this application? If a CAM Plan is included, check the type of proposed monitoring included in the Plan: 1. Monitoring proposed by the source based on performance of the control device, or 2. Presumptively Acceptable Monitoring, if eligible	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> <input type="checkbox"/>
C9.	Does the source have any plans such as a malfunction abatement plan, fugitive dust plan, operation/maintenance plan, or any other monitoring plan that is referenced in an existing ROP, Permit to Install requirement, or any other applicable requirement? If Yes , then a copy must be submitted as part of the ROP renewal application.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
C10.	Are there any specific requirements that the source proposes to be identified in the ROP as non-applicable? If Yes , then a description of the requirement and justification must be submitted as part of the ROP renewal application on an AI-001 Form.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<input type="checkbox"/>	Check here if an AI-001 Form is attached to provide more information for Part C. Enter AI-001 Form ID: AI-	

PART D: PERMIT TO INSTALL (PTI) EXEMPT EMISSION UNIT INFORMATION

Review all emission units at the source and answer the question below.

D1. Does the source have any emission units that do not appear in the existing ROP but are required to be listed in the ROP application under R 336.1212(4) (Rule 212(4)) of the Michigan Air Pollution Control Rules? If Yes, identify the emission units in the table below. Yes No

If No, go to Part E.

Note: Emission units that are subject to process specific emission limitations or standards, even if identified in Rule 212, must be captured in either Part G or H of this application form. Identical emission units may be grouped (e.g. PTI exempt Storage Tanks).

Emission Unit ID	Emission Unit Description	Rule 212(4) Citation [e.g. Rule 212(4)(c)]	Rule 201 Exemption Rule Citation [e.g. Rule 282(2)(b)(i)]
EULEACHATETANKS	Two above-ground Leachate storage tanks – one (1) 376,000 gal, and one (1) 40,000 gal.	R 336.1285(2)(aa)	R 336.1212(4)(i)
EUPROPANEHEATERS	Multiple propane fired space heaters and hot water heater for heating buildings < 50 mmbtu	R 336.1282(2)(b)(i)	R 336.1212(4)(c)
EUPROPANETANKS	Multiple Propane Storage Tanks – Two (2) 1000-gal, two (2) 500-gal, and one (1) 330 gal.	R 336.1284(2)(b)	R 336.1212(4)(d)
EUGASTANK	500-gal Unleaded Gasoline storage tank	R 336.1284(b)	R 336.1212(4)
EUDIESELTANKS	Diesel fuel storage tanks – One (1) 12,000-gal and one (1) 500-gal.	R 336.1284(b)	R 336.1212(4)
EUUSED OILTANK	One (1) 400-gal used oil tank and one (1) 2,000-gal used oil tank	R 336.1284(i)	R 336.1212(4)(c)
EULUBEOILTANKS	Multiple lube oil tanks – one (1) 2,000 gal and three (3) 400-gal.	R 336.1212(4)(d)	R 336.1284(2)(i)
EUODORCONTROL	Odor control system used to control odors from leachate storage tanks.	R 336.1212(4)(e)	R 336.1285(2)(f)
EULEACHATESOLIDIFICATION	Leachate solidification operation	R 336.1212(4)(e)	R 336.1285(aa)

Comments:

Check here if an AI-001 Form is attached to provide more information for Part D. Enter AI-001 Form ID: **AI-**

PART E: EXISTING ROP INFORMATION

Review all emission units and applicable requirements (including any source wide requirements) in the existing ROP and answer the questions below as they pertain to all emission units and all applicable requirements in the existing ROP.

<p>E1. Does the source propose to make any additions, changes or deletions to terms, conditions and underlying applicable requirements as they appear in the existing ROP? If <u>Yes</u>, identify changes and additions on Part F, Part G and/or Part H.</p>	<p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
<p>E2. For each emission unit(s) identified in the existing ROP, <u>all</u> stacks with applicable requirements are to be reported in MAERS. Are there any stacks with applicable requirements for emission unit(s) identified in the existing ROP that were <u>not</u> reported in the most recent MAERS reporting year? If <u>Yes</u>, identify the stack(s) that was/were not reported on applicable MAERS form(s).</p>	<p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
<p>E3. Have any emission units identified in the existing ROP been modified or reconstructed that required a PTI? If <u>Yes</u>, complete Part F with the appropriate information.</p>	<p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
<p>E4. Have any emission units identified in the existing ROP been dismantled? If <u>Yes</u>, identify the emission unit(s) and the dismantle date in the comment area below or on an AI-001 Form.</p>	<p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
<p>Comments:</p>	
<p><input type="checkbox"/> Check here if an AI-001 Form is attached to provide more information for Part E. Enter AI-001 Form ID: AI-</p>	

PART F: PERMIT TO INSTALL (PTI) INFORMATION

Review all emission units and applicable requirements at the source and answer the following questions as they pertain to **all** emission units with PTIs. Any PTI(s) identified below must be attached to the application.

F1. Has the source obtained any PTIs where the applicable requirements from the PTI have not been incorporated into the existing ROP? If Yes, complete the following table. Yes No
 If No, go to Part G.

Permit to Install Number	Emission Units/Flexible Group ID(s)	Description (Include Process Equipment, Control Devices and Monitoring Devices)	Date Emission Unit was Installed/ Modified/ Reconstructed

F2. Do any of the PTIs listed above change, add, or delete terms/conditions to **established emission units** in the existing ROP? If Yes, identify the emission unit(s) or flexible group(s) affected in the comments area below or on an AI-001 Form and identify all changes, additions, and deletions in a mark-up of the existing ROP. Yes No

F3. Do any of the PTIs listed above identify **new emission units** that need to be incorporated into the ROP? If Yes, submit the PTIs as part of the ROP renewal application on an AI-001 Form, and include the new emission unit(s) or flexible group(s) in the mark-up of the existing ROP. Yes No

F4. Are there any stacks with applicable requirements for emission unit(s) identified in the PTIs listed above that were not reported in MAERS for the most recent emissions reporting year? If Yes, identify the stack(s) that were not reported on the applicable MAERS form(s). Yes No

F5. Are there any proposed administrative changes to any of the emission unit names, descriptions or control devices in the PTIs listed above for any emission units not already incorporated into the ROP? If Yes, describe the changes on an AI-001 Form. Yes No

Comments:

Check here if an AI-001 Form is attached to provide more information for Part F. Enter AI-001 Form ID: **AI-**

PART G: EMISSION UNITS MEETING THE CRITERIA OF RULES 281(2)(h), 285(2)(r)(iv), 287(2)(c), OR 290

Review all emission units and applicable requirements at the source and answer the following questions.

G1. Does the source have any new and/or existing emission units which do not already appear in the existing ROP and which meet the criteria of Rules 281(2)(h), 285(2)(r)(iv), 287(2)(c), or 290.
 If Yes, identify the emission units in the table below. If No, go to Part H. Yes No
Note: If several emission units were installed under the same rule above, provide a description of each and an installation/modification/reconstruction date for each.

Origin of Applicable Requirements	Emission Unit Description – <i>Provide Emission Unit ID and a description of Process Equipment, Control Devices and Monitoring Devices</i>	Date Emission Unit was Installed/ Modified/ Reconstructed
<input type="checkbox"/> Rule 281(2)(h) or 285(2)(r)(iv) cleaning operation		
<input type="checkbox"/> Rule 287(2)(c) surface coating line		
<input type="checkbox"/> Rule 290 process with limited emissions		

Comments:

Check here if an AI-001 Form is attached to provide more information for Part G. Enter AI-001 Form ID: **AI-**

PART H: REQUIREMENTS FOR ADDITION OR CHANGE

Complete this part of the application form for all proposed additions, changes or deletions to the existing ROP. This includes state or federal regulations that the source is subject to and that must be incorporated into the ROP or other proposed changes to the existing ROP. **Do not include additions or changes that have already been identified in Parts F or G of this application form.** If additional space is needed copy and complete an additional Part H.

Complete a separate Part H for each emission unit with proposed additions and/or changes.

H1. Are there changes that need to be incorporated into the ROP that have not been identified in Parts F and G? If <u>Yes</u> , answer the questions below.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
H2. Are there any proposed administrative changes to any of the existing emission unit names, descriptions or control devices in the ROP? If <u>Yes</u> , describe the changes in questions H8 – H16 below and in the affected Emission Unit Table(s) in the mark-up of the ROP.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
H3. Does the source propose to add a new emission unit or flexible group to the ROP not previously identified in Parts F or G? If <u>Yes</u> , identify and describe the emission unit name, process description, control device(s), monitoring device(s) and applicable requirements in questions H8 – H16 below and in a new Emission Unit Table in the mark-up of the ROP. See instructions on how to incorporate a new emission unit/flexible group into the ROP.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
H4. Does the source propose to add new state or federal regulations to the existing ROP? If <u>Yes</u> , on an AI-001 Form, identify each emission unit/flexible group that the new regulation applies to and identify <u>each</u> state or federal regulation that should be added. Also, describe the new requirements in questions H8 – H16 below and add the specific requirements to existing emission units/flexible groups in the mark-up of the ROP, create a new Emission Unit/Flexible Group Table, or add an AQD template table for the specific state or federal requirement.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
H5. Has a Consent Order/Consent Judgment (CO/CJ) been issued where the requirements were not incorporated into the existing ROP? If <u>Yes</u> , list the CO/CJ number(s) below and add or change the conditions and underlying applicable requirements in the appropriate Emission Unit/Flexible Group Tables in the mark-up of the ROP.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
H6. Does the source propose to add, change and/or delete source-wide requirements? If <u>Yes</u> , identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
H7. Are you proposing to streamline any requirements? If <u>Yes</u> , identify the streamlined and subsumed requirements and the EU ID, and provide a justification for streamlining the applicable requirement below.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

PART H: REQUIREMENTS FOR ADDITION OR CHANGE – (continued)

<p>H8. Does the source propose to add, change and/or delete emission limit requirements? If <u>Yes</u>, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below.</p> <p>A new rule has been promulgated that will be applicable to this site after September 28, 2021. 40 CFR, Part 63, Subpart AAAA – National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills. The specific requirements are: 40 CFR 63.1959, 40 CFR 63.1960</p>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<p>H9. Does the source propose to add, change and/or delete material limit requirements? If <u>Yes</u>, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below.</p>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<p>H10. Does the source propose to add, change and/or delete process/operational restriction requirements? If <u>Yes</u>, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below.</p> <p>A new rule has been promulgated that will be applicable to this site after September 28, 2021. 40 CFR, Part 63, Subpart AAAA – National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills. The specific requirements are: 40 CFR 63.1957, 40 CFR 63.1958, 40 CFR 63.1961</p>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<p>H11. Does the source propose to add, change and/or delete design/equipment parameter requirements? If <u>Yes</u>, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below.</p> <p>A new rule has been promulgated that will be applicable to this site after September 28, 2021. 40 CFR, Part 63, Subpart AAAA – National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills. The specific requirements are: 40 CFR 63.1962, 40 CFR 63.1960(b).</p>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<p>H12. Does the source propose to add, change and/or delete testing/sampling requirements? If <u>Yes</u>, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below.</p> <p>A new rule has been promulgated that will be applicable to this site after September 28, 2021. 40 CFR, Part 63, Subpart AAAA – National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills. The specific requirements are: 40 CFR 63.1959(a)(3), 40 CFR 63.1959(a)(4), 40 CFR 63.1959(a)(5), 40 CFR 63.1960(a)(4)(i)(D), 40 CFR 63.1960(c)</p>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<p>H13. Does the source propose to add, change and/or delete monitoring/recordkeeping requirements? If <u>Yes</u>, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below.</p> <p>A new rule has been promulgated that will be applicable to this site after September 28, 2021. 40 CFR, Part 63, Subpart AAAA – National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills. The specific requirements are: 40 CFR 63.1965, 40 CFR 63.1975, 40 CFR 63.1962, 40 CFR 63.1963, 40 CFR 63.1960(a)(4)(i)(A)-(D)</p>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<p>H14. Does the source propose to add, change and/or delete reporting requirements? If <u>Yes</u>, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below.</p> <p>A new rule has been promulgated that will be applicable to this site after September 28, 2021. 40 CFR, Part 63, Subpart AAAA – National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills. The specific requirement is: 40 CFR 63.1961</p>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

PART H: REQUIREMENTS FOR ADDITION OR CHANGE – (continued)

H15. Does the source propose to add, change and/or delete **stack/vent restrictions**? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below. Yes No

H16. Does the source propose to add, change and/or delete any **other** requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below. Yes No

40 CFR Part 60 Subpart WWW – New Source Performance Standards for Municipal Solid Waste Landfills is replaced by 40 CFR Part 63, Subpart AAAA. All references to Subpart WWW should be removed.

H17. Does the source propose to add terms and conditions for an alternative operating scenario or intra-facility trading of emissions? If Yes, identify the proposed conditions in a mark-up of the corresponding section of the ROP and provide a justification below. Yes No

Check here if an AI-001 Form is attached to provide more information for Part H. Enter AI-001 Form ID: **AI-001**



RENEWABLE OPERATING PERMIT APPLICATION AI-001: ADDITIONAL INFORMATION

This information is required by Article II, Chapter 1, part 55 (Air Pollution Control) of P.A. 451 of 1994, as amended, and the Federal Clean Air Act of 1990. Failure to obtain a permit required by Part 55 may result in penalties and/or imprisonment. Please type or print clearly. Refer to instructions for additional information to complete this form.

SRN: N5984

Section Number (if applicable): 01

1. Additional Information ID
AI-001

Additional Information

2. Is This Information Confidential?

Yes No

40 CFR Part 60 Subpart WWW – New Source Performance Standards for Municipal Solid Waste Landfills is replaced by 40 CFR Part 63, Subpart AAAA. All references to Subpart WWW should be removed.

Page of

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

EFFECTIVE DATE:

ISSUED TO

Pine Tree Acres, Inc. and Sumpter Energy Associates, LLC

State Registration Number (SRN): N5984

LOCATED AT

36600 29 Mile Road and 36450 29 Mile Road, Lenox Township, Michigan 48048

RENEWABLE OPERATING PERMIT

Permit Number: MI-ROP-N5984-

Expiration Date:

Administratively Complete ROP Renewal Application
Due Between

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 Michigan Air Pollution Control Rule 210(1), 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-N5984-2019

This Permit to Install (PTI) is issued in accordance with and subject to Section 5505(5) of Act 451. Pursuant to Michigan Air Pollution Control Rule 214a, 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

Joyce Zhu, Warren District Supervisor

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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 – PINE TREE ACRES, INC.

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))**

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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 states 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))**

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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):
 - a. June 21, 1999,
 - b. Three years after the date on which a regulated substance is first listed under 40 CFR 68.130, or
 - c. 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))**

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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.

SOURCE-WIDE CONDITIONS

POLLUTION CONTROL EQUIPMENT

Sulfur/Total Reduced Sulfur removal system

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))

NA

VI. MONITORING/RECORDKEEPING

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

NA

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))

See Appendix 8-1

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VIII. STACK/VENT RESTRICTION(S)

N/A

IX. OTHER REQUIREMENT(S)

1. The operational restrictions and testing requirements in SC II.1, SC III.3 and SC V.3 under FG-ICENGINES at Pine Trees Acres (section 1) also applies to the landfill gas supplied to FG-ENGINES at the facility operated by Sumpter Energy (section 2).² **(R 336.2803, R 336.2804, 40 CFR 52.21 (c) & (d))**

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).

C. EMISSION UNIT 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
EU-ASBESTOS	Any active or inactive asbestos disposal at the MSW landfill.	01/01/1988	FG-LANDFILL-XXX FGLANDFILL-AAAA
EU-LANDFILL	A municipal solid waste (MSW) landfill that commenced construction, reconstruction, or modification after July 17, 2014. The MSW landfill has a design capacity equal to or greater than 2.5 million megagrams and 2.5 million cubic meters, and NMOC emissions equal to or greater than 34 Mg per year.	06/30/1986	FG-LANDFILL-XXX FGLANDFILL-AAAA
EU-ACTIVECOLLECTION	This emission unit represents the active landfill gas collection system that uses gas mover equipment to draw landfill gas from the wells and moves the gas to the control equipment.	01/01/1993	FG-LANDFILL-XXX FGLANDFILL-AAAA FG-ACTIVECOLLECTION-XXX FGACTIVECOLLECTION-AAAA
EU-TREATMENTSYSTEM	A treatment system that filters, de-waters, and compresses landfill gas for subsequent sale or beneficial use. The treatment system removes particulate to at least the 10-micron level, compresses the landfill gas, and removes enough moisture to ensure good combustion of gas for subsequent use.	07/24/2001	FG-LANDFILL-XXX FGLANDFILL-AAAA FG-TREATMENTSYSTEM-XXX FGTREATMENTSYSTEM-AAAA
EU-FLARE3	A 3,000 CFM open flare. Open flare is an open combustor without enclosure or shroud.	08/12/2005 / 08/01/2006	FG-LANDFILL-XXX FGLANDFILL-AAAA FG-FLARES FG-OPENFLARES-XXX FGOPENFLARES-AAAA

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Emission Unit ID	Emission Unit Description (Including Process Equipment & Control Device(s))	Installation Date/ Modification Date	Flexible Group ID
EU-FLARE4	A 3,000 CFM enclosed flare with a sulfur removal system for reducing sulfur content of landfill gas prior to combustion. An enclosed flare is an enclosed combustor or firebox which maintains a relatively constant limited peak temperature generally using a limited supply of combustion air.	06/24/2009	FG-LANDFILL-XXX FGLANDFILL-AAAA FG-FLARES FG-ENCLOSEDFLARES-XXX FGENCLOSEDFLARES-AAAA
EU-FLARE5	A 2,100 CFM portable, back-up only, open flare. Open flare is an open combustor without enclosure or shroud.	03/18/2009	FG-LANDFILL-XXX FG-FLARES FG-OPENFLARES-XXX FGOPENFLARES-AAAA
EU-FLARE6	A 6,000 CFM enclosed flare with a sulfur removal system for reducing sulfur content of landfill gas prior to combustion. An enclosed flare is an enclosed combustor or firebox which maintains a relatively constant limited peak temperature generally using a limited supply of combustion air.	04/01/2011	FG-LANDFILL-XXX FGLANDFILL-AAAA FG-FLARES FG-ENCLOSEDFLARES-XXX FGENCLOSEDFLARES-AAAA
EU-COLDCLEANER	This emission unit represents one or more small cold cleaners/degreasers installed after July 1, 1979, which are exempt from permit-to-install requirements.	06/26/2001	FG-COLDCLEANERS
EU-ICENGINE1	Spark ignition, lean burn, reciprocating internal combustion engine (Caterpillar G3520C, 2,233 bhp at 100% load) and associated generator set for combusting treated landfill gas to produce electricity (1.6-megawatt gross electrical output). This emission unit, and any replacement of this unit as applicable under R 336.1285(2)(a)(vi), is for a Caterpillar G3520C internal combustion engine greater than 500hp fueled with treated landfill/digester gas to produce electricity.	02/28/11	FG-ICENGINES FG-RICEMACT FG-RICENSPS

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Emission Unit ID	Emission Unit Description (Including Process Equipment & Control Device(s))	Installation Date/ Modification Date	Flexible Group ID
EU-ICENGINE2	Spark ignition, lean burn, reciprocating internal combustion engine (Caterpillar G3520C, 2,233 bhp at 100% load) and associated generator set for combusting treated landfill gas to produce electricity (1.6-megawatt gross electrical output). This emission unit, and any replacement of this unit as applicable under R 336.1285(2)(a)(vi), is for a Caterpillar G3520C internal combustion engine greater than 500hp fueled with treated landfill/digester gas to produce electricity.	02/28/11	FG-ICENGINES FG-RICEMACT FG-RICENSPS
EU-ICENGINE3	Spark ignition, lean burn, reciprocating internal combustion engine (Caterpillar G3520C, 2,233 bhp at 100% load) and associated generator set for combusting treated landfill gas to produce electricity (1.6-megawatt gross electrical output). This emission unit, and any replacement of this unit as applicable under R 336.1285(2)(a)(vi), is for a Caterpillar G3520C internal combustion engine greater than 500hp fueled with treated landfill/digester gas to produce electricity.	02/28/11	FG-ICENGINES FG-RICEMACT FG-RICENSPS
EU-ICENGINE4	Spark ignition, lean burn, reciprocating internal combustion engine (Caterpillar G3520C, 2,233 bhp at 100% load) and associated generator set for combusting treated landfill gas to produce electricity (1.6-megawatt gross electrical output). This emission unit, and any replacement of this unit as applicable under R 336.1285(2)(a)(vi), is for a Caterpillar G3520C internal combustion engine greater than 500hp fueled with treated landfill/digester gas to produce electricity.	02/28/11	FG-ICENGINES FG-RICEMACT FG-RICENSPS

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Emission Unit ID	Emission Unit Description (Including Process Equipment & Control Device(s))	Installation Date/ Modification Date	Flexible Group ID
EU-ICENGINE5	Spark ignition, lean burn, reciprocating internal combustion engine (Caterpillar G3520C, 2,233 bhp at 100% load) and associated generator set for combusting treated landfill gas to produce electricity (1.6-megawatt gross electrical output). This emission unit, and any replacement of this unit as applicable under R 336.1285(2)(a)(vi), is for a Caterpillar G3520C internal combustion engine greater than 500hp fueled with treated landfill/digester gas to produce electricity.	02/28/11	FG-ICENGINES FG-RICEMACT FG-RICENSPS
EU-ICENGINE6	Spark ignition, lean burn, reciprocating internal combustion engine (Caterpillar G3520C, 2,233 bhp at 100% load) and associated generator set for combusting treated landfill gas to produce electricity (1.6-megawatt gross electrical output). This emission unit, and any replacement of this unit as applicable under R 336.1285(2)(a)(vi), is for a Caterpillar G3520C internal combustion engine greater than 500hp fueled with treated landfill/digester gas to produce electricity.	02/28/11	FG-ICENGINES FG-RICEMACT FG-RICENSPS
EU-ICENGINE7	Spark ignition, lean burn, reciprocating internal combustion engine (Caterpillar G3520C, 2,233 bhp at 100% load) and associated generator set for combusting treated landfill gas to produce electricity (1.6-megawatt gross electrical output). This emission unit, and any replacement of this unit as applicable under R 336.1285(2)(a)(vi), is for a Caterpillar G3520C internal combustion engine greater than 500hp fueled with treated landfill/digester gas to produce electricity.	02/28/11	FG-ICENGINES FG-RICEMACT FG-RICENSPS

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Emission Unit ID	Emission Unit Description (Including Process Equipment & Control Device(s))	Installation Date/ Modification Date	Flexible Group ID
EU-ICENGINE8	Spark ignition, lean burn, reciprocating internal combustion engine (Caterpillar G3520C, 2,233 bhp at 100% load) and associated generator set for combusting treated landfill gas to produce electricity (1.6-megawatt gross electrical output). This emission unit, and any replacement of this unit as applicable under R 336.1285(2)(a)(vi), is for a Caterpillar G3520C internal combustion engine greater than 500hp fueled with treated landfill/digester gas to produce electricity.	02/28/11	FG-ICENGINES FG-RICEMACT FG-RICENSPS

**EU-ASBESTOS
EMISSION UNIT CONDITIONS**

DESCRIPTION

Any active or inactive asbestos disposal at the MSW landfill.

Flexible Group ID: FG-LANDFILL-XXX, , FGLANDFILL-AAAA

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

NA

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. If the landfill accepts asbestos-containing waste materials from a source covered under 40 CFR 61.149, 40 CFR 61.150, or 40 CFR 61.155, the permittee shall meet the following operational requirements: **(40 CFR 61.154)**
 - a. Either there must be no visible emissions to the outside air from any active waste disposal site where asbestos-containing waste material has been deposited, or the requirements of 40 CFR 61.154(c) or (d) must be met. **(40 CFR 61.154(a))**
 - b. Unless a natural barrier adequately deters access by the general public, either warning signs and fencing must be installed and maintained as required in 40 CFR 61.154(b), or the requirements of 40 CFR 61.154(c)(1) must be met.
 - i. Warning signs must be displayed at all entrances and at intervals of 100 m (330 ft) or less along the property line of the site or along the perimeter of the sections of the site where asbestos-containing waste material is deposited. The warning signs must:
 1. Be posted in such a manner and location that a person can easily read the legend **(40 CFR 61.154(b)(1)(i))**
 2. Conform to the requirements of 51 cm by 36cm (20 inches by 14 inches) upright format signs specified in 29 CFR 1910.145(d)(4) and 40 CFR 61.154(b)(1). **(40 CFR 61.154(b)(1)(ii))**
 3. The permittee shall display the legend in the lower panel with letter sizes and styles of a visibility at least equal to those specified in 40 CFR 61.154(b)(1). Spacing between any two lines must be at least equal to the height of the upper of the two lines. **(40 CFR 61.154(b)(1)(iii))**
 - ii. The perimeter of the disposal site must be fenced in a manner adequate to deter access by the general public. **(40 CFR 61.154(b)(2))**
 - iii. Upon request and supply of appropriate information, the appropriate AQD District Supervisor will determine whether a fence or a natural barrier adequately deters access by the general public. **(40 CFR 61.154(b)(3))**

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- c. Rather than meet the no visible emission requirement of 40 CFR 61.154(a), at the end of each operating day, or at least once every 24-hour period while the site is in continuous operation, the asbestos-containing waste material that has been deposited at the site during the operating day or previous 24-hour period shall:
 - i. Be covered with at least 15 centimeters (6 inches) of compacted non-asbestos-containing material. **(40 CFR 61.154(c)(1))** or
 - ii. Be covered with a resinous or petroleum-based dust suppression agent that effectively binds dust and controls wind erosion. Such an agent shall be used in the manner and frequency recommended for the particular dust by the dust suppression agent manufacturer to achieve and maintain dust control. Other equally effective dust suppression agents may be used upon prior approval by the appropriate AQD District Supervisor. For purposes of 40 CFR 61.154(c)(2), any used, spent, or other waste oil is not considered a dust suppression agent. **(40 CFR 61.154(c)(2))**
- d. Rather than meet the no visible emission requirement of 40 CFR 61.154(a), use an alternative emissions control method that has received prior written approval by the appropriate AQD District Supervisor according to the procedures described in 40 CFR 61.149(c)(2). **(40 CFR 61.154(d))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. Any segregated area of asbestos or nondegradable material may be excluded from collection if documented as provided under 40 CFR 60.758(d) or 40 CFR 60.768(d). The documentation shall provide the nature, date of deposition, location and amount of asbestos or nondegradable material deposited in the area and shall be provided to the AQD upon request. **(40 CFR 60.759(a)(3)(i), 40 CFR 60.769(a)(3)(i))**

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. For all asbestos-containing waste material received, the permittee of the active waste disposal site shall:
 - a. Maintain waste shipment records that include the following information: **(40 CFR 61.154(e)(1))**
 - i. The name, address, and telephone number of the waste generator. **(40 CFR 61.154(e)(1)(i))**
 - ii. The name, address, and telephone number of the transporter(s). **(40 CFR 61.154(e)(1)(ii))**
 - iii. The quantity of the asbestos-containing waste material in cubic meters (cubic yards). **(40 CFR 61.154(e)(1)(iii))**
 - iv. The presence of improperly enclosed or uncovered waste, or any asbestos-containing waste material not sealed in leak-tight containers. Report in writing to the local, State, or USEPA Regional office responsible for administering the asbestos NESHAP program for the waste generator (identified in the waste shipment record), and, if different, the local, State, or USEPA Regional office responsible for administering the asbestos NESHAP program for the disposal site, by the following working day, the presence of a significant amount of improperly enclosed or uncovered waste. Submit a copy of the waste shipment record along with the report. **(40 CFR 61.154(e)(1)(iv))**
 - v. The date of the receipt. **(40 CFR 61.154(e)(1)(v))**
 - b. As soon as possible and no longer than 30 days after receipt of the waste, send a copy of the signed waste shipment record to the waste generator. **(40 CFR 61.154(e)(2))**

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- c. Upon discovering a discrepancy between the quantity of waste designated on the waste shipment records and the quantity actually received, attempt to reconcile the discrepancy with the waste generator. If the discrepancy is not resolved within 15 days after receiving the waste, immediately report in writing to the local, State, or USEPA Regional office responsible for administering the asbestos NESHAP program for the waste generator (identified in the waste shipment record). **(40 CFR 61.154(e)(3))**
2. The permittee shall maintain, until closure, records of the location, depth and area, and quantity in cubic meters (cubic yards) of asbestos-containing waste material within the disposal site on a map or diagram of the disposal area storage. **(40 CFR 61.154(f))**
3. The permittee shall keep readily accessible documentation of the nature, date of deposition, amount, and location of asbestos-containing or nondegradable waste excluded from collection as provided in 40 CFR 60.759(a)(3)(i) or 40 CFR 60.769(a)(3)(i). **(40 CFR 60.758(d)(2), 40 CFR 60.768(d)(2))**
4. The permittee shall keep records of one the following regarding any active disposal site where asbestos containing materials have been deposited:
 - a. USEPA Method 22 readings demonstrating no visible emissions from any active disposal site where asbestos containing materials have been deposited. These readings are to be taken for 15 minutes each operating day.
 - b. Records of the date asbestos waste is received, the amount and type of material that has been used to cover the asbestos waste, and documentation that the cover material was applied in the frequency required in SC III.1.c. **(40 CFR 61.154(c))**
 - c. Records pursuant to an alternative emissions control method that has prior written approval of the AQD District Supervisor as noted in SC III.1.d. **(40 CFR 61.154(d))**

The permittee shall keep all records on file in a format acceptable to the AQD District Supervisor and make them available upon request. **(R 336.1213(3), 40 CFR 61.154)**

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. For all asbestos-containing waste material received, the permittee of the active waste disposal site shall:
 - a. Report in writing to the AQD District Supervisor by the following working day, the presence of a significant amount of improperly enclosed or uncovered waste and submit a copy of the waste shipment record along with the report. **(40 CFR 61.154(e)(1)(iv))**
 - b. Upon discovering a discrepancy between the quantity of waste designated on the waste shipment records and the quantity actually received, attempt to reconcile the discrepancy with the waste generator. If the discrepancy is not resolved within 15 days after receiving the waste, immediately report in writing to the AQD Supervisor. Describe the discrepancy and attempts to reconcile it and submit a copy of the waste shipment record along with the report. **(40 CFR 61.154(e)(3))**

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5. The permittee shall notify the AQD Technical Programs Unit and appropriate AQD District Office in writing at least 45 days prior to excavating or otherwise disturbing any asbestos-containing waste material that has been deposited at a waste disposal site and is covered. If the excavation will begin on a date other than the one contained in the original notice, notice of the new start date must be provided to the appropriate AQD District Office at least 10 working days before excavation begins and in no event shall excavation begin earlier than the date specified in the original notification. The notice shall include the following information:
 - a. Scheduled starting and completion dates. **(40 CFR 61.154(j)(1))**
 - b. Reason for disturbing the waste. **(40 CFR 61.154(j)(2))**
 - c. Procedures to be used to control emissions during the excavation, storage, transport, and ultimate disposal of the excavated asbestos-containing waste material. If deemed necessary, the AQD or may require changes in the emission control procedures to be used. **(40 CFR 61.154(j)(3))**
 - d. Location of any temporary storage site and the final disposal site. **(40 CFR 61.154(j)(4))**
6. The permittee shall submit to the appropriate AQD District Supervisor, upon closure of the facility, a copy of records of asbestos waste disposal locations and quantities. **(40 CFR 61.154(h))**

See Appendix 8-1

VIII. STACK/VENT RESTRICTION(S)

NA

IX. OTHER REQUIREMENT(S)

1. The permittee shall 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 WWW. **(40 CFR 60, Subparts A and WWW)**
2. The permittee shall 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 60, Subparts A and XXX)**
3. The permittee shall comply with all applicable provisions of the National Emission Standards for Hazardous Air Pollutants as specified in 40 CFR Part 61 Subparts A and M. **(40 CFR 61, Subparts A and M)**

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).

D. FLEXIBLE GROUP 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
FG-LANDFILL-XXX	This flexible group represents the general MSW landfill with a required collection and control system. This flexible group contains 40 CFR 60, Subpart XXX requirements.	EU-LANDFILL EU-ACTIVECOLLECTION EU-TREATMENTSYSTEM EU-ASBESTOS EU-FLARE3 EU-FLARE4 EU-FLARE5 EU-FLARE6
FG-LANDFILL-AAAA	This flexible group represents the general MSW landfill with a required collection and control system. This flexible group contains 40 CFR Part 63, Subpart AAAA requirements.	EU-LANDFILL EU-ACTIVECOLLECTION EU-TREATMENTSYSTEM EU-ASBESTOS EU-FLARE3 EU-FLARE4 EU-FLARE5 EU-FLARE6
FG-ACTIVECOLLECTION-XXX	This flexible group represents the active landfill gas collection system at the landfill that uses gas mover equipment to draw landfill gas from the wells and moves the gas to the control equipment. This flexible group contains 40 CFR 60, Subpart XXX requirements.	EU-ACTIVECOLLECTION
FG-ACTIVECOLLECTION-AAAA	This flexible group represents the active landfill gas collection system that uses gas mover equipment to draw landfill gas from the wells and moves the gas to the control equipment. This flexible group contains 40 CFR Part 63, Subpart AAAA requirements.	EU-ACTIVECOLLECTION
FG-TREATMENTSYSTEM-XXX	A treatment system that filters, de-waters, and compresses landfill gas for subsequent sale or beneficial use. The treatment system removes particulate to at least the 10-micron level, compresses the landfill gas, and removes enough moisture to ensure good combustion of gas for subsequent use. This flexible group contains the requirements of 40 CFR Part 60, Subpart XXX.	EU-TREATMENTSYSTEM

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Flexible Group ID	Flexible Group Description	Associated Emission Unit IDs
FG-TREATMENTSYSTEM-AAAA	A treatment system that filters, de-waters, and compresses landfill gas for subsequent sale or beneficial use. This flexible group contains 40 CFR Part 63, Subpart AAAAA requirements.	EU-TREATMENTSYSTEM
FG-ENCLOSEDFLARES-XXX	Two enclosed flares with a combined capacity of 9,000 CFM, used in combusting landfill gas. An enclosed flare is an enclosed combustor or firebox which maintains a relatively constant limited peak temperature generally using a limited supply of combustion air. This flexible group contains the requirements of 40 CFR Part 60, Subpart XXX.	EU-FLARE4 EU-FLARE6
FGENCLOSEDFLARES-AAAA	An enclosed flare (enclosed combustor) is an enclosed firebox which maintains a relatively constant limited peak temperature generally using a limited supply of combustion air. This flexible group contains 40 CFR Part 63, Subpart AAAAA requirements.	EU-FLARE4 EU-FLARE6
FG-OPENFLARES-XXX	Two open flares with a combined capacity of 5,100 CFM used to control LFG generated by the landfill. An open flare is an open combustor without enclosure or shroud. EUFLARE5 serves as a backup flare and only operates if one or more flares and/or engines are not in operation. This flexible group contains the requirements of 40 CFR Part 60 Subpart XXX.	EU-FLARE3 EU-FLARE5
FG-OPENFLARES-AAAA	Open (non-enclosed) flare is an open combustor without enclosure or shroud. This flexible group contains 40 CFR Part 63, Subpart AAAAA requirements.	EU-FLARE3 EU-FLARE5
FG-FLARES	Four flares (one open, two enclosed, and one stand by portable open flare) with a combined capacity of 14,200 CFM, used in combusting landfill gas.	EU-FLARE3 EU-FLARE4 EU-FLARE5 EU-FLARE6
FG-COLDCLEANERS	This flexible group represents one or more small cold cleaners/degreasers installed after July 1, 1979, which are exempt from permit-to-install requirements.	EU-COLDCLEANERS
FG-ICENGINES	Eight internal combustion engines and associated generator sets for combusting treated landfill gas to produce electricity.	EU-ICENGINE1 EU-ICENGINE2 EU-ICENGINE3 EU-ICENGINE4 EU-ICENGINE5 EU-ICENGINE6 EU-ICENGINE7 EU-ICENGINE8

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Flexible Group ID	Flexible Group Description	Associated Emission Unit IDs
FG-RICEMACT	New and reconstructed non-emergency engines greater than 500 hp firing landfill/digester gas, located at a major source of HAPs. Commenced construction or reconstruction on or after December 19, 2002.	EU-ICENGINE1 EU-ICENGINE2 EU-ICENGINE3 EU-ICENGINE4 EU-ICENGINE5 EU-ICENGINE6 EU-ICENGINE7 EU-ICENGINE8
FG-RICENSPS	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.	EU-ICENGINE1 EU-ICENGINE2 EU-ICENGINE3 EU-ICENGINE4 EU-ICENGINE5 EU-ICENGINE6 EU-ICENGINE7 EU-ICENGINE8

**FG-LANDFILL-XXX
FLEXIBLE GROUP CONDITIONS**

DESCRIPTION

This flexible group represents the general MSW landfill with a required collection and control system. This flexible group contains 40 CFR 60, Subpart XXX requirements.

Emission Units: EU-LANDFILL, EU-ACTIVECOLLECTION, EU-TREATMENTSYSYSTEM, EU-FLARE3, EU-FLARE4, EU-FLARE5, EU-FLARE6, EU-ASBESTOS

POLLUTION CONTROL EQUIPMENT

Open and enclosed flare, landfill gas treatment system.

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. Methane concentration	Less than 500 ppm above background level	Calendar quarter	Surface of Landfill	SC V.1 SC VI.1	40 CFR 60.763(d)

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTIONS

1. The permittee shall develop a written startup, shutdown, and malfunction (SSM) plan that describes how emissions will be minimized during periods of startup, shutdown, and malfunction; and a program of corrective action for the malfunctioning process, air pollution control, and monitoring equipment used to comply. **(R 336.1213(3), R 336.1911)**
2. During periods of startup, shutdown, and malfunction, you must comply with the work practice specified in 40 CFR 60.763(e) in lieu of the compliance provisions in 40 CFR 60.765. **(40 CFR 60.765(e))**

IV. DESIGN/EQUIPMENT PARAMETERS

1. The permittee shall install a collection and control system that captures the landfill gas generated within the landfill according to the requirements in 40 CFR 60.762(b)(2)(ii) and 40 CFR 60.762(b)(2)(iii). **(40 CFR 60.762(b)(2))**
2. The permittee shall route all the collected landfill gas to at least one of the following:
 - a. An open flare designed in accordance with 40 CFR 60.18 except as noted in 40 CFR 60.764(e). **(40 CFR 60.762(b)(2)(iii)(A))**
 - b. A control system designed and operated to reduce NMOC by 98 weight percent, or, when an enclosed combustion device is used for control, to either reduce NMOC by 98 weight percent or reduce the outlet NMOC concentration to less than 20 ppmv on dry basis, as hexane at 3 percent oxygen. **(40 CFR 60.762(b)(2)(iii)(B))**

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- c. To a treatment system that processes the collected gas for subsequent sale or beneficial use. The treatment system shall be designed so that all emissions from any atmospheric vent(s) shall be subject to 40 CFR 60.762(b)(2)(iii)(A) or (B). **(40 CFR 60.762(b)(2)(iii)(C))**

V. TESTING/SAMPLING

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

1. Quarterly, the permittee shall conduct surface testing around the perimeter of the collection area and along a pattern that traverses the landfill at 30-meter intervals and where visual observations indicate elevated concentrations of landfill gas, such as distressed vegetation and cracks or seeps in the cover and all cover penetrations. A surface monitoring design plan shall be developed that includes a topographical map with the monitoring route, any alternative traversing pattern that ensures equivalent coverage, and the rationale for any site-specific deviations from the 30-meter intervals. **(40 CFR 60.763(d))**
2. The permittee shall use the procedures in 40 CFR 60.765(c) for compliance with the surface methane operational standard in 40 CFR 60.763(d). **(40 CFR 60.765(c))**
3. The permittee shall document any reading of 500 ppm or more above background at any location as a monitored exceedance. As long as the following specified actions are taken, the exceedance is not a violation of the operational requirements of 40 CFR 60.763(d). **(40 CFR 60.765(c)(4))**
 - a. The location of each monitored exceedance shall be marked, and the location and concentration recorded. **(40 CFR 60.765(c)(4)(i))**
 - b. Cover maintenance or adjustments to the vacuum of the adjacent wells to increase the gas collection in the vicinity of each exceedance shall be made and the location shall be re-monitored within 10 calendar days of detecting the exceedance. **(40 CFR 60.765(c)(4)(ii))**
 - c. If the re-monitoring of the location shows a second exceedance, additional corrective action shall be taken, and the location shall be monitored again within 10 days of the second exceedance. If the re-monitoring shows a third exceedance for the same location, the action specified in SC V.3.e shall be taken, and no further monitoring of that location is required until the action specified in SC V.3.e has been taken. **(40 CFR 60.765(c)(4)(iii))**
 - d. Any location that initially showed an exceedance but has a methane concentration less than 500 ppm methane above background at the 10-day re-monitoring specified in 60.765(c)(4)(ii) or (iii) shall be re-monitored 1 month from the initial exceedance. If the 1-month re-monitoring shows a concentration less than 500 ppm above backgrounds, no further monitoring of that location is required until the next quarterly monitoring period. If the 1-month re-monitoring shows an exceedance, the actions specified in SC V.3.c or SC V.3.e shall be taken. **(40 CFR 60.765(c)(4)(iv))**
 - e. For any location where monitored methane concentration equals or exceeds 500 ppm above backgrounds three times within a quarterly period, a new well or other collection device shall be installed within 120 calendar days of the initial exceedance. An alternative remedy to the exceedance, such as upgrading the blower, header pipes or control device, and a corresponding timeline for installation may be submitted to the AQD for approval. **(40 CFR 60.765(c)(4)(v))**
4. The permittee shall comply with instrumentation specifications and procedures in 40 CFR 60.765(d) for surface emission monitoring devices. **(40 CFR 60.765(d))**
 - a. The portable analyzer shall meet the instrument specifications provided in Method 21 of Appendix A of 40 CFR Part 60, except that "methane" shall replace all references to VOC. **(40 CFR 60.755(d)(1))**
 - b. The calibration gas shall be methane, diluted to a nominal concentration of 500 ppm in air. **(40 CFR 60.755(d)(2))**
 - c. To meet the performance evaluation requirements in Method 21 of Appendix A of 40 CFR Part 60, the instrument evaluation procedures of Method 21 of Appendix A of 40 CFR Part 60 shall be used. **(40 CFR 60.755(d)(3))**

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- d. The calibration procedures provided in Method 21 of Appendix A of 40 CFR Part 60 shall be followed immediately before commencing a surface monitoring survey. **(40 CFR 60.755(d)(4))**
5. Any closed landfill that has no monitored exceedances of the operational standard in three consecutive quarterly monitoring periods may skip to annual monitoring. Any methane reading of 500 ppm or more above background detected during the annual monitoring returns the frequency for that landfill to quarterly monitoring. **(40 CFR 60.766(f))**

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 keep monthly records of the surface methane monitoring including the following information at a minimum:
 - a. The route traversed including any areas not monitored because of unsafe conditions (i.e., truck traffic, construction, active face, dangerous areas, etc.) and areas included where visual observations indicate elevated levels of landfill gas.
 - b. The location(s) and concentrations of the methane readings and noting any reading above 500 ppm above background.
 - c. The meteorological conditions the day of the testing including wind speed, wind direction, temperature, and cloud cover.

The permittee shall keep all records on file in a format acceptable to the AQD District Supervisor and make them available upon request. **(R 336.1213(3), 40 CFR 60.763(d))**

2. The permittee shall implement a program to monitor on a monthly basis for cover integrity and implement cover repairs as necessary. Records of the cover integrity and any cover repairs shall be kept on file in a format acceptable to the AQD District Supervisor and made available upon request. **(40 CFR 60.765(c)(5))**
3. The permittee shall keep monthly records of the SSM events including the date of the event, how emissions were minimized during the event, and the corrective action taken for the malfunctioning process, air pollution control, and monitoring equipment. The permittee shall keep all records on file in a format acceptable to the AQD District Supervisor and make them available upon request. **(R 336.1213(3), R 336.1911)**
4. The permittee shall 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 four hours. The permittee shall 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))**
5. Landfill owners or operators who convert design capacity from volume to mass or mass to volume to demonstrate that landfill design capacity is less than 2.5 million megagrams or 2.5 million cubic meters, as provided in the definition of "design capacity", shall keep readily accessible, on-site records of the annual recalculation of site-specific density, design capacity, and the supporting documentation. Off-site records may be maintained if they are retrievable within four hours. Either paper copy or electronic formats are acceptable. **(40 CFR 60.768(f))**
6. If reporting leachate or other liquids addition under 40 CFR 60.767(k), the permittee shall keep records of any engineering calculations or company records used to estimate the quantities of leachate or liquids added, the surface areas for which the leachate or liquids were applied, and the estimates of annual waste acceptance or total waste in place in the areas where leachate or liquids were applied. **(40 CFR 60.768(j))**

VII. REPORTING

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**

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2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. 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. 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 reports which shall be postmarked or received by appropriate AQD District Office by March 15 for reporting period January 1 to December 31. The report shall include the location of each exceedance of the 500 ppm methane concentrations as provided in 40 CFR 60.763(d) and the concentration recorded at each location for which an exceedance was recorded in the previous month. The report shall also contain include information on all deviations that occurred during the six-month reporting period. **(40 CFR 60.767(g)(5))**
5. Semiannually, the permittee shall submit a startup, shutdown, and malfunction (SSM) plan report to the appropriate AQD District Office and it shall be delivered or postmarked by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. The report shall include actions taken to minimize emissions consistent with the procedures specified in the (SSM) plan. If actions taken are not consistent with the SSM plan, the permittee shall report actions taken within two working days after commencing such actions followed by a letter seven days after the event. **(R 336.1213(3), R 336.1911)**
6. The permittee shall submit an equipment removal report to the appropriate AQD District Supervisor 30 days prior to removal or cessation of operation of the control equipment. **(40 CFR 60.767(f))**
 - a. The equipment removal report shall contain all of the following items:
 - i. A copy of the closure report submitted in accordance with 40 CFR 60.767(d); **(40 CFR 60.767(f)(1)(i))**
 - ii. A copy of the initial performance test report demonstrating that the 15-year minimum control period has expired. **(40 CFR 60.767(f)(1)(ii))**
 - iii. Dated copies of three successive NMOC emission rate reports demonstrating that the landfill is no longer producing 34 megagrams or greater of NMOC per year; and **(40 CFR 60.767(f)(1)(iii))**
 - b. The AQD may request such additional information as may be necessary to verify that all of the conditions for removal in 40 CFR 60.762(b)(2)(v) have been met. **(40 CFR 60.767(e)(2))**
7. The permittee shall 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))**

See Appendix 8-1

VIII. STACK/VENT RESTRICTION(S)

NA

IX. OTHER REQUIREMENTS

1. The permittee that has already submitted a design plan under 40 CFR 60.767(c) shall submit a revised design plan to the AQD for approval as follows:
 - a. At least 90 days before expanding operations to an area not covered by the previously approved design plan. **(40 CFR 60.767(d)(1))**

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- b. Prior to installing or expanding the gas collection system in a way that is not consistent with the design plan that was submitted plan under 40 CFR 60.767(c). **(40 CFR 60.767(d)(2))**
2. The collection and control system may be capped or removed as provided in 40 CFR 60.762(b)(2)(v) if all the following conditions are met:
 - a. The landfill shall be a closed landfill as defined in 40 CFR 60.761. A closure report shall be submitted to the appropriate AQD District Office as provided in 40 CFR 60.767(e); **(40 CFR 60.762(b)(2)(v)(A))**
 - b. The collection and control system shall have been in operation a minimum of 15 years or the landfill owner or operator demonstrates that the GCCS will be unable to operate for 15 years due to declining gas flow; and **(40 CFR 60.762(b)(2)(v)(B))**
 - c. Following the procedures specified in 40 CFR 60.764(b), the calculated NMOC gas produced by the landfill shall be less than 34 megagrams per year on three successive test dates. The test dates shall be no less than 90 days apart, and no more than 180 days apart. **(40 CFR 60.762(b)(2)(v)(C))**
3. The permittee shall 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 60, Subparts A and XXX)**

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).

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**FGLANDFILL-AAAA
FLEXIBLE GROUP CONDITIONS**

DESCRIPTION

This flexible group represents the general MSW landfill with a required collection and control system. This flexible group contains 40 CFR Part 63, Subpart AAAA requirements.

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Emission Units: EU-LANDFILL, EU-ACTIVECOLLECTION, EU-TREATMENTSYSYSTEM, **EU-FLARE3, EU-FLARE4, EU-FLARE5, EU-FLARE6**

POLLUTION CONTROL EQUIPMENT

Open and enclosed flare, landfill gas treatment system.

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. Methane	Less than 500 ppm above background level	Calendar Quarter	Surface of Landfill	SC V.1 SC VI.1	40 CFR 63.1958(d)(1)

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTIONS

1. At all times, 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))**
2. During periods of startup, shutdown, and malfunction (SSM), the permittee must comply with the work practices specified in 40 CFR 63.1958(e)(1). **(40 CFR 63.1960(e)(2))**

IV. DESIGN/EQUIPMENT PARAMETERS

1. The permittee must install a collection and control system that captures the landfill gas generated within the landfill according to the requirements in 40 CFR 63.1959(b)(2)(ii) and 40 CFR 63.1959(b)(2)(iii). **(40 CFR 63.1959(b)(2))**
2. The permittee must route all the collected landfill gas to at least one of the following:
 - c. An open (non-enclosed) flare designed in accordance with 40 CFR 63.11(b) except as noted in 40 CFR 63.1959(e). **(40 CFR 63.1959(b)(2)(iii)(A))**
 - a. A control system designed and operated to reduce NMOC by 98 weight-percent, or, when an enclosed combustion device is used for control, to either reduce NMOC by 98 weight-percent or reduce the outlet NMOC concentration to less than 20 ppmv on dry basis, as hexane at 3% oxygen. **(40 CFR 63.1959(b)(2)(iii)(B))**
 - b. A treatment system that processes the collected gas for subsequent sale or beneficial use. If the treated landfill gas cannot be routed for subsequent sale or beneficial use, then the treated landfill gas must be controlled according to either 40 CFR 63.1959(b)(2)(iii)(A) or (B). **(40 CFR 63.1959(b)(2)(iii)(C))**

V. TESTING/SAMPLING

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

3. The permittee must monitor surface concentrations of methane along the entire perimeter of the collection area and along a pattern that traverses the landfill at 30-meter intervals (or a site-specific established spacing) for each collection area on a quarterly basis. **(40 CFR 63.1960(c)(1))**

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4. The permittee must conduct surface testing around the perimeter of the collection area and along a pattern that traverses the landfill at no more than 30-meter intervals and where visual observations indicate elevated concentrations of landfill gas, such as distressed vegetation and cracks or seeps in the cover. The owner or operator may establish an alternative traversing pattern that ensures equivalent coverage. A surface monitoring design plan must be developed that includes a topographical map with the monitoring route and the rationale for any site-specific deviations from the 30-meter intervals. Areas with steep slopes or other dangerous areas may be excluded from the surface testing. **(40 CFR 63.1958(d)(1))**
 - a. The permittee must conduct testing using an organic vapor analyzer, flame ionization detector, or other portable monitor meeting the specifications provided in 40 CFR 63.1960(d). **(40 CFR 63.1958(d)(2)(i), 40 CFR 63.1960(c)(1))**
 - d. The background concentration must be determined by moving the probe inlet upwind and downwind outside the boundary of the landfill at a distance of at least 30 meters from the perimeter wells. **(40 CFR 63.1960(c)(2))**
 - e. Surface emission monitoring must be performed in accordance with 40 CFR Part 60, Appendix A-7, Method 21, Section 8.3.1, except that the probe inlet must be placed within 5 to 10 centimeters of the ground. Monitoring must be performed during typical meteorological conditions. **(40 CFR 63.1960(c)(3))**
 - d. The permittee must conduct surface testing at all cover penetrations and monitor any cover penetrations that are within an area of the landfill where waste has been placed and a gas collection system is required. **(40 CFR 63.1958(d)(2)(ii))**
 - e. The permittee must determine the latitude and longitude coordinates of each exceedance using an instrument with an accuracy of at least 4 meters. The coordinates must be in decimal degrees with at least five decimal places. **(40 CFR 63.1958(d)(2)(iii))**
3. The permittee must document any reading of 500 ppm or more above background at any location as a monitored exceedance. As long as the following specified actions are taken, the exceedance is not a violation of the operational requirements of 40 CFR 63.1958(d). **(40 CFR 63.1960(c)(4))**
 - a. The location of each monitored exceedance must be marked, and the location recorded using an instrument with an accuracy of 4 meters with coordinates in decimal degrees and five decimal places. **(40 CFR 63.1960(c)(4)(i))**
 - f. Cover maintenance or adjustments to the vacuum of the adjacent wells to increase the gas collection in the vicinity of each exceedance must be made and the location must be re-monitored within 10 calendar days of detecting the exceedance. **(40 CFR 63.1960(c)(4)(ii))**
 - g. If the re-monitoring of the location shows a second exceedance, additional corrective action must be taken and the location must be monitored again within 10 days of the second exceedance. If the re-monitoring shows a third exceedance for the same location, the action specified in SC V.3.e must be taken, and no further monitoring of that location is required until the action specified in SC V.3.e has been taken. **(40 CFR 63.1960(c)(4)(iii))**
 - h. Any location that initially showed an exceedance but has a methane concentration less than 500 ppm methane above background at the 10-day re-monitoring specified in 40 CFR 63.1960(c)(4)(ii) or (iii) must be re-monitored 1 month from the initial exceedance. If the 1-month re-monitoring shows a concentration less than 500 ppm above backgrounds, no further monitoring of that location is required until the next quarterly monitoring period. If the 1-month re-monitoring shows an exceedance, the actions specified in SC V.3.c or SC V.3.e must be taken. **(40 CFR 63.1960(c)(4)(iv))**
 - i. For any location where monitored methane concentration equals or exceeds 500 ppm above backgrounds three times within a quarterly period, a new well or other collection device must be installed within 120 calendar days of the initial exceedance. An alternative remedy to the exceedance, such as upgrading the blower, header pipes or control device, and a corresponding timeline for installation may be submitted to the Department for approval. **(40 CFR 63.1960(c)(4)(v))**

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4. The permittee must comply with instrumentation specifications and procedures in 40 CFR 63.1960(d) for surface emission monitoring devices: **(40 CFR 63.1960(d))**
 - e. The portable analyzer must meet the instrument specifications provided in 40 CFR Part 60, Appendix A-7, Method 21, except that "methane" must replace all references to VOC. **(40 CFR 63.1960(d)(1))**
 - f. The calibration gas must be methane, diluted to a nominal concentration of 500 ppm in air. **(40 CFR 63.1960(d)(2))**
 - g. To meet the performance evaluation requirements in 40 CFR Part 60, Appendix A-7, Method 21, the instrument evaluation procedures of 40 CFR Part 60, Appendix A-7, Method 21 must be used. **(40 CFR 63.1960(d)(3))**
 - h. The calibration procedures provided in 40 CFR Part 60, Appendix A-7, Method 21 must be followed immediately before commencing a surface monitoring survey. **(40 CFR 63.1960(d)(4))**
5. Any closed landfill that has no monitored exceedances of the operational standard in three consecutive quarterly monitoring periods may skip to annual monitoring. Any methane reading of 500 ppm or more above background detected during the annual monitoring returns the frequency for that landfill to quarterly monitoring. **(40 CFR 63.1961(f))**

VI. MONITORING/RECORDKEEPING

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

1. The permittee must keep records of the surface methane monitoring including, at a minimum, the following information:
 - d. The route traversed including any areas not monitored because of unsafe conditions (i.e., truck traffic, construction, active face, dangerous areas, etc.) and areas included where visual observations indicate elevated levels of landfill gas. **(40 CFR 63.1960(c)(1))**
 - e. The location(s) and concentrations of the methane readings and noting any reading of 500 ppm or more above background. **(40 CFR 63.1960(c)(4))**
 - f. The meteorological conditions the day of the testing including wind speed, wind direction, and temperature. **(R 336.1213(3))**

The permittee must keep all records on file in a format acceptable to the appropriate AQD District Supervisor and make them available upon request. **(R 336.1213(3), 40 CFR 63.1960(c))**

2. The permittee must implement a program to monitor, on a monthly basis, for cover integrity and implement cover repairs as necessary. Records of the cover integrity and any cover repairs must be kept on file in a format acceptable to the appropriate AQD District Supervisor and made available upon request. **(R 336.1213(3), 40 CFR 63.1960(c)(5))**
3. The permittee 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. The permittee must keep all records on file in a format acceptable to the appropriate AQD District Supervisor and make them available upon request. **(R 336.1213(3), 40 CFR 63.1983(a))**
4. **If adding liquids other than leachate in a controlled fashion to the waste mass and do not comply with the bioreactor requirements in 40 CFR 63.1947, 40 CFR 63.1955(b), and 40 CFR 63.1982(a) and (b), the permittee must keep records of calculations showing that the percent moisture by weight expected in the waste mass to which liquid is added is less than 40 percent. The calculation must consider the waste mass, moisture content of the incoming waste, mass of water added to the waste including leachate recirculation and other liquids addition and precipitation, and the mass of water removed through leachate or other water losses. Moisture level sampling or mass balances calculations can be used. The permittee must document the calculations and the basis of any assumptions. Keep the record of the calculations until the permittee ceases liquids addition. (40 CFR 63.1982(c))**

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VII. REPORTING

8. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**
9. 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))**
10. 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))**
11. The permittee must submit reports which must be postmarked or received by the appropriate AQD District Office by March 15 for reporting period January 1 to December 31. The reports must include the location of each exceedance of the 500 ppm methane concentrations as provided in 40 CFR 63.1958(d) and the concentration recorded at each location for which an exceedance was recorded in the previous month. The reports must also include information on all deviations that occurred during the 6-month reporting period. **(40 CFR 63.1961(f), 40 CFR 63.1981(h)(5))**
12. The permittee of a controlled landfill must submit an equipment removal report to the Department 30 days prior to removal or cessation of operation of the control equipment. **(40 CFR 63.1981(g))**
 - b. The equipment removal report must contain all the following items:
 - i. A copy of the closure report submitted in accordance with 40 CFR 63.1981(f). **(40 CFR 63.1981(g)(1)(i))**
 - ii. A copy of the initial performance test report demonstrating that the 15-year minimum control period has expired, or information that demonstrates that the gas collection and control system will be unable to operate for 15 years due to declining gas flows. In the equipment removal report, the process unit(s) tested, the pollutant(s) tested, and the date that such performance test was conducted may be submitted in lieu of the performance test report if the report has been previously submitted to the USEPA's Central Data Exchange (CDX). **(40 CFR 63.1981(g)(1)(ii))**
 - iii. Dated copies of three successive NMOC emission rate reports demonstrating that the landfill is no longer producing 50 Mg or greater of NMOC per year. If the NMOC emission rate reports have been previously submitted to the USEPA's CDX, a statement that the NMOC emission rate reports have been submitted electronically and the dates that the reports were submitted to the USEPA's CDX may be submitted in the equipment removal report in lieu of the NMOC emission rate reports. **(40 CFR 63.1981(g)(1)(iii))**
 - c. The Department may request such additional information as may be necessary to verify that all of the conditions for removal in 40 CFR 63.1957(b) have been met. **(40 CFR 63.1981(g)(2))**
13. The permittee of a controlled landfill must submit a closure report to the Department within 30 days of waste acceptance cessation. The Department 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 Department, no additional wastes may be placed into the landfill without filing a notification of modification as described under 40 CFR 63.9(b). **(40 CFR 63.1981(f))**
14. The permittee must submit reports electronically according to the following:
 - a. Within 60 days after the date of completing each performance test required, submit the results of the performance test with data collected using test methods supported by the USEPA's Electronic Reporting Tool (ERT) as listed on the USEPA's ERT website (<https://www.epa.gov/electronic-reporting-air-emissions/electronic-reporting-tool-ert>). Submit the results of the performance test to the USEPA via the Compliance and Emissions Data Reporting Interface (CEDRI), which can be accessed through the USEPA's CDX (<https://cdx.epa.gov/>). The data must be submitted in a file format generated through the use of the USEPA's ERT. Alternatively, submit an electronic file consistent with the extensible markup language (XML) schema listed on the USEPA's ERT website. **(40 CFR 63.1981(l)(1)(i))**

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- b. For data collected using test methods that are not supported by the USEPA's ERT as listed on the USEPA's ERT website, the results of the performance test must be included as an attachment in the ERT or an alternate electronic file consistent with the XML schema listed on the USEPA's ERT website. Submit the ERT generated package or alternative file to the USEPA via CEDRI. **(40 CFR 63.1981(I)(1)(ii))**
 - c. Each permittee must submit reports to the USEPA via CEDRI. CEDRI can be accessed through the USEPA'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/chief>). Once the spreadsheet template upload/forms for the reports have been available in CEDRI for 90 days, the permittee must begin submitting all subsequent reports via CEDRI. The reports must be submitted by the deadlines specified in this subpart, regardless of the method in which the reports are submitted. The NMOC emission rate reports, semiannual reports, and **bioreactor 40-percent moisture reports** should be electronically reported as a spreadsheet template upload/form to CEDRI. If the reporting forms specific to this subpart are not available in CEDRI at the time that the reports are due, the permittee must submit the reports to the USEPA at the appropriate address listed in 40 CFR 63.13. **(40 CFR 63.1981(I)(2))**
15. The permittee shall submit any performance test reports and all other reports required by 40 CFR Part 63, Subpart AAAA to the appropriate AQD District Office, in a format approved by the appropriate AQD District Supervisor. **(R 336.1213(3)(c), R 336.2001(5))**

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

NA

IX. OTHER REQUIREMENTS

3. If the permittee has submitted a design plan under 40 CFR 63.1981(d), the permittee must submit a revised design plan to the Department for approval as follows:
 - a. At least 90 days before expanding operations to an area not covered by the previously approved design plan. **(40 CFR 63.1981(e)(1))**
 - b. Prior to installing or expanding the gas collection system in a way that is not consistent with the design plan that was submitted under 40 CFR 63.1981(d). **(40 CFR 63.1981(e)(2))**
4. The collection and control system may be capped, removed, or decommissioned if the following criteria are met:
 - a. The landfill is a closed landfill (as defined in 40 CFR 63.1990). A closure report must be submitted to the Department as provided in 40 CFR 63.1981(f). **(40 CFR 63.1957(b)(1))**
 - b. The gas collection and control system has been in operation a minimum of 15 years or the permittee demonstrates that the gas collection and control system will be unable to operate for 15 years due to declining gas flow. **(40 CFR 63.1957(b)(2))**
 - c. Following the procedures specified in 40 CFR 63.1959(c), the calculated NMOC gas produced by the landfill must be less than 50 Mg/yr on three successive test dates. The test dates must be no less than 90 days apart, and no more than 180 days apart. **(40 CFR 63.1957(b)(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 AAAA. **(40 CFR Part 63, Subparts A and AAAA)**

Remove these footnotes if no PTIs are associated with this source

Footnotes:

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

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

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**FG-ACTIVECOLLECTION-XXX
FLEXIBLE GROUP CONDITIONS**

DESCRIPTION

This emission unit represents the active landfill gas collection system that uses gas mover equipment to draw landfill gas from the wells and moves the gas to the control equipment.

Emission Unit: EU-ACTIVECOLLECTION

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

NA

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTIONS

1. The permittee shall operate the collection system such that gas is collected from each area, cell, or group of cells in the MSW landfill in which solid waste has been in place for:
 - a. Five years or more if active; or **(40 CFR 60.763(a)(1))**
 - b. Two years or more if closed or at final grade. **(40 CFR 60.763(a)(2))**
2. The permittee shall operate the collection system with negative pressure at each wellhead except under the following conditions:
 - a. A fire or increased well temperature. The owner or operator must record instances when positive pressure occurs in efforts to avoid a fire. These records must be submitted with the annual reports as provided in §60.767(g)(1). **(40 CFR 60.763(b)(1))**
 - b. Use of a geo-membrane or synthetic cover. **(40 CFR 60.763(b)(2))**
 - c. A decommissioned well. A well may experience a static positive pressure after shutdown to accommodate for declining flows. All design changes must be approved by the AQD as specified in 40 CFR 60.767(c). **(40 CFR 60.763(b)(3))**
3. The permittee shall operate each interior wellhead in the collection system with a landfill gas temperature less than 55°C (131°F). The permittee may establish a higher operating temperature at a particular well. A higher operating value demonstration shall be submitted to the AQD for approval and it shall include supporting data that the elevated parameter does not cause fires or significantly inhibit anaerobic decomposition by killing methanogens. **(40 CFR 60.763(c), 40 CFR 60.766(e))**
4. During periods of startup, shutdown, and malfunction, the permittee shall comply with the work practice specified in 40 CFR 60.763(e) in lieu of the compliance provisions in 40 CFR 60.765 as follows:
 - a. Operate the system such that all collected gases are vented to a control system designed and operated in compliance with 40 CFR 60.762(b)(2)(iii). **(R 336.1911, 40 CFR 60.765(e))**

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- b. In the event the collection or control system is not operating, the gas mover system shall be shut down and all valves in the collection and control system contributing to venting of the gas to the atmosphere shall be closed within one hour of the collection or control system not operating. **(R 336.1911, 40 CFR 60.765(e))**

IV. DESIGN/EQUIPMENT PARAMETERS

1. The permittee shall install an active collection system that meets the following requirements:
 - a. Designed to handle the maximum expected gas flow rate from the entire area of the landfill that warrants control over the intended use period of the gas control or system equipment. **(40 CFR 60.762(b)(2)(ii)(C)(1))**
 - b. Each well shall be installed no later than 60 days after the date on which the initial solid waste has been in place for a period of 5 years or more if active; or 2 years or more if closed at final grade. **(40 CFR 60.765(b), 40 CFR 60.762(b)(2)(ii)(C)(2))**
 - c. Collects gas at a sufficient extraction rate. **(40 CFR 60.762(b)(2)(ii)(C)(3))**
 - d. Designed to minimize off-site migration of subsurface gas. **(40 CFR 60.762(b)(2)(ii)(C)(4))**
2. The permittee shall operate the collection system so that all collected gases are vented to a control system designed and operated in compliance with 40 CFR 60.762(b)(2)(iii). **(40 CFR 60.763(e))**
3. The permittee shall install a sampling port and a thermometer, other temperature measuring device, or an access port for temperature measurements at each wellhead. **(40 CFR 60.766(a))**
4. The permittee shall site active gas collection devices as required in 40 CFR 60.769 and shall control all gas producing areas, except as provided below.
 - a. Any segregated area of asbestos or non-degradable material may be excluded from collection if documented as provided under 40 CFR 60.768(d). **(40 CFR 60.769(a)(3)(i))**
 - b. Any nonproductive area of the landfill may be excluded from control, provided that the total of all excluded areas can be shown to contribute less than 1 percent of the total amount of NMOC emissions from the landfill. The amount, location, and age of the material shall be documented and provided to the AQD upon request. A separate NMOC emissions estimate shall be made for each section proposed for exclusion, and the sum of all such sections shall be compared to the NMOC emissions estimate for the entire landfill. Emissions from each section shall be computed using the equation in Appendix 7-1. **(40 CFR 60.769(a)(3)(ii))**

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. For the purpose of demonstrating whether the gas collection system flow rate is sufficient to determine compliance with 40 CFR 60.762(b)(2)(ii)(C)(3), the permittee shall measure, on a monthly basis, the gauge pressure in the gas collection header at each individual well as provided in 40 CFR 60.765(a)(3) and 40 CFR 60.766(a)(1). If a positive pressure exists, the following corrective actions shall be taken:
 - a. Action shall be initiated to correct the exceedance within five calendar days, except for the three conditions allowed under 40 CFR 60.763(b). Any attempted corrective measure shall not cause exceedances of other operational or performance standards. **(40 CFR 60.765(a)(3))**
 - b. If negative pressure cannot be achieved without excess air infiltration within 15 calendar days of the first measurement of positive pressure, the permittee must conduct a root cause analysis and correct the exceedance as soon as practicable, but no later than 60 days after positive pressure was first measured. **(40 CFR 60.765(a)(3)(i))**

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- c. If corrective actions cannot be fully implemented within 60 days following the positive pressure measurement for which the root cause analysis was required, the permittee must also conduct a corrective action analysis and develop an implementation schedule to complete the corrective action(s) as soon as practicable, but no more than 120 days following the positive pressure measurement. **(40 CFR 60.765(a)(3)(ii))**
 - d. If corrective action is expected to take longer than 120 days to complete after the initial exceedance, the permittee must submit the root cause analysis, corrective action analysis, and corresponding implementation timeline to the AQD, according to 40 CFR 60.767(g)(7) and 40 CFR 60.767(j). **(40 CFR 60.753(g), 40 CFR 60.765(a)(3)(iii))**
 2. The permittee shall monitor each well monthly for temperature as provided in 40 CFR 60.763(c) and 40 CFR 60.766(a)(3). If a well exceeds the operating parameter for temperature, the following corrective actions shall be taken:
 - a. Action shall be initiated to correct the exceedance within five calendar days. Any attempted corrective measure shall not cause exceedances of other operational or performance standards. **(40 CFR 60.765(a)(5))**
 - b. If a landfill gas temperature less than 55°C (131°F) cannot be achieved within 15 calendar days of the first measurement of landfill gas temperature greater than 55°C (131°F), the permittee shall conduct a root cause analysis and correct the exceedance as soon as practicable, but no later than 60 days after a landfill gas temperature greater than 55°C (131°F) was first measured. **(40 CFR 60.765(a)(5)(i))**
 - c. If corrective actions cannot be fully implemented within 60 days following the positive pressure measurement for which the root cause analysis was required, the permittee shall also conduct a corrective action analysis and develop an implementation schedule to complete the corrective action(s) as soon as practicable, but no more than 120 days following the measurement of landfill gas temperature greater than 55°C (131°F). **(40 CFR 60.765(a)(5)(ii))**
 - d. If corrective action is expected to take longer than 120 days to complete after the initial exceedance, the permittee shall submit the root cause analysis, corrective action analysis, and corresponding implementation timeline to the AQD, according to §60.767(g)(7) and §60.767(j). **(40 CFR 60.765(a)(5)(iii))**
 3. The permittee shall monitor, on a monthly basis, the nitrogen or oxygen concentration in the landfill gas using the procedures in 40 CFR 60.766(a)(2)(i) or (ii). **(40 CFR 60.766(2))**
 4. The permittee shall keep, on a monthly basis, readily accessible records of the following:
 - a. All collection and control system exceedances of the operational standards in 40 CFR 60.763, the reading in the subsequent month whether or not the second reading is an exceedance, and the location of each exceedance. **(40 CFR 60.768(e)(1))**
 - b. Each wellhead temperature monitoring value of 55°C (131°F) or above, each wellhead nitrogen level at or above 20 percent, and each wellhead oxygen level at or above 5 percent. **(40 CFR 60.768(e)(2))**
 - c. For any root cause analysis for which corrective actions are required in 40 CFR 60.765(a)(3)(i) or (a)(5)(i), keep a record of the root cause analysis conducted, including a description of the recommended corrective action(s) taken, and the date(s) the corrective action(s) were completed. **(40 CFR 60.768(e)(3))**
 - d. For any root cause analysis for which corrective actions are required in 40 CFR 60.765(a)(3)(ii) or (a)(5)(ii), keep a record of the root cause analysis conducted, the corrective action analysis, the date for corrective action(s) already completed following the positive pressure reading or high temperature reading, and, for action(s) not already completed, a schedule for implementation, including proposed commencement and completion dates. **(40 CFR 60.768(e)(4))**
 - e. For any root cause analysis for which corrective actions are required in 40 CFR 60.765(a)(3)(iii) or (a)(5)(iii), keep a record of the root cause analysis conducted, the corrective action analysis, the date for corrective action(s) already completed following the positive pressure reading or high temperature reading, for action(s) not already completed, a schedule for implementation, including proposed commencement and completion dates, and a copy of any comments or final approval on the corrective action analysis or schedule from the AQD. **(40 CFR 60.768(e)(5))**

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5. The permittee shall keep up-to-date, readily accessible records for the life of the control equipment of the data listed as follows:
 - a. The maximum expected gas generation flow rate as calculated in 40 CFR 60.765(a)(1). The permittee may use another method to determine the maximum gas generation flow rate, if the method has been approved by the appropriate AQD District Office. **(40 CFR 60.768(b)(1)(i))**
 - b. The density of wells, horizontal collectors, surface collectors, or other gas extraction devices determined using the procedures specified in 40 CFR 60.769(a)(1). **(40 CFR 60.768(b)(1)(ii))**
6. The permittee shall keep for the life of the collection system an up-to-date, readily accessible plot map showing each existing and planned collector in the system and providing a unique identification location label for each collector; and the installation date and location of all newly installed collectors as specified under 40 CFR 60.765(b). **(40 CFR 60.768(d), 40 CFR 60.768(d)(1))**
7. The permittee shall maintain the following information:
 - a. A diagram of the collection system showing collection system positioning including all wells, horizontal collectors, surface collectors, or other gas extraction devices, including the locations of any areas excluded from collection and the proposed sites for the future collection system expansion. **(40 CFR 60.767(h)(1))**
 - b. The documentation of the presence of asbestos or non-degradable material for each area from which collection wells have been excluded based on the presence of asbestos or non-degradable material. **(40 CFR 60.767(h)(3))**
 - c. The sum of the gas generation flow rates for all areas from which collection wells have been excluded based on non-productivity and the calculations of gas generation flow rate for each excluded area. **(40 CFR 60.757(h)(4))**
 - d. The provisions for increasing gas mover equipment capacity with increased gas generation flow rate, if the present gas mover equipment is inadequate to move the maximum flow rate expected over the life of the landfill. **(40 CFR 60.767(h)(5))**
 - e. The provisions for the control of off-site migration. **(40 CFR 60.767(h)(6))**
 - f. The permittee shall maintain the dates of the landfill gas well installations, the age of the waste in which the landfill gas wells were installed, and the age of the in-place waste for each portion of the landfill. **(R 336.1213(3), 40 CFR 60.769(a)(3)(ii))**
 - g. The permittee shall maintain the current amount of solid waste in-place, and the year-by-year waste acceptance rate. **(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. Report shall be postmarked or received by 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. Report shall be postmarked or received by appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**
4. The permittee shall submit to the appropriate AQD District Office annual reports for the gas collection system. Reports shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period January 1 to December 31. The report for the gas collection system shall include the following information:

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- a. Value and length of time for exceedance of applicable parameters monitored under 40 CFR 60.766(a). **(40 CFR 60.767(g)(1))**
 - b. All periods when the collection system was not operating and length of time not operating. **(40 CFR 60.767(g)(4))**
 - c. The date of installation and the location of each well or collection system expansion added pursuant to 40 CFR 60.765(a)(3), 40 CFR 60.765(a)(5), 40 CFR 60.765(b), and 40 CFR 60.765(c)(4). **(40 CFR 60.767(g)(6))**
 - d. The permittee shall record instances when a positive pressure occurs in efforts to avoid fire. **(40 CFR 60.763(b)(1))**
5. Annually, the permittee shall submit to the appropriate AQD District Office reports for any corrective action analysis for which corrective actions are required in 40 CFR 60.765(a)(3) or (5) and that take more than 60 days to correct the exceedance. The report shall include the following information:
- a. The root cause analysis conducted, including a description of the recommended corrective action(s), the date for corrective action(s) already completed following the positive pressure reading. **(40 CFR 60.767(g)(7))**
 - b. For action(s) not already completed, a schedule for implementation, including proposed commencement and completion dates. **(40 CFR 60.767(g)(7))**
6. The permittee shall submit to the appropriate AQD District Office reports for any corrective action and the corresponding timeline as follows:
- a. For corrective action that is required according to 40 CFR 60.765(a)(3)(iii) or (a)(5)(iii) and is expected to take longer than 120 days after the initial exceedance to complete, submit the root cause analysis, corrective action analysis, and corresponding implementation timeline as soon as practicable but no later than 75 days after the first measurement of positive pressure or temperature monitoring value of 55°C (131°F). The AQD must approve the plan for corrective action and the corresponding timeline. **(40 CFR 60.767(j)(1))**
 - b. For corrective action that is required according to 40 CFR 60.765(a)(3)(iii) or (a)(5)(iii) and is not completed within 60 days after the initial exceedance, submit a notification as soon as practicable but no later than 75 days after the first measurement of positive pressure or temperature exceedance. **(40 CFR 60.767(j)(2))**

See Appendix 8-1

VIII. STACK/VENT RESTRICTION(S)

NA

IX. OTHER REQUIREMENTS

1. Each permittee seeking to demonstrate compliance with 40 CFR 60.762(b)(2)(ii)(C)(4) through the use of a collection system not conforming to the specifications provided in 40 CFR 60.769 shall provide information satisfactory to the AQD as specified in 40 CFR 60.767(c)(3) demonstrating that off-site migration is being controlled. **(40 CFR 60.765(a)(6))**
2. Each permittee seeking to install a collection system that does not meet the specifications in 40 CFR 60.759 or is seeking to monitor alternative parameters to those required by 40 CFR 60.763 through 40 CFR 60.766 shall provide information satisfactory to the appropriate AQD District Office as required in 40 CFR 60.767(c)(2) and (3) describing the design and operation of the collection system, the operating parameters that would indicate proper performance, and appropriate monitoring procedures. The AQD may specify additional appropriate monitoring procedures. **(40 CFR 60.766(e))**

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3. The permittee shall 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 60, Subparts A and XXX)**

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).

FGACTIVECOLL-AAAA FLEXIBLE GROUP CONDITIONS
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DESCRIPTION

This flexible group represents the active landfill gas collection system that uses gas mover equipment to draw landfill gas from the wells and moves the gas to the control equipment. This flexible group contains 40 CFR Part 63, Subpart AAAA requirements.

Emission Unit: EUACTIVECOLL

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

NA

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTIONS

1. The permittee must operate the collection system such that gas is collected from each area, cell, or group of cells in the MSW landfill in which solid waste has been in place for:
 - a. 5 years or more if active; or **(40 CFR 63.1958(a)(1))**
 - b. 2 years or more if closed or at final grade. **(40 CFR 63.1958(a)(2))**
2. The permittee must operate the collection system with negative pressure at each wellhead except under the following conditions:
 - d. A fire or increased well temperature. **(40 CFR 63.1958(b)(1))**
 - e. Use of a geo-membrane or synthetic cover. The permittee must develop acceptable pressure limits in the design plan. **(40 CFR 63.1958(b)(2))**
 - f. A decommissioned well. A well may experience a static positive pressure after shut-down to accommodate for declining flows. **(40 CFR 63.1958(b)(3))**
3. The permittee must operate each interior wellhead in the collection system under the following conditions:
 - a. Operate each interior wellhead in the collection system with a landfill gas temperature less than 62.8°C (145°F). **(40 CFR 63.1958(c)(1))**
 - b. A higher operating temperature value may be established at a particular well. A higher operating value demonstration must be submitted to the Department for approval and must include supporting data that the elevated parameter does not cause fires nor significantly inhibit anaerobic decomposition by killing methanogens. **(40 CFR 63.1958(c)(2))**
4. At all times, 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 PARAMETERS

3. The permittee must operate the system in accordance with 40 CFR 63.1955(c) such that all collected gases are vented to a control system designed and operated in compliance with 40 CFR 63.1959(b)(2)(iii). **(40 CFR 63.1958(e)(1))**
 - a. In the event the collection or control system is not operating, the gas mover system must be shut down and all valves in the collection and control system contributing to venting of the gas to the atmosphere must be closed within 1 hour of the collection or control system not operating. **(40 CFR 63.1958(e)(1)(i))**
 - b. Efforts by the permittee to repair the collection or control system must be initiated and completed in a manner such that downtime is kept to a minimum, and the collection and control system must be returned to operation. **(40 CFR 63.1958(e)(1)(ii))**
4. The permittee must install an active collection system that meets the following requirements:
 - a. Designed to handle the maximum expected gas flow rate from the entire area of the landfill that warrants control over the intended use period of the gas control or treatment system equipment. **(40 CFR 63.1959(b)(2)(ii)(B)(1))**
 - b. Each well must be installed no later than 60 days after the date on which the initial solid waste has been in place for a period of 5 years or more if active; or 2 years or more if closed or at final grade. **(40 CFR 63.1960(b), 40 CFR 63.1959(b)(2)(ii)(B)(2))**
 - c. Collects gas at a sufficient extraction rate. **(40 CFR 63.1959(b)(2)(ii)(B)(3))**
 - d. Designed to minimize off-site migration of subsurface gas. **(40 CFR 63.1959(b)(2)(ii)(B)(4))**
5. The permittee must install a sampling port and a thermometer, other temperature measuring device, or an access port for temperature measurements at each wellhead. **(40 CFR 63.1961(a))**
6. The permittee must demonstrate compliance with the operational standard for temperature in 40 CFR 63.1958(c)(1) by monitoring the temperature of the landfill gas on a monthly basis as provided in 40 CFR 63.1960(a)(4). The temperature measuring device must be calibrated annually using the procedure in Section 10.3 of USEPA Method 2 of Appendix A-1 to Part 60 of this chapter. **(40 CFR 63.1961(a)(4))**
7. The permittee must site active gas collection devices as required in 40 CFR 63.1962 and must control all gas producing areas, except as provided below.
 - a. Any segregated area of asbestos or non-degradable material may be excluded from collection if documented as provided under 40 CFR 63.1983(d). **(40 CFR 63.1962(a)(3)(i))**
 - b. Any nonproductive area of the landfill may be excluded from control, provided that the total of all excluded areas can be shown to contribute less than 1 percent of the total amount of NMOC emissions from the landfill. The amount, location, and age of the material must be documented. A separate NMOC emissions estimate must be made for each section proposed for exclusion, and the sum of all such sections must be compared to the NMOC emissions estimate for the entire landfill. Emissions from each section must be computed using the equation in Appendix 7. **(40 CFR 63.1962(a)(3)(ii))**

See Appendix 7

V. TESTING/SAMPLING

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

NA

VI. MONITORING/RECORDKEEPING

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

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3. For the purpose of demonstrating whether the gas collection system flow rate is sufficient to determine compliance with 40 CFR 63.1959(b)(2)(ii)(B)(3), the permittee must measure, on a monthly basis, the gauge pressure in the gas collection header at each individual well as provided in 40 CFR 63.1960(a)(3) and 40 CFR 63.1961(a)(1). Any attempted corrective measure must not cause exceedances of other operational or performance standards.
 - a. If positive pressure exists, action must be initiated to correct the exceedance within five calendar days. **(40 CFR 63.1960(a)(3)(i))**
 - b. If negative pressure cannot be achieved without excess air infiltration within 15 calendar days of the first measurement of positive pressure, the permittee must conduct a root cause analysis and correct the exceedance as soon as practicable, but no later than 60 days after positive pressure was first measured. **(40 CFR 63.1960(a)(3)(i)(A))**
 - c. If corrective actions cannot be fully implemented within 60 days following the positive pressure measurement for which the root cause analysis was required, the permittee must also conduct a corrective action analysis and develop an implementation schedule to complete the corrective action(s) as soon as practicable, but no more than 120 days following the positive pressure measurement. **(40 CFR 63.1960(a)(3)(i)(B))**
 - d. If corrective action is expected to take longer than 120 days to complete after the initial exceedance, the permittee must submit the root cause analysis, corrective action analysis, and corresponding implementation timeline to the Department as soon as practicable but no later than 75 days after the first measurement of positive pressure or above, according to 40 CFR 63.1981(j). **(40 CFR 63.1960(a)(3)(i)(C))**
4. The permittee must monitor each well monthly for temperature for the purpose of identifying whether excess air infiltration exists as provided in 40 CFR 63.1958(c)(1) and 40 CFR 63.1961(a)(4). If a well exceeds the operating parameter for temperature, the following corrective actions must be taken:
 - a. Action must be initiated to correct the exceedance within 5 calendar days. Any attempted corrective measure must not cause exceedances of other operational or performance standards. **(40 CFR 63.1960(a)(4)(i))**
 - b. If a landfill gas temperature less than 62.8°C (145°F) cannot be achieved within 15 calendar days of the first measurement of landfill gas temperature greater than 62.8°C (145°F), the permittee must conduct a root cause analysis and correct the exceedance as soon as practicable, but no later than 60 days after a landfill gas temperature greater than 62.8°C (145°F) was first measured. **(40 CFR 63.1960(a)(4)(i)(A))**
 - c. If corrective actions cannot be fully implemented within 60 days following the temperature measurement for which the root cause analysis was required, the permittee must also conduct a corrective action analysis and develop an implementation schedule to complete the corrective action(s) as soon as practicable, but no more than 120 days following the measurement of landfill gas temperature greater than 62.8°C (145°F). **(40 CFR 63.1960(a)(4)(i)(B))**
 - d. If corrective action is expected to take longer than 120 days to complete after the initial exceedance, the permittee must submit the root cause analysis, corrective action analysis, and corresponding implementation timeline to the Department as soon as practicable but no later than 75 days after the first measurement of temperature monitoring value of 62.8°C (145°F) or above, according to 40 CFR 63.1981(h)(7) and 40 CFR 63.1981(j). **(40 CFR 63.1960(a)(4)(i)(C))**
 - e. If a landfill gas temperature measured at either the wellhead or at any point in the well is greater than or equal to 76.7°C (170°F) and the carbon monoxide concentration measured according to the procedures in 40 CFR 63.1961(a)(5)(vi) is greater than or equal to 1,000 ppmv, the corrective action(s) for the wellhead temperature standard 62.8°C (145°F) must be completed within 15 days. **(40 CFR 63.1960(a)(4)(i)(D))**
3. The permittee must monitor, on a monthly basis, the nitrogen or oxygen concentration in the landfill gas using the procedures in 40 CFR 63.1961(a)(2)(i) or (ii). **(40 CFR 63.1961(a)(2))**
4. Unless a higher operating temperature value has been approved by the Department under this subpart or under 40 CFR Part 60, Subpart WWW; 40 CFR Part 60, Subpart XXX; or a federal plan or USEPA-approved and effective state plan that implements either 40 CFR Part 60, Subpart Cc or 40 CFR Part 60, Subpart Cf, the permittee must initiate enhanced monitoring at each well with a landfill gas temperature greater than 62.8°C (145°F) as follows:

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- a. Visual observations for subsurface oxidation events (smoke, smoldering ash, damage to well) within the radius of influence of the well. **(40 CFR 63.1961(a)(5)(i))**
 - b. Monitor the oxygen concentration as provided in SC VI.3. **(40 CFR 63.1961(a)(5)(ii))**
 - c. Monitor the temperature of the landfill gas at the wellhead as provided in SC VI.2. **(40 CFR 63.1961(a)(5)(iii))**
 - d. Monitor the landfill gas every 10 vertical feet of the well as provided in SC VI.5. **(40 CFR 63.1961(a)(5)(iv))**
 - e. Monitor the methane concentration with a methane meter using USEPA Method 3C of Appendix A-6 to 40 CFR Part 60, USEPA Method 18 of Appendix A-6 to 40 CFR Part 60, or a portable gas composition analyzer to monitor the methane levels provided that the analyzer is calibrated and the analyzer meets all quality assurance and quality control requirements for USEPA Method 3C or USEPA Method 18. **(40 CFR 63.1961(a)(5)(v))**
 - f. Monitor the carbon monoxide concentrations as follows:
 - i. Collect the sample from the wellhead sampling port in a passivated canister or multi-layer foil gas sampling bag (such as the Cali-5-Bond Bag) and analyze that sample using an approved USEPA Method listed in 40 CFR 60, Appendix A, or an equivalent method with a detection limit of at least 100 ppmv of carbon monoxide in high concentrations of methane; or. **(40 CFR 63.1961(a)(5)(vi)(A))**
 - ii. Collect and analyze the sample from the wellhead using an approved USEPA Method listed in 40 CFR 60, Appendix A to measure carbon monoxide concentrations. **(40 CFR 63.1961(a)(5)(vi)(B))**
 - iii. When sampling directly from the wellhead, sample for 5 minutes plus twice the response time of the analyzer. These values must be recorded. The five 1-minute averages are then averaged to give you the carbon monoxide reading at the wellhead. **(40 CFR 63.1961(a)(5)(vi)(C))**
 - iv. When collecting samples in a passivated canister or multi-layer foil sampling bag, sample for the period of time needed to assure that enough sample is collected to provide five (5) consecutive, 1-minute samples during the analysis of the canister or bag contents, but no less than 5 minutes plus twice the response time of the analyzer. The five (5) consecutive, 1-minute averages are then averaged together to give a carbon monoxide value from the wellhead. **(40 CFR 63.1961(a)(5)(vi)(D))**
 - g. The enhanced monitoring specified in SC VI.4 must begin seven calendar days after the first measurement of landfill gas temperature greater than 62.8°C (145°F). **(40 CFR 63.1961(a)(5)(vii))**
 - h. The enhanced monitoring must be conducted on a weekly basis. If four consecutive weekly carbon monoxide readings are under 100 ppmv, then enhanced monitoring may be decreased to monthly. However, if carbon monoxide readings exceed 100 ppmv again, the landfill must return to weekly monitoring. **(40 CFR 63.1961(a)(5)(viii))**
 - i. The enhanced monitoring specified in SC VI.4 can be stopped once a higher operating value is approved, at which time the monitoring provisions issued with the higher operating value should be followed, or once the measurement of landfill gas temperature at the wellhead is less than or equal to 62.8°C (145°F). **(40 CFR 63.1961(a)(5)(ix))**
5. For each wellhead with a measurement of landfill gas temperature greater than or equal to 73.9°C (165°F), the permittee shall annually monitor temperature of the landfill gas every 10 vertical feet of the well. This temperature can be monitored either with a removable thermometer or using temporary or permanent thermocouples installed in the well. **(40 CFR 63.1961(a)(6))**
 6. The permittee must keep, on a monthly basis, readily accessible records of the following:
 - a. All collection and control system exceedances of the operational standards in 40 CFR 63.1958, the reading in the subsequent month whether or not the second reading is an exceedance, and the location of each exceedance. **(40 CFR 63.1983(e)(1))**
 - b. The records of each wellhead temperature monitoring value of 62.8°C (145°F) or above. **(40 CFR 63.1983(e)(2)(i))**
 - c. Each permittee required to conduct the enhanced monitoring provisions in 40 CFR 63.1961(a)(5), must also keep records of all enhanced monitoring activities. **(40 CFR 63.1983(e)(2)(ii))**

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- d. The permittee must also keep a record of the email transmission when required to submit the 24-hour high temperature report in 40 CFR 63.1981(k). **(40 CFR 63.1983(e)(2)(iii))**
 - e. For any root cause analysis for which corrective actions are required in 40 CFR 63.1960(a)(3)(i)(A) or (a)(4)(i)(A), keep a record of the root cause analysis conducted, including a description of the recommended corrective action(s) taken, and the date(s) the corrective action(s) were completed. **(40 CFR 63.1983(e)(3))**
 - f. For any root cause analysis for which corrective actions are required in 40 CFR 63.1960(a)(3)(i)(B) or (a)(4)(i)(B), keep a record of the root cause analysis conducted, the corrective action analysis, the date for corrective action(s) already completed following the positive pressure reading or high temperature reading, and, for action(s) not already completed, a schedule for implementation, including proposed commencement and completion dates. **(40 CFR 63.1983(e)(4))**
 - g. For any root cause analysis for which corrective actions are required in 40 CFR 63.1960(a)(3)(i)(C) or (a)(4)(i)(C), keep a record of the root cause analysis conducted, the corrective action analysis, the date for corrective action(s) already completed following the positive pressure reading or high temperature reading, for action(s) not already completed, a schedule for implementation, including proposed commencement and completion dates, and a copy of any comments or final approval on the corrective action analysis or schedule from the Department. **(40 CFR 63.1983(e)(5))**
7. The permittee must keep up-to-date, readily accessible records for the life of the control equipment of the data listed as follows:
- c. The maximum expected gas generation flow rate as calculated in 40 CFR 63.1960(a)(1). **(40 CFR 63.1983(b)(1)(i))**
 - d. The density of wells, horizontal collectors, surface collectors, or other gas extraction devices determined using the procedures specified in 40 CFR 63.1962(a)(1) and (2). **(40 CFR 63.1983(b)(1)(ii))**
8. The permittee must record the date, time, and duration of each startup and/or shutdown periods when the affected source was subject to the standard applicable to startup and shutdown. **(40 CFR 63.1983(c)(6))**
9. Where the permittee seeks to demonstrate compliance with the operational standard in 40 CFR 63.1958(e)(1), in the event that an affected unit fails to meet an applicable standard, the permittee shall record the following information:
- a. The date, time, and duration of each failure and the cause of the events (including unknown cause, if applicable). **(40 CFR 63.1983(c)(7)(i))**
 - b. For each failure to meet an applicable standard; record and retain a list of the affected sources or equipment. **(40 CFR 63.1983(c)(7)(ii))**
 - c. Record actions taken to minimize emissions in accordance with the general duty of 40 CFR 63.1955(c) and any corrective actions taken to return the affected unit to its normal or usual manner of operation. **(40 CFR 63.1983(c)(7)(iii))**
10. The permittee must keep for the life of the collection system an up-to-date, readily accessible plot map showing each existing and planned collector in the system and providing a unique identification location label for each collector; and the installation date and location of all newly installed collectors as specified under 40 CFR 63.1960(b). **(40 CFR 63.1983(d), 40 CFR 63.1983(d)(1))**
11. The permittee must maintain the following information:
- g. A diagram of the collection system showing collection system positioning including all wells, horizontal collectors, surface collectors, or other gas extraction devices, including the locations of any areas excluded from collection and the proposed sites for the future collection system expansion. **(40 CFR 63.1981(i)(1))**
 - h. The documentation of the presence of asbestos or non-degradable material for each area from which collection wells have been excluded based on the presence of asbestos or non-degradable material. **(40 CFR 63.1981(i)(3))**

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- i. The sum of the gas generation flow rates for all areas from which collection wells have been excluded based on non-productivity and the calculations of gas generation flow rate for each excluded area. **(40 CFR 63.1981(i)(4))**
- j. The provisions for increasing gas mover equipment capacity with increased gas generation flow rate, if the present gas mover equipment is inadequate to move the maximum flow rate expected over the life of the landfill. **(40 CFR 63.1981(i)(5))**
- k. The provisions for the control of off-site migration. **(40 CFR 63.1981(i)(6))**

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 using an active collection system designed in accordance with 40 CFR 63.1959(b)(2)(ii) must submit to the Department semiannual reports. The semiannual reports must include the following information:
 - a. Number of times the applicable parameters monitored under 40 CFR 63.1958(b), (c) and (d) were exceeded and when the gas collection and control system was not operating under 40 CFR 63.1958(e), including periods of SSM. For each instance, report the date, time, and duration of each exceedance. **(40 CFR 63.1981(h)(1))**
 - b. Where the permittee seeks to demonstrate compliance with the temperature and nitrogen or oxygen operational standards in introductory paragraph 40 CFR 63.1958(c), provide a statement of the wellhead operational standard for temperature and oxygen for the period covered by the report. Indicate the number of times each of those parameters monitored under 40 CFR 63.1961(a)(3) were exceeded. For each instance, report the date, time, and duration of each exceedance. **(40 CFR 63.1981(h)(1)(i))**
 - c. Where the permittee seeks to demonstrate compliance with the operational standard for temperature in 40 CFR 63.1958(c)(1), provide a statement of the wellhead operational standard for temperature and oxygen for the period covered by the report. Indicate the number of times each of those parameters monitored under 40 CFR 63.1961(a)(4) were exceeded. For each instance, report the date, time, and duration of each exceedance. **(40 CFR 63.1981(h)(1)(ii))**
 - d. The date of installation and the location of each well or collection system expansion added pursuant to 40 CFR 63.1960(a)(3) and (a)(4), (b), and (c)(4). **(40 CFR 63.1981(h)(6))**
 - e. The permittee must record instances when a positive pressure occurs in efforts to avoid fire. **(40 CFR 63.1958(b)(1))**
 - f. Include any corrective action analysis for which corrective actions are required in 40 CFR 63.1960(a)(3)(i) or (a)(5) and that take more than 60 days to correct the exceedance, the root cause analysis conducted, including a description of the recommended corrective action(s), the date for corrective action(s) already completed following the positive pressure or high temperature reading, and, for action(s) not already completed, a schedule for implementation, including proposed commencement and completion dates. **(40 CFR 63.1981(h)(7))**
 - g. Each permittee required to conduct enhanced monitoring in 40 CFR 63.1961(a)(5) and (6) must include the results of all monitoring activities conducted during the period; **(40 CFR 63.1981(h)(8))**
 - i. For each monitoring point, report the date, time, and well identifier along with the value and units of measure for oxygen, temperature (wellhead and downwell), methane, and carbon monoxide. **(40 CFR 63.1981(h)(8)(i))**

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- ii. Include a summary trend analysis for each well subject to the enhanced monitoring requirements to chart the weekly readings over time for oxygen, wellhead temperature, methane, and weekly or monthly readings over time, as applicable for carbon monoxide. **(40 CFR 63.1981(h)(8)(ii))**
 - iii. Include the date, time, staff person name, and description of findings for each visual observation for subsurface oxidation event. **(40 CFR 63.1981(h)(8)(iii))**
5. The permittee must submit information regarding corrective actions as follows:
 - a. For corrective action that is required according to 40 CFR 63.1960(a)(3) or (a)(4) and is not completed within 60 days after the initial exceedance, submit a notification to the Department as soon as practicable but no later than 75 days after the first measurement of positive pressure or temperature exceedance. **(40 CFR 63.1981(j)(1))**
 - b. For corrective action that is required according to 40 CFR 63.1960(a)(3) or (4) and is expected to take longer than 120 days after the initial exceedance to complete, submit the root cause analysis, corrective action analysis, and corresponding implementation timeline to the Department as soon as practicable but no later than 75 days after the first measurement of positive pressure or temperature monitoring value of 62.8°C (145°F) or above. The Department must approve the plan for corrective action and the corresponding timeline. **(40 CFR 63.1981(j)(2))**
6. Where the permittee seeks to demonstrate compliance with the operational standard for temperature in 40 CFR 63.1958(c)(1) and a landfill gas temperature measured at either the wellhead or at any point in the well is greater than or equal to 76.7°C (170°F) and the carbon monoxide concentration measured is greater than or equal to 1,000 ppmv, report the date, time, well identifier, temperature and carbon monoxide reading via email to the Department within 24 hours of the measurement unless a higher operating temperature value has been approved by the Department for the well under this subpart or under 40 CFR Part 60, Subpart WWW; 40 CFR Part 60, Subpart XXX; or a Federal plan or USEPA approved and effective state plan that implements either 40 CFR Part 60, Subpart Cc or 40 CFR Part 60, Subpart Cf. **(40 CFR 63.1981(k))**
7. Beginning no later than September 27, 2021, the permittee must submit reports electronically according to the following:
 - c. Within 60 days after the date of completing each performance test required, submit the results of the performance test with data collected using test methods supported by the USEPA's Electronic Reporting Tool (ERT) as listed on the USEPA's ERT website (<https://www.epa.gov/electronic-reporting-air-emissions/electronic-reporting-tool-ert>). Submit the results of the performance test to the USEPA via the Compliance and Emissions Data Reporting Interface (CEDRI), which can be accessed through the USEPA's CDX (<https://cdx.epa.gov/>). The data must be submitted in a file format generated through the use of the USEPA's ERT. Alternatively, submit an electronic file consistent with the extensible markup language (XML) schema listed on the USEPA's ERT website. **(40 CFR 63.1981(l)(1)(i))**
 - d. For data collected using test methods that are not supported by the USEPA's ERT as listed on the USEPA's ERT website, the results of the performance test must be included as an attachment in the ERT or an alternate electronic file consistent with the XML schema listed on the USEPA's ERT website. Submit the ERT generated package or alternative file to the USEPA via CEDRI. **(40 CFR 63.1981(l)(1)(ii))**
 - e. Each permittee must submit reports to the USEPA via CEDRI. CEDRI can be accessed through the USEPA'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/chief>). Once the spreadsheet template upload/forms for the reports have been available in CEDRI for 90 days, the permittee must begin submitting all subsequent reports via CEDRI. The reports must be submitted by the deadlines specified in this subpart, regardless of the method in which the reports are submitted. The semiannual reports and bioreactor 40-percent moisture reports should be electronically reported as a spreadsheet template upload/form to CEDRI. If the reporting forms specific to this subpart are not available in CEDRI at the time that the reports are due, the permittee must submit the reports to the USEPA at the appropriate address listed in 40 CFR 63.13. **(40 CFR 63.1981(l)(2))**

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8. The permittee shall submit all monitoring activities and all other reports required by 40 CFR Part 63, Subpart AAAA to the appropriate AQD District Office, in a format approved by the appropriate AQD District Supervisor. **(R 336.1213(3)(c), R 336.2001(5))**

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

NA

IX. OTHER REQUIREMENTS

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)**

[Remove these footnotes if no PTIs are associated with this source](#)

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).

**FG-TREATMENTSYSYSTEM-XXX
FLEXIBLE GROUP CONDITIONS**

DESCRIPTION

Processing equipment that treats landfill gas before it is used for subsequent use or sale. The treatment system removes particulate to at least the 10-micron level, compresses the landfill gas, and removes enough moisture to ensure good combustion of gas for subsequent use. This flexible group contains the requirements of 40 CFR Part 60, Subpart XXX.

Emission Unit: EU-TREATMENTSYSYSTEM

POLLUTION CONTROL EQUIPMENT

Any emissions from any atmospheric vents or stacks associated with the treatment system shall be subject to 40 CFR 60.762(b)(2)(iii)(A) or (B).

I. EMISSION LIMIT(S)

NA

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall operate the treatment system at all times when the collected gas is routed to the treatment system. **(40 CFR 60.763(f))**
2. The permittee shall operate the treatment system so that any emissions from any atmospheric vents or stacks associated with the treatment system shall be subject to 40 CFR 60.762(b)(2)(iii)(A) or (B). **(40 CFR 60.762(b)(2)(iii)(C) and (D))**
3. The permittee shall develop a site-specific treatment system monitoring plan as required in 40 CFR 60.768(b)(5)(ii). The plan shall at a minimum contain the following: **(40 CFR 60.766(g))**
 - a. Monitoring of filtration, de-watering, and compression parameters that ensure the treatment system is operating properly for each intended end use of the treated landfill gas. **(40 CFR 60.768(b)(5)(ii)(A))**
 - b. Monitoring methods, frequencies, and operating ranges for each monitored operating parameter based on manufacturer's recommendations or engineering analysis for each intended end use of the treated landfill gas. **(40 CFR 60.768(b)(5)(ii)(B))**
 - c. Documentation of the monitoring methods and ranges, along with justification for their use. **(40 CFR 60.768(b)(5)(ii)(C))**
 - d. Identify who is responsible (by job title) for data collection. **(40 CFR 60.768(b)(5)(ii)(D))**

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- e. Processes and methods used to collect the necessary data. **(40 CFR 60.768(b)(5)(ii)(E))**
- f. Description of the procedures and methods that are used for quality assurance, maintenance, and repair of all continuous monitoring systems. **(40 CFR 60.768(b)(5)(ii)(F))**
4. The monitoring requirements apply at all times the treatment system is operating except for periods of monitoring system malfunctions, repairs associated with monitoring system malfunctions, and required monitoring system quality assurance or quality control activities. The permittee shall complete monitoring system repairs in response to monitoring system malfunctions and to return the monitoring system to operation as expeditiously as practicable. **(R 336.1911, 40 CFR 60.766(h))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall install and properly operate a treatment system in accordance with 40 CFR 60.767(c)(2). **(40 CFR 60.766(d))**
2. The permittee shall install, calibrate, maintain, and operate according to the manufacturer's specifications, a device that records flow to the treatment system and bypass of the treatment system (if applicable). **(40 CFR 60.766(g))**

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. The permittee shall keep monthly records of all treatment system operating parameters specified to be monitored according to 40 CFR 60.766(g). The records shall include:
 - a. Continuous records of the indication of flow and gas flow rate to the treatment system. **(40 CFR 60.768(c)(2))**
 - b. The indication of bypass flow or records of monthly inspections of car-seals or lock-and-key configurations used to seal bypass lines. **(40 CFR 60.768(c)(2))**
 - c. Maintenance and repair of the monitoring system. **(40 CFR 60.766(h))**

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. Report shall be postmarked or received by 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. Report shall be postmarked or received by appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**
4. The permittee shall submit to the appropriate AQD District Office annual reports for the landfill gas treatment system. The report shall be received by appropriate AQD District Office by March 15 for reporting period January 1 to December 31. The report shall include the following:
 - a. Value and length of time for exceedance of applicable parameters monitored under 40 CFR 60.766(g). **(40 CFR 60.767(g)(1))**

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- b. Description and duration of all periods when the gas stream is diverted from the treatment system through a bypass line or the indication of bypass flow. **(40 CFR 60.767(g)(2))**
- c. Description and duration of all periods when the treatment system was not operating and length of time the control device was not operating. **(40 CFR 60.767(g)(3))**

See Appendix 8-1

VIII. STACK/VENT RESTRICTION(S)

NA

IX. OTHER REQUIREMENT(S)

- 1. The permittee shall 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 60, Subparts A and XXX)**

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).

**FGTREATMENTSYS-AAAA
FLEXIBLE GROUP CONDITIONS**

DESCRIPTION

A treatment system that filters, de-waters, and compresses landfill gas for subsequent sale or beneficial use. This flexible group contains 40 CFR Part 63, Subpart AAAA requirements.

Emission Unit: EUTREATMENTSYS

POLLUTION CONTROL EQUIPMENT

Any emissions from any atmospheric vents or stacks associated with the treatment system subject to 40 CFR 63.1959(b)(2)(iii)(A) or (B).

I. EMISSION LIMIT(S)

NA

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

5. The permittee must operate the treatment system at all times when the collected gas is routed to the treatment system. **(40 CFR 63.1958(f))**
6. The permittee must operate the treatment system so that any emissions from any atmospheric vents or stacks associated with the treatment system must comply with 40 CFR 63.1959(b)(2)(iii)(A) or (B). **(40 CFR 63.1959(b)(2)(iii)(C) and (D))**
3. The permittee must develop a site-specific treatment system monitoring plan as required in 40 CFR 63.1983(b)(5)(ii). The plan must at a minimum contain the following: **(40 CFR 63.1961(g))**
 - a. Monitoring of filtration, de-watering, and compression parameters that ensure the treatment system is operating properly for each intended end use of the treated landfill gas. **(40 CFR 63.1983(b)(5)(ii)(A))**
 - b. Monitoring methods, frequencies, and operating ranges for each monitored operating parameter based on manufacturer's recommendations or engineering analysis for each intended end use of the treated landfill gas. **(40 CFR 63.1983(b)(5)(ii)(B))**
 - c. Documentation of the monitoring methods and ranges, along with justification for their use. **(40 CFR 63.1983(b)(5)(ii)(C))**
 - d. List of responsible staff (by job title) for data collection. **(40 CFR 63.1983(b)(5)(ii)(D))**
 - e. Processes and methods used to collect the necessary data. **(40 CFR 63.1983(b)(5)(ii)(E))**
 - f. Description of the procedures and methods that are used for quality assurance, maintenance, and repair of all continuous monitoring systems (CMS). **(40 CFR 63.1983(b)(5)(ii)(F))**
4. The monitoring requirements apply at all times the treatment system is operating except for periods of monitoring system malfunctions, repairs associated with monitoring system malfunctions, and required monitoring system quality assurance or quality control activities. The permittee must complete monitoring system repairs in response to monitoring system malfunctions and to return the monitoring system to operation as expeditiously as practicable. **(40 CFR 63.1961(h))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

3. The permittee must install and properly operate a treatment system in accordance with 40 CFR 63.1981(d)(2). **(40 CFR 63.1961(d))**
4. The permittee must install, calibrate, and maintain a gas flow rate measuring device that records the flow to the treatment system at least every 15 minutes; and secure the bypass line valve in the closed position with a car-seal or a lock-and-key type configuration. A visual inspection of the seal or closure mechanism must be performed at least once every month to ensure that the valve is maintained in the closed position and that the gas flow is not diverted through the bypass line. **(40 CFR 63.1961(g))**

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V. TESTING/SAMPLING

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

NA

VI. MONITORING/RECORDKEEPING

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

2. The permittee must keep monthly records of all treatment system operating parameters specified to be monitored according to 40 CFR 63.1961. The records must include:
 - a. Continuous records of the indication of flow and gas flow rate to the treatment system. **(40 CFR 63.1983(c)(2))**
 - b. The indication of bypass flow or records of monthly inspections of car-seals or lock-and-key configurations used to seal bypass lines. **(40 CFR 63.1983(c)(2))**
 - c. Maintenance and repair of the monitoring system. **(40 CFR 63.1961(h))**

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))**
5. 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))**
6. The permittee must submit to the appropriate AQD District Office semiannual reports for the landfill gas treatment system. The reports must be 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. The reports must include the following:
 - c. The number of times the parameters for the treatment system under 40 CFR 63.1961(g) were exceeded. **(40 CFR 63.1981(h)(1)(iii))**
 - d. Description and duration of all periods when the gas stream is diverted from the treatment system through a bypass line or the indication of bypass flow. **(40 CFR 63.1981(h)(2))**
 - e. Description and duration of all periods when the treatment system was not operating and length of time the treatment system was not operating. **(40 CFR 63.1981(h)(3))**
5. The permittee must submit reports electronically according to the following:
 - a. Within 60 days after the date of completing each performance test required, submit the results of the performance test with data collected using test methods supported by the USEPA's Electronic Reporting Tool (ERT) as listed on the USEPA's ERT website (<https://www.epa.gov/electronic-reporting-air-emissions/electronic-reporting-tool-ert>). Submit the results of the performance test to the USEPA via the Compliance and Emissions Data Reporting Interface (CEDRI), which can be accessed through the USEPA's CDX (<https://cdx.epa.gov/>). The data must be submitted in a file format generated through the use of the USEPA's ERT. Alternatively, submit an electronic file consistent with the extensible markup language (XML) schema listed on the USEPA's ERT website. **(40 CFR 63.1981(l)(1)(i))**
 - b. For data collected using test methods that are not supported by the USEPA's ERT as listed on the USEPA's ERT website, the results of the performance test must be included as an attachment in the ERT or an

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alternate electronic file consistent with the XML schema listed on the USEPA's ERT website. Submit the ERT generated package or alternative file to the USEPA via CEDRI. **(40 CFR 63.1981(I)(1)(ii))**

- c. Each permittee must submit reports to the USEPA via CEDRI. CEDRI can be accessed through the USEPA'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/chief>). Once the spreadsheet template upload/forms for the reports have been available in CEDRI for 90 days, the permittee must begin submitting all subsequent reports via CEDRI. The reports must be submitted by the deadlines specified in this subpart, regardless of the method in which the reports are submitted. The semiannual reports **and bioreactor 40-percent moisture reports** should be electronically reported as a spreadsheet template upload/form to CEDRI. If the reporting forms specific to this subpart are not available in CEDRI at the time that the reports are due, the permittee must submit the reports to the USEPA at the appropriate address listed in 40 CFR 63.13. **(40 CFR 63.1981(I)(2))**

- 6. The permittee shall submit any performance test reports and all other reports required by 40 CFR Part 63, Subpart AAAA to the appropriate AQD District Office, in a format approved by the appropriate AQD District Supervisor. **(R 336.1213(3)(c), R 336.2001(5))**

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

NA

IX. OTHER REQUIREMENT(S)

- 1. 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)**

[Remove these footnotes if no PTIs are associated with this source](#)

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).

<p>FG-ENCLOSEDFLARE-XXX FLEXIBLE GROUP CONDITIONS</p>
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DESCRIPTION

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Two enclosed flares with a combined capacity of 9,000 CFM, used in combusting landfill gas. An enclosed flare is an enclosed combustor or firebox which maintains a relatively constant limited peak temperature generally using a limited supply of combustion air. This flexible group contains the requirements of 40 CFR Part 60, Subpart XXX.

Emission Unit: EU-FLARE4, EU-FLARE6

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMITS

NA

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. NMOC	20 ppmv dry as hexane at 3% oxygen -OR- 98% weight reduction or more	Hourly	Enclosed Flares	SC V.1 SC V.2	40 CFR 60.762(b)(2)(iii)(B)

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTIONS

1. The permittee shall operate the enclosed flare at all times when the collected gas is routed to it. **(40 CFR 60.763(f))**
2. The permittee shall operate control system such that all collected gases are vented to a control system designed and operated in accordance 60.762(b)(2)(iii). **(40 CFR 60.762(b)(2)(iii)(B))**
3. The enclosed flare shall be operated within the parameter ranges established during the most recent performance test in compliance with 40 CFR 60.764(d). **(40 CFR 60.762(b)(2)(iii)(B)(2))**
4. In the event the control system is inoperable, the gas mover system shall be shut down and all valves in the collection and control system contributing to venting of the gas to the atmosphere shall be closed within one hour. **(R 336.1911, 40 CFR 60.763(e))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall install, calibrate, maintain, and operate according to the manufacturer's specifications, the following equipment:
 - a. A temperature monitoring device equipped with a continuous recorder and having a minimum accuracy of ± 1 percent of the temperature being measured expressed in degrees Celsius or ± 0.5 degrees Celsius, whichever is greater. **(40 CFR 60.766(b)(1))**
 - b. A device that records flow to the control device and bypass of the control device (if applicable). **(40 CFR 60.766(b)(2))**

V. TESTING/SAMPLING

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

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1. Within 180 days of permit issuance or five years from the last test date, whichever is later, the permittee shall verify the NMOC reduction efficiency or ppmv from EU-FLARE4 and EU-FLARE6, by testing at owner's expense, in accordance with Department requirements. Testing shall be performed using an approved EPA method listed in 40 CFR 60, Appendix A. An alternate 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. The permittee must submit 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 336.2001, R 336.2003, R 336.2004, 40 CFR 60.762(b)(2)(iii)(B), 40 CFR 60.764(d))**
2. The permittee shall verify the NMOC reduction efficiency or ppmv from EU-FLARE4 and EU-FLARE6 every five years from the date of the last test. **(R 336.1213(3), R 336.2001, R 336.2003, R 336.2004, 40 CFR 60.762(b)(2)(iii)(B), 40 CFR 60.764(d))**

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 keep monthly records of the operating parameters specified to be monitored in 40 CFR 60.766(b). The records shall include:
 - a. Continuous records of the indication of flow and gas flow rate to the control device. **(40 CFR 60.766(b)(2)(i))**
 - b. The indication of bypass flow or records of monthly inspections of car-seals or lock-and-key configurations used to seal bypass lines. **(40 CFR 60.766(b)(2)(ii))**
2. The permittee shall keep monthly, readily accessible records for periods of operation during which the parameter boundaries established during the most recent performance test are exceeded.
 - a. The average combustion temperature measured at least every 15 minutes and averaged over the same time period of the performance test. **(40 CFR 60.768(b)(2)(i))**
 - b. All three-hour periods of operation during which the average combustion temperature was more than 28°C (82°F) below the average combustion temperature during the most recent performance test at which compliance with 40 CFR 60.762(b)(2)(iii) was determined. **(40 CFR 60.768(c)(1)(i))**

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. Report shall be postmarked or received by 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. Report shall be postmarked or received by appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**
4. The permittee shall submit to the appropriate AQD District Office annual reports for the control system. Reports shall be received by appropriate AQD District Office by March 15 for reporting period January 1 to December 31. For enclosed combustion devices, reportable exceedances are defined under 40 CFR 60.768(c). The report shall include the following:
 - a. Value and length of time for exceedance of applicable parameters monitored under 40 CFR 60.766(b). **(40 CFR 60.767(g)(1))**

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- b. Description and duration of all periods when the gas stream is diverted from the control device through a bypass line or the indication of bypass flow as specified under 40 CFR 60.766. **(40 CFR 60.767(g)(2))**
- c. Description and duration of all periods when the control device was not operating and length of time the control device was not operating. **(40 CFR 60.767(g)(3))**
5. 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 336.2001(5))**
6. 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 EPA's Electronic Reporting Tool (ERT) as listed on the EPA's ERT Web site (https://www3.epa.gov/ttn/chief/ert/ert_info.html) at the time of the test. The permittee shall submit the results of the performance test to the EPA via the Compliance and Emissions Data Reporting Interface (CEDRI). CEDRI can be accessed through the EPA'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 REQUIREMENTS

1. The permittee shall 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 60, Subparts A and XXX)**

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).

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**FGENCLOSEDFLARE-AAAA
FLEXIBLE GROUP CONDITIONS**

DESCRIPTION

An enclosed flare (enclosed combustor) is an enclosed firebox which maintains a relatively constant limited peak temperature generally using a limited supply of combustion air. This flexible group contains 40 CFR Part 63, Subpart AAAA requirements.

Emission Unit: EU-FLARE4, EU-FLARE6

POLLUTION CONTROL EQUIPMENT

Enclosed flare

I. EMISSION LIMITS

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
2. NMOC	20 ppmv dry as hexane at 3% oxygen -OR- 98% by weight reduction or more	Hourly	Enclosed Combustion Device	SC V.1	40 CFR 63.1959(b)(2)(iii)(B)

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTIONS

3. The permittee must operate EUENCLOSEDFLARE at all times when the collected gas is routed to it. **(40 CFR 63.1958(f))**
4. The permittee must operate control system such that all collected gases are vented to a control system designed and operated in accordance 40 CFR 63.1959(b)(2)(iii). **(40 CFR 63.1959(b)(2)(iii)(B))**
3. The enclosed flare must be operated within the parameter ranges established during the most recent performance test in compliance with 40 CFR 63.1959(d). **(40 CFR 63.1959(b)(2)(iii)(B)(2))**
7. In the event the control system is inoperable, the gas mover system must be shut down and all valves in the collection and control system contributing to venting of the gas to the atmosphere must be closed within one hour. **(40 CFR 63.1958(e)(1)(i))**
8. In the event the control system is inoperable, efforts to repair the collection system must be initiated and completed in a manner such that downtime is kept to a minimum, and the collection and control system must be returned to operation. **(40 CFR 63.1958(e)(1)(ii))**

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6. At all times, 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)

1. The permittee must install, calibrate, maintain, and operate according to the manufacturer's specifications, the following equipment:
 - c. A temperature monitoring device equipped with a continuous recorder and having a minimum accuracy of ± 1 percent of the temperature being measured expressed in degrees Celsius or ± 0.5 degrees Celsius, whichever is greater. **(40 CFR 63.1961(b)(1))**
 - d. A device that records flow to the control device and bypass of the control device (if applicable) at least every 15 minutes. **(40 CFR 63.1961(b)(2))**

V. TESTING/SAMPLING

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

1. **Within 180 days after commencement of initial startup**, the permittee must verify the NMOC weight-percent efficiency or ppmv outlet concentration level from EUENCLOSEDFLARE, by testing at owner's expense, in accordance with Department requirements. Testing must be performed using an approved USEPA method listed in 40 CFR 63.1959(d). 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 District Office. The AQD must approve the final plan prior to testing. The permittee must submit a complete report of the test results to the AQD Technical Programs Unit and the appropriate District Office within 60 days following the last date of the test. **(R 336.2001, R 336.2003, R 336.2004, 40 CFR 63.1959(d))**
2. The permittee must 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 must be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

2. The permittee must keep monthly records of the operating parameters specified to be monitored in 40 CFR 63.1961(b). The records must include:
 - a. Continuous records of the indication of flow and gas flow rate to the control device. **(40 CFR 63.1961(b)(2)(i))**
 - c. The indication of bypass flow or records of monthly inspections of car-seals or lock-and-key configurations used to seal bypass lines. **(40 CFR 63.1961(b)(2)(ii))**
2. The permittee must keep monthly, readily accessible records for periods of operation during which the parameter boundaries established during the most recent performance test are exceeded.
 - c. The average temperature measured at least every 15 minutes and averaged over the same time period of the performance test. **(40 CFR 63.1983(b)(2)(i))**
 - d. All 3-hour periods of operation during which the average temperature was more than 28°C (82°F) below the average combustion temperature during the most recent performance test at which compliance with 40 CFR 63.1959(b)(2)(iii) was determined. **(40 CFR 63.1983(c)(1)(i))**

VII. REPORTING

4. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**

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5. 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))**
6. 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))**
5. The permittee must submit to the appropriate AQD District Office semiannual reports for the control system. The reports must be 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. For enclosed combustion devices, reportable exceedances are defined under 40 CFR 63.1961(b). The reports must include the following:
 - a. Description and duration of all periods when the gas stream is diverted from the control device through a bypass line or the indication of bypass flow. **(40 CFR 63.1981(h)(2))**
 - b. Description and duration of all periods when the control device was not operating and length of time the control device was not operating. **(40 CFR 63.1981(h)(3))**
6. The permittee must submit reports electronically according to the following:
 - a. Within 60 days after the date of completing each performance test required, submit the results of the performance test with data collected using test methods supported by the USEPA's Electronic Reporting Tool (ERT) as listed on the USEPA's ERT website (<https://www.epa.gov/electronic-reporting-air-emissions/electronic-reporting-tool-ert>). Submit the results of the performance test to the USEPA via the Compliance and Emissions Data Reporting Interface (CEDRI), which can be accessed through the USEPA's CDX (<https://cdx.epa.gov/>). The data must be submitted in a file format generated through the use of the USEPA's ERT. Alternatively, submit an electronic file consistent with the extensible markup language (XML) schema listed on the USEPA's ERT website. **(40 CFR 63.1981(l)(1)(i))**
 - b. For data collected using test methods that are not supported by the USEPA's ERT as listed on the USEPA's ERT website, the results of the performance test must be included as an attachment in the ERT or an alternate electronic file consistent with the XML schema listed on the USEPA's ERT website. Submit the ERT generated package or alternative file to the USEPA via CEDRI. **(40 CFR 63.1981(l)(1)(ii))**
 - c. Each permittee must submit reports to the USEPA via CEDRI. CEDRI can be accessed through the USEPA'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/chief>). Once the spreadsheet template upload/forms for the reports have been available in CEDRI for 90 days, the permittee must begin submitting all subsequent reports via CEDRI. The reports must be submitted by the deadlines specified in this subpart, regardless of the method in which the reports are submitted. The semiannual reports should be electronically reported as a spreadsheet template upload/form to CEDRI. If the reporting forms specific to this subpart are not available in CEDRI at the time that the reports are due, the permittee must submit the reports to the USEPA at the appropriate address listed in 40 CFR 63.13. **(40 CFR 63.1981(l)(2))**
7. The permittee shall submit any performance test reports and all other reports required by 40 CFR Part 63, Subpart AAAA to the appropriate AQD District Office, in a format approved by the appropriate AQD District Supervisor. **(R 336.1213(3)(c), R 336.2001(5))**

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

NA

IX. OTHER REQUIREMENTS

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2. 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)**

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).

**FG-OPENFLARE-XXX
FLEXIBLE GROUP CONDITIONS**

DESCRIPTION

Open flare is an open combustor without enclosure or shroud. Two open flares with a combined capacity of 5,100 CFM used to control LFG generated by the landfill. EU-FLARE5 serves as a backup flare and only operates if one or more flares and/or engines are not in operation. This flexible group contains the requirements of 40 CFR Part 60 Subpart XXX.

Emission Unit: EU-FLARE3, EU-FLARE5

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

1. There shall be no visible emissions from EU-FLARE3 and EU-FLARE5 except for periods not to exceed a total of five minutes during any two consecutive hours. **(R 336.1301(1)(c), 40 CFR 60.18(c)(1))**

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall operate the flare in accordance with the parameters established in 40 CFR 60.18. **(40 CFR 60.762(b)(2)(iii)(A))**
2. The permittee shall operate the flare at all times when the collected gas is routed to it. **(40 CFR 60.763(f))**
3. The flare shall be operated with a flame present at all times. **(40 CFR 60.18(c)(2))**
4. In the event the control system is inoperable, the gas mover system shall be shut down and all valves in the collection and control system contributing to venting of the gas to the atmosphere shall be closed within one hour. **(R 336.1911, 40 CFR 60.763(e))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall install, calibrate, maintain, and operate according to the manufacturer's specifications, a heat sensing device, such as an ultraviolet beam sensor or thermocouple, at the pilot light or the flame itself to indicate the continuous presence of a flame. **(40 CFR 60.18(f)(2), 40 CFR 60.766(c)(1))**
2. The permittee shall install, calibrate, maintain, and operate according to the manufacturer's specifications, a device that records flow to or bypass of the flare (if applicable). **(40 CFR 60.766(c)(2))**

V. TESTING/SAMPLING

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

1. Within 180 days of permit issuance or five years from the last test date, whichever is later, the permittee shall verify visible emissions from EU-FLARE3 and EU-FLARE5, by testing at owner's expense, in accordance with Department requirements. Testing shall be performed using an approved EPA method listed in 40 CFR 60, Appendix A. An alternate 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

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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. The permittee must submit 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 336.213(3), R 336.2001, R 336.2003, R 336.2004, 40 CFR 60.18(f))**

2. The permittee shall verify visible emissions from EU-FLARE3 and EU-FLARE5 every five years from the date of the last test. **(R 336.1213(3), R 336.2001, R 336.2003, R 336.2004, 40 CFR 60.18(f))**

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 maintain records regarding the flare type (i.e., steam-assisted, air-assisted, or non-assisted), all visible emission readings, heat content determination, flow rate or bypass flow rate measurements, and exit velocity determinations made during the performance test as specified in 40 CFR 60.18. **(40 CFR 60.768(b)(4))**
2. The permittee shall keep monthly records of the operating parameters specified to be monitored in 40 CFR 60.766(c). The records shall include:
 - a. Continuous records of the indication of flow and gas flow rate to the control device. **(40 CFR 60.768(b)(4))**
 - b. The indication of bypass flow or records of monthly inspections of car-seals or lock-and-key configurations used to seal bypass lines. **(40 CFR 60.766(c)(2)(ii))**
 - c. Continuous records of the open flare pilot flame or open flare flame monitoring, and records of all periods of operations during which the pilot flame of the flare flame is absent. **(40 CFR 60.768(b)(4))**
3. The following records for the flare shall be maintained onsite:
 - a. The net heating value of the gas being combusted in the flare shall be calculated and recorded using the equation provided in Appendix 7-1. **(40 CFR 60.18(f)(3))**
 - b. The exit velocity for steam-assisted, air-assisted, or non-assisted flares as determined by the methods specified in 40 CFR 60.18(f)(4) provided in Appendix 7-1. **(40 CFR 60.18(f)(4))**

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. Report shall be postmarked or received by 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. Report shall be postmarked or received by appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**
4. The permittee shall submit to the appropriate AQD District Office annual reports for the gas collection system. Reports shall be received by appropriate AQD District Office by March 15 for reporting period January 1 to December 31. For enclosed combustion devices and flares, reportable exceedances are defined under 40 CFR 60.768(c). The report shall include the following:
 - a. Value and length of time for exceedance of applicable parameters monitored under 40 CFR 60.766(c). **(40 CFR 60.767(g)(1))**
 - b. Description and duration of all periods when the gas stream is diverted from the control device through a bypass line or the indication of bypass flow as specified under 40 CFR 60.766. **(40 CFR 60.767(g)(2))**

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- c. Description and duration of all periods when the control device or treatment system was not operating and length of time the control device or treatment system was not operating. **(40 CFR 60.767(g)(3))**
5. 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 336.2001(5))**
6. 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 EPA's Electronic Reporting Tool (ERT) as listed on the EPA's ERT Web site (https://www3.epa.gov/ttn/chief/ert/ert_info.html) at the time of the test. The permittee shall submit the results of the performance test to the EPA via the Compliance and Emissions Data Reporting Interface (CEDRI). CEDRI can be accessed through the EPA's Central Data Exchange (CDX). **(40 CFR 60.767(i))**

See Appendix 8-1

VIII. STACK/VENT RESTRICTION(S)

NA

IX. OTHER REQUIREMENT(S)

1. The permittee shall 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 60, Subparts A and XXX)**

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).

**FGOPENFLARE-AAAA
FLEXIBLE GROUP CONDITIONS**

DESCRIPTION

Open (non-enclosed) flare is an open combustor without enclosure or shroud. This flexible group contains 40 CFR Part 63, Subpart AAAA requirements.

Emission Unit: EU-FLARE3, EU-FLARE5

POLLUTION CONTROL EQUIPMENT

Open (non-enclosed) flare

I. EMISSION LIMIT(S)

2. There must be no visible emissions from EUOPENFLARE except for periods not to exceed a total of 5 minutes during any 2 consecutive hours. **(40 CFR 63.11(b)(4))**

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee must operate EUOPENFLARE at all times when the collected gas is routed to it. **(40 CFR 63.11(b)(3), 40 CFR 63.1958(f))**
2. The flare must be operated with a flame present at all times. **(40 CFR 63.11(b)(5))**
3. In the event the control system is inoperable, the gas mover system must be shut down and all valves in the collection and control system contributing to venting of the gas to the atmosphere must be closed within one hour. **(40 CFR 63.1958(e)(1)(i))**
4. In the event the control system is inoperable, efforts to repair the collection system must be initiated and completed in a manner such that downtime is kept to a minimum, and the collection and control system must be returned to operation. **(40 CFR 63.1958(e)(1)(ii))**
5. At all times, 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)

1. The permittee must design and operate EUOPENFLARE in accordance with the parameters established in 40 CFR 63.11(b). **(40 CFR 63.1959(b)(2)(iii)(A))**
2. The permittee must install, calibrate, maintain, and operate according to the manufacturer's specifications, a heat sensing device, such as an ultraviolet beam sensor or thermocouple, at the pilot light or the flame itself to indicate the continuous presence of a flame. **(40 CFR 63.11(b)(5), 40 CFR 63.1961(c)(1))**
3. The permittee must install, calibrate, maintain, and operate according to the manufacturer's specifications, a device that records flow to or bypass of the flare (if applicable) at least every 15 minutes. **(40 CFR 63.1961(c)(2))**

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V. TESTING/SAMPLING

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

1. **Within 180 days after commencement of initial startup**, the permittee must verify visible emissions from EUOPENFLARE, by testing at owner's expense, in accordance with Department requirements. Testing must be performed using approved USEPA Method 22 listed in 40 CFR 60, Appendix A. No less than 30 days prior to testing, the permittee must submit a complete test plan to the appropriate AQD District Office. The AQD must approve the final plan prior to testing. 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 63.11(b)(4))**
3. **Within 180 days after commencement of initial startup**, the permittee must verify the following:
 - a. The net heating value of the gas being combusted in the flare must be calculated and recorded using the equation provided in Appendix 7. **(40 CFR 63.11(b)(6))**
 - b. The exit velocity for steam-assisted, air-assisted, or non-assisted flares as determined by the methods provided in Appendix 7. **(40 CFR 63.11(b)(7) and (8))**
4. **Within 180 days of permit issuance**, the permittee must verify visible emissions, the net heating value, and exit velocity from EUOPENFLARE **and** at a minimum, every five years from the date of the last test, **thereafter**. **(R 336.1213(3), R 336.2001, R 336.2003, R 336.2004)**
5. The permittee must notify the appropriate AQD District Supervisor not less than 30 days before testing of the time and place performance tests will be conducted. **(R 336.1213(3))**

See Appendix 7

VI. MONITORING/RECORDKEEPING

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

4. The permittee must maintain records regarding the flare type (i.e., steam-assisted, air-assisted, or non-assisted), all visible emission readings, heat content determination, flow rate or bypass flow rate measurements, and exit velocity determinations made during the performance test as specified in 40 CFR 63.11. **(40 CFR 63.1983(b)(4))**
5. The permittee must keep monthly records of the operating parameters specified to be monitored in 40 CFR 63.1961(c). The records must include:
 - a. Continuous records of the indication of flow and gas flow rate to the control device. **(40 CFR 63.1983(b)(4))**
 - b. Secure the bypass line valve in the closed position with a car-seal or a lock-and-key type configuration. A visual inspection of the seal or closure mechanism must be performed at least once every month to ensure that the valve is maintained in the closed position and that the gas flow is not diverted through the bypass line.. **(40 CFR 63.1961(c)(2)(ii))**
 - c. Continuous records of the open flare pilot flame or open flare flame monitoring, and records of all periods of operations during which the pilot flame of the flare flame is absent. **(40 CFR 63.1983(b)(4))**

See Appendix 7

VII. REPORTING

4. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**
5. 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))**

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6. 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 to the appropriate AQD District Office semiannual reports for the control system. Reports must be 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. For flares, reportable exceedances are defined under 40 CFR 63.1961(c). The reports must include the following:
 - a. Description and duration of all periods when the gas stream is diverted from the control device through a bypass line or the indication of bypass flow. **(40 CFR 63.1981(h)(2))**
 - b. Description and duration of all periods when the control device was not operating and length of time the control device was not operating. **(40 CFR 63.1981(h)(3))**
5. The permittee must submit reports electronically according to the following:
 - a. Within 60 days after the date of completing each performance test required, submit the results of the performance test with data collected using test methods supported by the USEPA's Electronic Reporting Tool (ERT) as listed on the USEPA's ERT website (<https://www.epa.gov/electronic-reporting-air-emissions/electronic-reporting-tool-ert>). Submit the results of the performance test to the USEPA via the Compliance and Emissions Data Reporting Interface (CEDRI), which can be accessed through the USEPA's CDX (<https://cdx.epa.gov/>). The data must be submitted in a file format generated through the use of the USEPA's ERT. Alternatively, submit an electronic file consistent with the extensible markup language (XML) schema listed on the USEPA's ERT website. **(40 CFR 63.1981(l)(1)(i))**
 - b. For data collected using test methods that are not supported by the USEPA's ERT as listed on the USEPA's ERT website, the results of the performance test must be included as an attachment in the ERT or an alternate electronic file consistent with the XML schema listed on the USEPA's ERT website. Submit the ERT generated package or alternative file to the USEPA via CEDRI. **(40 CFR 63.1981(l)(1)(ii))**
 - c. Each permittee must submit reports to the USEPA via CEDRI. CEDRI can be accessed through the USEPA'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/chief>). Once the spreadsheet template upload/forms for the reports have been available in CEDRI for 90 days, the permittee must begin submitting all subsequent reports via CEDRI. The reports must be submitted by the deadlines specified in this subpart, regardless of the method in which the reports are submitted. The semiannual reports should be electronically reported as a spreadsheet template upload/form to CEDRI. If the reporting forms specific to this subpart are not available in CEDRI at the time that the reports are due, the permittee must submit the reports to the USEPA at the appropriate address listed in 40 CFR 63.13. **(40 CFR 63.1981(l)(2))**
6. The permittee shall submit any performance test reports and all other reports required by 40 CFR Part 63, Subpart AAAA to the appropriate AQD District Office, in a format approved by the appropriate AQD District Supervisor. **(R 336.1213(3)(c), R 336.2001(5))**

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

NA

IX. OTHER REQUIREMENT(S)

2. 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)**

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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).

**FG-FLARES
FLEXIBLE GROUP CONDITIONS**

DESCRIPTION

Four flares, (one open, two enclosed, and one stand-by portable open flare) with a combined capacity of 14,100 CFM, used for combusting landfill gas.

Emission Units: EU-FLARE3, EU-FLARE4, EU-FLARE5, EU-FLARE6

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. SO ₂	8.1 lb/hr ²	Hour	EU-FLARE4	SC V.1 SC V.2	R 336.2803 R 336.2804 40 CFR 52.21(c) & (d)
2. SO ₂	16.1 lb/hr ²	Hour	EU-FLARE6	SC V.1 SC V.2	R 336.2803 R 336.2804 40 CFR 52.21(c) & (d)
3. NO _x	0.06 lb/MMBtu ²	Hour	EU-FLARE4 and EU-FLARE6	SC V.2	R 336.2803 R 336.2804 R 336.2810 40 CFR 52.21(c) (d) & (j)
4. CO	0.2 lb/MMBtu ²	Hour	EU-FLARE4 and EU-FLARE6	SC V.2	R 336.2804 R 336.2810 40 CFR 52.21(d) & (j)
5. PM	1.4 lb/hr ²	Hour	EU-FLARE4	SC III.4 SC V.3	R 336.2803 R 336.2804 R 336.2810 40 CFR 52.21(c) (d) & (j)
6. PM	2.9 lb/hr ²	Hour	EU-FLARE6	SC III.4 SC V.3	R 336.2803 R 336.2804 R 336.2810 40 CFR 52.21(c) (d) & (j)

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Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
7. PM ₁₀	1.4 lb/hr ²	Hour	EU-FLARE4	SC III.4 SC V.3	R 336.2803 R 336.2804 R 336.2810 40 CFR 52.21(c) (d) & (j)
8. PM ₁₀	2.9 lb/hr ²	Hour	EU-FLARE6	SC III.4 SC V.3	R 336.2803 R 336.2804 R 336.2810 40 CFR 52.21(c) (d) & (j)
9. Visible Emissions	20% Opacity ²	6-minute average	EU-FLARE4 and EU-FLARE6	SC III.4 SC V.2	R 336.1301(1)(c) R 336.2810 40 CFR 52.21(j)
10. SO ₂	18 lb/hr	Hour	EU-FLARE4	SC V.1 SC V.2	R 336.2810
11. SO ₂	35.9 lb/hr	Hour	EU-FLARE6	SC V.1 SC V.2	R 336.2810

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall only operate the back-up flare, EU-FLARE5, if one or more of the other flares (EU-FLARE3, EU-FLARE4, and EU-FLARE6) or engines are not in operation.² **(R 336.1205)**
2. The permittee shall only burn landfill gas in EU-FLARE4 and EU-FLARE6 that has been treated according to SC III.3 and by the sulfur removal system except as provided in the approved malfunction abatement/operation and maintenance plan, required under Special Condition IV.1. **(R 336.1213(2))**
3. The permittee shall manage all landfill gas in FG-FLARES in compliance with 40 CFR 60.752(b)(2)(iii)². **(R 336.1225, 40 CFR 60.752(b)(2)(iii))**
4. The permittee shall not operate EU-FLARE4 and EU-FLARE6 unless a malfunction abatement plan (MAP) as described in Rule 911(2), for EU-FLARE4 and EU-FLARE6, has been submitted within 60 days after permit issuance, and is implemented and maintained. If at any time the MAP fails to address or inadequately addresses an event that meets the characteristics of a malfunction, the permittee shall amend the MAP within 45 days after such an event occurs. The permittee shall also amend the MAP within 45 days if new equipment is installed or upon request from the District Supervisor. The permittee shall submit the MAP and any amendments to the MAP to the AQD District Supervisor for review and approval. If the AQD does not notify the permittee within 90 days of submittal, the MAP or amended MAP shall be considered approved. Until an amended plan is approved, the permittee shall implement corrective procedures or operational changes to achieve compliance with all applicable emission limits.² **(R 336.1225, R 336.1331, R 336.1702(b), R 336.1910, R 336.1911, R 336.2803, R 336.2804, R 336.2810, 40 CFR 52.21(c), (d) and (j))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall not operate EU-FLARE4 and EU-FLARE6 unless the sulfur removal system is installed, maintained, and operated in a satisfactory manner. Proper operation shall include but is not limited to submitting an approvable malfunction abatement/operation and maintenance plan (MAP/O&M plan) for the sulfur removal system and EU-FLARE4 and EU-FLARE6 to the District Supervisor, Air Quality Division within 30 days prior to

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start-up of the sulfur removal system. The MAP/O&M plan shall include as a minimum the manufacturer operation and maintenance specifications for the sulfur removal system. **(R 336.1213(3), R 336.1910)**

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 verify the hydrogen sulfide or total reduced sulfur content of the landfill gas burned in EU-FLARE4 and EU-FLARE6 on a daily basis by gas sampling. Daily gas sampling excludes holidays and weekends unless requested by the District Supervisor, Air Quality Division. If, after a year, each of the daily concentrations of the hydrogen sulfide or total reduced sulfur concentration of the landfill gas are below 269 ppm (TRS equivalent), the permittee may petition the District Supervisor, Air Quality Division to reduce the frequency of gas sampling and recording the hydrogen sulfide / total reduced sulfur concentration of the treated landfill gas to weekly. If at any time the concentration readings exceed 269 ppm (TRS equivalent), the permittee shall resume sampling and recording on a daily basis 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 concentration determined from the daily readings are maintained below 269 ppm of hydrogen sulfide/total reduced sulfur concentration in the landfill gas for one year after an exceedance, the permittee may resume weekly monitoring and recordkeeping. The permittee shall keep all records on file at the facility and make them available to the Department upon request.² **(R 336.1205(1), R 336.2803, R 336.2804, R 336.2810, 40 CFR 52.21(c), (d) and (j))**
2. Within 180 days of permit issuance or five years from the last test date, whichever is later, and then every five years thereafter, the permittee shall verify Visible Emissions (per a USEPA Method 9 certified visible emissions observation shall be conducted for a minimum of 15 minutes to determine the actual opacity from that emission point), NO_x, SO₂, and CO emission rates from EU-FLARE4 and EU-FLARE6, by testing at owner's expense, in accordance with Department requirements. 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. The permittee must submit 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 336.2001, R 336.2803, R 336.2804, R 336.2003, R 336.2004, 40 CFR 52.21(c) and (d))**
3. Within 180 days of permit issuance or five years from the last test date, whichever is later, and then every five years thereafter, the permittee shall verify PM and PM₁₀ emission rates from EU-FLARE4 and EU-FLARE6 by testing at the owner's expense, in accordance with the Department requirements. 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. The permittee must submit 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)**
4. Testing shall be performed using an approved EPA Method listed in:

Pollutant	Test Method Reference
PM	40 CFR Part 60, Appendix A; Part 10 of the Michigan Air Pollution Control Rules
PM ₁₀	40 CFR Part 51, Appendix M
NO _x	40 CFR Part 60, Appendix A
SO ₂	40 CFR Part 60, Appendix A
CO	40 CFR Part 60, Appendix A
Visible Emissions	40 CFR Part 51, Appendix M; 40 CFR Part 60, Appendix A and B

5. The permittee shall notify the AQD Technical Programs Unit Supervisor and the District Supervisor not less than 30 days of the time and place before performance tests are conducted. **(R 336.1213(3))**

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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 install, calibrate, and maintain a gas flow measuring device that shall continuously record the total actual flow of landfill gas to FG-FLARES.² **(40 CFR 60.756(c)(2)(i), 40 CFR 63.1955(a))**
2. The permittee shall keep records of the landfill gas consumed in FGFLARES on a monthly basis and 12-month rolling time period basis, as determined at the end of each calendar month. All records shall be made available to the Department upon request.² **(R 336.1205)**
3. The permittee shall keep records of the date, time and reason why EU-FLARE5 is operated.² **(R 336.1205)**
4. The permittee shall keep, in a satisfactory manner, monthly SO₂ mass emission calculation records for EU-FLARE4 and EU-FLARE6. The permittee shall keep all records on file for a period of at least five years and make them available to the Department upon request. **(R336.1213(3))**
5. The permittee shall maintain a log of all maintenance activities conducted according to the malfunction abatement/preventative maintenance plan (pursuant to SC III.4). The permittee shall keep this log on file at the facility and make it available to the Department upon request. **(R 336.1213(3), R 336.1911)**

VII. REPORTING

1. The permittee shall notify the AQD district office within one week of when the frequency of the gas sampling changes for any reason. **(R 336.1201(3))**
2. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**
3. 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))**
4. 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))**
5. 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 8-1

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 Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SV-FLARE4	144 ²	50 ²	R 336.1225 R 336.2803 R 336.2804 40 CFR 52.21 (c) & (d)
2. SV-FLARE6	156 ²	60 ²	R 336.1225 R 336.2803 R 336.2804 40 CFR 52.21 (c) & (d)

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IX. OTHER REQUIREMENT(S)

1. The permittee shall comply with all applicable provisions of 40 CFR Part 60 Subpart A and WWW, “Standards of Performance for Municipal Solid Waste Landfills”, as they apply to FG-FLARES.² **(40 CFR Part 60 Subpart A and WWW)**
2. The permittee shall comply with all applicable provisions of 40 CFR Part 60 Subpart A and XXX, “Standards of Performance for Municipal Solid Waste Landfills” that Commenced Construction, Reconstruction, or Modification After July 17, 2014 as they apply to FG-FLARES. **(40 CFR Part 60 Subpart A and XXX)**

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).

FG-COLDCLEANERS FLEXIBLE GROUP CONDITIONS
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DESCRIPTION

Any cold cleaner that is grandfathered or exempt from Rule 201 pursuant to Rule 281(h) or Rule 285(r)(iv). Existing cold cleaners were placed into operation prior to July 1, 1979. New cold cleaners were placed into operation on or after July 1, 1979.

Emission Unit: EU-COLDCLEANER

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

NA

II. MATERIAL LIMIT(S)

1. The permittee shall not use cleaning solvents containing more than five percent by weight of the following halogenated compounds: methylene chloride, perchloroethylene, trichloroethylene, 1,1,1-trichloroethane, carbon tetrachloride, chloroform, or any combination thereof. **(R 336.1213(2))**

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. Cleaned parts shall be drained for no less than 15 seconds or until dripping ceases. **(R 336.1611(2)(b), R 336.1707(3)(b))**
2. The permittee shall perform routine maintenance on each cold cleaner as recommended by the manufacturer. **(R 336.1213(3))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The cold cleaner must meet one of the following design requirements:
 - a. The air/vapor interface of the cold cleaner is no more than 10 square feet. **(R 336.1281(h))**
 - b. The cold cleaner is used for cleaning metal parts and the emissions are released to the general in-plant environment. **(R 336.1285(r)(iv))**
2. The cold cleaner shall be equipped with a device for draining cleaned parts. **(R 336.1611(2)(b), R 336.1707(3)(b))**
3. All new and existing cold cleaners shall be equipped with a cover and the cover shall be closed whenever parts are not being handled in the cold cleaner. **(R 336.1611(2)(a), R 336.1707(3)(a))**
4. The cover of a new cold cleaner shall be mechanically assisted if the Reid vapor pressure of the solvent is more than 0.3 psia or if the solvent is agitated or heated. **(R 336.1707(3)(a))**
5. If the Reid vapor pressure of any solvent used in a new cold cleaner is greater than 0.6 psia; or, if any solvent used in a new cold cleaner is heated above 120 degrees Fahrenheit, then the cold cleaner must comply with at least one of the following provisions:

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- a. The cold cleaner must be designed such that the ratio of the freeboard height to the width of the cleaner is equal to or greater than 0.7. **(R 336.1707(2)(a))**
- b. The solvent bath must be covered with water if the solvent is insoluble and has a specific gravity of more than 1.0. **(R 336.1707(2)(b))**
- c. The cold cleaner must be controlled by a carbon adsorption system, condensation system, or other method of equivalent control approved by the AQD. **(R 336.1707(2)(c))**

V. TESTING/SAMPLING

NA

VI. MONITORING/RECORDKEEPING

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

1. For each new cold cleaner in which the solvent is heated, the solvent temperature shall be monitored and recorded at least once each calendar week during routine operating conditions. **(R 336.1213(3))**
2. The permittee shall maintain the following information on file for each cold cleaner: **(R 336.1213(3))**
 - a. A serial number, model number, or other unique identifier for each cold cleaner.
 - b. The date the unit was installed, manufactured or that it commenced operation.
 - c. The air/vapor interface area for any unit claimed to be exempt under Rule 281(h).
 - d. The applicable Rule 201 exemption.
 - e. The Reid vapor pressure of each solvent used.
 - f. If applicable, the option chosen to comply with Rule 707(2).
3. The permittee shall maintain written operating procedures for each cold cleaner. These written procedures shall be posted in an accessible, conspicuous location near each cold cleaner. **(R 336.1611(3), R 336.1707(4))**
4. As noted in Rule 611(2)(c) and Rule 707(3)(c), if applicable, an initial demonstration that the waste solvent is a safety hazard shall be made prior to storage in non-closed containers. If the waste solvent is a safety hazard and is stored in non-closed containers, verification that the waste solvent is disposed of so that not more than 20%, by weight, is allowed to evaporate into the atmosphere shall be made on a monthly basis. **(R 336.1213(3), R 336.1611(2)(c), R 336.1707(3)(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))**

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VIII. STACK/VENT RESTRICTION(S)

NA

IX. OTHER REQUIREMENT(S)

NA

**FG-ICENGINES
FLEXIBLE GROUP CONDITIONS**

DESCRIPTION

Eight reciprocating internal combustion engines (RICE) that will only combust treated landfill gas for fuel. Each engine drives an associated generator set for producing electricity.

Emission Units: EU-ICENGINE1, EU-ICENGINE2, EU-ICENGINE3, EU-ICENGINE4, EU-ICENGINE5, EU-ICENGINE6, EU-ICENGINE7, EU-ICENGINE8

POLLUTION CONTROL EQUIPMENT

Sulfur removal system for reducing sulfur content of landfill gas prior to combustion only when the sulfur content of the landfill gas exceeds 269 ppm. 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	3.3 g/bhp-hr ²	Hour	Each engine in FG-ICENGINES	SC V.1	R 336.2804 R 336.2810 40 CFR 52.21(d) & (j)
2. CO	16.3 lbs/hr ²	Hour	Each engine in FG-ICENGINES	SC V.1	R 336.2804 40 CFR 52.21(d)
3. NO _x	0.6 g/bhp-hr ²	Hour	Each engine in FG-ICENGINES	SC V.1	R 336.2803 R 336.2804 R 336.2810 40 CFR 52.21(c),(d) & (j)
4. NO _x	3.0 lbs/hr ²	Hour	Each engine in FG-ICENGINES	SC V.1	R 336.2803 R 336.2804 R 336.2810 40 CFR 52.21(c) and (d)
5. SO ₂	1.57 lbs/hr ²	Hour	Each engine in FG-ICENGINES	SC V.1 SC V.3	R 336.2803 R 336.2804 40 CFR 52.21(c) and (d)
6. PM	0.24 g/bhp-hr ²	Hour	Each engine in FG-ICENGINES	SC V.1	R 336.2803 R 336.2804 R 336.2810 40 CFR 52.21(c) (d) & (j)
7. PM	1.2 lb/hr ²	Hour	Each engine in FG-ICENGINES	SC V.1	R 336.2803 R 336.2804 R 336.2810 40 CFR 52.21(c) (d) & (j)

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Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
8. PM ₁₀	0.24 g/bhp-hr ²	Hour	Each engine in FG-ICENGINES	SC V.1	R 336.2803 R 336.2804 R 336.2810 40 CFR 52.21(c) (d) & (j)
9. PM ₁₀	1.2 lb/hr ²	Hour	Each engine in FG-ICENGINES	SC V.1	R 336.2803 R 336.2804 R 336.2810 40 CFR 52.21(c) (d) & (j)
10. VOC	1.0 lb/hr ²	Hour	Each engine in FG-ICENGINES	SC V.1	R 336.1702(a)
11. Visible Emissions	10% Opacity ²	6-minute average	Each Engine in FG-ICENGINES	SC V.1	R 336.1301(1)(c) R 336.2810 40 CFR 52.21 (j)
12. Formaldehyde	2.07 lb/hr ¹	Hour	Each Engine in FG-ICENGINES	SC V.2	R 336.1225
13. SO ₂	3.51 lbs/hr ²	Hour	Each Engine in FG-ICENGINES	SC V.1 SC V.3	R 336.2810

II. MATERIAL LIMIT(S)

- The total reduced sulfur (TRS)/hydrogen sulfide concentration of the landfill gas combusted in FGICENGINES shall not exceed 269 ppm.² (R 336.1205, R 336.2803, R 336.2804, 40 CFR 52.21 (c) and (d))

III. PROCESS/OPERATIONAL RESTRICTION(S)

- The permittee shall only burn landfill gas in FG-ICENGINES that has been treated in a system which complies with 40 CFR 60.752(b)(2)(iii)(C).² (R 336.1225, 40 CFR 63.6625(c))
- At least 60 days prior to start-up of any engine in FGICENGINES, the permittee shall submit to the AQD District Supervisor, for review and approval, a malfunction abatement/preventative maintenance plan for FG-ICENGINES. After approval of the malfunction abatement/preventative maintenance plan by the AQD District Supervisor, the permittee shall not operate FG-ICENGINES unless the malfunction abatement/preventative maintenance plan, or an alternate 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:
 - Identification of the equipment and, if applicable, air-cleaning device, and the supervisory personnel responsible for overseeing the inspection, maintenance, and repair.
 - Description of the items or conditions to be inspected and frequency of the inspections or repairs.
 - 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.
 - Identification of the major replacement parts that shall be maintained in inventory for quick replacement.
 - 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

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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, R 336.2810, 40 CFR 52.21(c), (d) and (j))**

3. The permittee shall not operate any engine in FG-ICENGINES unless the sulfur removal system is installed, maintained, and operated in a satisfactory manner, except as provided in the approved malfunction abatement/operation and maintenance plan. Proper operation shall include but is not limited to submitting an approvable malfunction abatement/operation and maintenance plan (MAP/O&M plan) for the sulfur removal system to the District Supervisor, Air Quality Division. The MAP/O&M plan shall include the manufacturer operation and maintenance specifications.² **(R 336.1205, R 336.1225, R 336.1901, R 336.1910, R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall not operate any engine in FG-ICENGINES unless the engines air/fuel ratio controller is installed, maintained and operated in a satisfactory manner.² **(R 336.1702, R 336.1910, R 336.2810(j), 40 CFR 52.21(j))**
2. The permittee shall equip FG-ICENGINES with a device to monitor and record the total daily fuel usage of the engines.² **(R 336.1201(3), R 336.1225)**
3. The design capacity of each engine of FG-ICENGINES shall not exceed 2,233 hp, as specified by the equipment manufacturer.² **(R 336.1205(1)(a), R 336.1225, R 336.1702, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d))**

V. TESTING/SAMPLING

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

1. Within 180 days of permit issuance or five years from the last test date, whichever occurs later, and then every five years thereafter, the permittee shall verify Visible Emissions (per a USEPA Method 9 certified visible emissions observation shall be conducted for a minimum of 15 minutes to determine the actual opacity from that emission point), NO_x, PM, PM-10, VOC, SO₂ and CO emission rates from each engine in FG-ICENGINES at maximum routine operating conditions, by testing at owner's expense, in accordance with Department requirements. 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 within 60 days following the last date of the test as required by SC VII.4.² **(R 336.2001, R 336.2803, R 336.2804, R 336.2003, R 336.2004, 40 CFR 52.21(c) and (d))**
2. Within 180 days of permit issuance or five years from the last test date, whichever occurs later, and then every five years thereafter, the permittee shall verify formaldehyde emission rates from each engine in FG-ICENGINES at maximum routine operating conditions, by testing at owner's expense, in accordance with Department requirements. 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 final plan must be approved by the AQD 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, as required by SC VII.4.² **(R 336.1225, R 336.2001, R 336.2003, R 336.2004)**
3. The permittee shall verify the hydrogen sulfide or total reduced sulfur content of the landfill gas burned in FG-ICENGINES on a daily basis by gas sampling as described in the plan required by SC III.3. Daily gas sampling excludes holidays and weekends unless requested by the District Supervisor, Air Quality Division. If, after a year, each of the daily concentrations of the hydrogen sulfide or total reduced sulfur concentration of the landfill gas are below 269 ppm (TRS equivalent), the permittee may petition the District Supervisor, Air Quality Division to reduce the frequency of gas sampling and recording the hydrogen sulfide / total reduced sulfur concentration of the treated landfill gas to weekly. If at any time the concentration readings exceed 269 ppm (TRS equivalent), the permittee shall resume sampling and recording on a daily basis and shall review all operating and

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maintenance activities for the landfill gas collection and treatment system along with keeping records of corrective actions taken. Once the concentration determined from the daily readings are maintained below 269 ppm of hydrogen sulfide/total reduced sulfur concentration in the landfill gas for one year after an exceedance, the permittee may resume weekly monitoring and recordkeeping. The permittee shall keep all records on file at the facility and make them available to the Department upon request.² (R 336.1205(1), R 336.2803, R 336.2804, R 336.2810, 40 CFR 52.21 (c), (d) and (j))

4. Testing shall be performed using an approved EPA Method listed in:

Pollutant	Test Method Reference
PM	40 CFR Part 60, Appendix A; Part 10 of the Michigan Air Pollution Control Rules
PM ₁₀	40 CFR Part 51, Appendix M
NO _x	40 CFR Part 60, Appendix A
SO ₂	40 CFR Part 60, Appendix A
CO	40 CFR Part 60, Appendix A
VOC	40 CFR Part 60, Appendix A
Visible Emissions	40 CFR Part 51, Appendix M; 40 CFR Part 60, Appendix A and B
HAPs	40 CFR Part 63, Appendix A

An alternate method, or a modification to the approved EPA Method, may be specified in an AQD-approved Test Protocol. (R 336.1213(3), R 336.2003)

5. The permittee shall notify the AQD Technical Programs Unit Supervisor and the District Supervisor not less than 30 days of the time and place before performance tests are conducted. (R 336.1213(3))
6. The permittee shall notify the AQD district office within one week of when the frequency of the gas sampling changes for any reason. (R 336.1201(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 continuously monitor, in a satisfactory manner, the total landfill gas fuel usage of the FG-ICENGINES.² (R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d))
2. The permittee shall maintain a log of all maintenance activities conducted according to the malfunction abatement/preventative maintenance plan (pursuant to SC III.2). The permittee shall keep this log on file at the facility and make it available to the Department upon request.² (R 336.1702(a), R 336.1911, R 336.1912, R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d))
3. The permittee shall keep, in a satisfactory manner, records of the landfill gas usage for FG-ICENGINES on a daily basis. The permittee shall keep all records on file at the facility and make them available to the Department upon request.² (R 336.1225, R 336.1702, R 336.1910, R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d))
4. The permittee shall keep, in a satisfactory manner, monthly SO₂ mass emission calculation records for each engine in FG-ICENGINES. The permittee shall keep all records on file for a period of at least five years and make them available to the Department upon request.² (R 336.1213(3), R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d)).
5. The permittee shall keep, in a satisfactory manner, records of the hours of operation for each engine included in FG-ICENGINES on a daily basis. The permittee shall keep all records on file at the and make them available to the Department upon request.² (R 336.1225, R 336.1702, R 336.1910, R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d))
6. The permittee shall maintain the following record for each engine in FG-ICENGINES. The following information shall be recorded and kept on file at the facility:

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- 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; and
- 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, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d))**

7. The permittee shall maintain records of all information necessary for all notifications and reports for each engine in FG-ICENGINES, as specified in these special conditions as well as that information necessary to demonstrate compliance with the emission limits of this permit. An example of the information that may be needed includes but is not 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 and landfill gas usage;
 - c. Calculated amount of landfill gas combusted in each engine on a monthly and 12-month rolling basis, as required by SC VI.3;
 - d. Hours of operation on a monthly and 12-month rolling basis, as required by SC VI.4;
 - e. Manufacturer's data, specifications, and operating and maintenance procedures;
 - f. Maintenance activities conducted according to the PM/MAP, as required by SC VI.2;
 - g. 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, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d))**

8. 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, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d))**

VII. REPORTING

1. The permittee shall notify the AQD district office within one week of when the frequency of the gas sampling changes for any reason. **(R 336.1201(3))**
2. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**
3. 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))**
4. 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))**

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- The permittee shall submit a complete report of the stack test results to the AQD District Supervisor in an acceptable format within 60 days after the performance test has been completed. (R 336.1205, R336.1224, R 336.1225, R 336.1702, R 336.2001, R 336.2003, R 336.2004, R 336.2803, R 336.2804, R 336.2810(2), 40 CFR 52.21(j), 40 CFR 52.21(c) and (d))

See Appendix 8-1

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 Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SV-ICENG1	14 ²	60 ²	R 336.1225 R 336.2803 R 336.2804 40 CFR 52.21 (c) & (d)
2. SV-ICENG2	14 ²	60 ²	R 336.1225 R 336.2803 R 336.2804 40 CFR 52.21 (c) & (d)
3. SV-ICENG3	14 ²	60 ²	R 336.1225 R 336.2803 R 336.2804 40 CFR 52.21 (c) & (d)
4. SV-ICENG4	14 ²	60 ²	R 336.1225 R 336.2803 R 336.2804 40 CFR 52.21 (c) & (d)
5. SV-ICENG5	14 ²	60 ²	R 336.1225 R 336.2803 R 336.2804 40 CFR 52.21 (c) & (d)
6. SV-ICENG6	14 ²	60 ²	R 336.1225 R 336.2803 R 336.2804 40 CFR 52.21 (c) & (d)
7. SV-ICENG7	14 ²	60 ²	R 336.1225 R 336.2803 R 336.2804 40 CFR 52.21 (c) & (d)
8. SV-ICENG8	14 ²	60 ²	R 336.1225 R 336.2803 R 336.2804 40 CFR 52.21 (c) & (d)

IX. OTHER REQUIREMENT(S)

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

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2. 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 Subpart ZZZZ, as they apply to each engine. **(40 CFR Part 63, Subparts A and ZZZZ)**

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).

**FG-RICEMACT
FLEXIBLE GROUP CONDITIONS**

DESCRIPTION

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.

Emission Unit: EU-ICENGINE1, EU-ICENGINE2, EU-ICENGINE3, EU-ICENGINE4, EU-ICENGINE5, EU-ICENGINE6, EU-ICENGINE7, EU-ICENGINE8

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

NA

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. Each engine in FG-RICEMACT shall operate in a manner which reasonably minimizes HAP emissions. **(40 CFR 63.6625(c))**
2. Each engine in FG-RICEMACT 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. **(40 CFR 63.6625(h))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The engines in FG-RICEMACT shall equip and maintain separate individual fuel meters to monitor and record the daily fuel usage and volumetric flow rate of each fuel used. **(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), 40 CFR 63.6660)**

1. The engines in FG-RICEMACT, which fire 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. **(40 CFR 63.6625(c))**

VII. REPORTING

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**

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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 reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. The following information shall be included in this annual report: **(40 CFR 63.6650(g), 40 CFR 63.6650(b)(5))**
 - 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. **(40 CFR 63.6650(g)(1))**
 - b. The operating limits provided in the permittee's federally enforceable permit, and any deviations from these limits. **(40 CFR 63.6650(g)(2))**
 - c. Any problems or errors suspected from the fuel flow rate meters. **(40 CFR 63.6650(g)(3))**

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 Subpart ZZZZ, as they apply to each engine in FG-RICEMACT. (40 CFR Part 63, Subparts A and ZZZZ)

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).

**FG-RICENSPS
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: EU-ICENGINE1, EU-ICENGINE2, EU-ICENGINE3, EU-ICENGINE4, EU-ICENGINE5, EU-ICENGINE6, EU-ICENGINE7, EU-ICENGINE8

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. NO _x	2.0 g/hp-hr ²	Hour	Each engine in FG-RICENSPS	SC V.1	40 CFR 60.4233(e)
2. CO	5.0 g/hp-hr ²	Hour	Each engine in FG-RICENSPS	SC V.1	40 CFR 60.4233(e)
3. VOC	1.0 g/hp-hr ²	Hour	Each engine in FG-RICENSPS	SC V.1	40 CFR 60.4233(e)

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall operate and maintain each engine in FG-RICENSPS 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 FG-RICENSPS 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 FGRICENSPS with non-resettable hours meters to track the operating hours. **(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 conduct an initial performance test for each engine in FG-RICENSPS within one year after startup of the engine and 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), unless the engine(s) have been certified by the manufacturer in accordance with 40 CFR Part 60 Subpart JJJJ and the permittee maintains the engine as required by 40 CFR

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60.4243(a)(1). If a performance test is required, the performance tests shall be conducted according to 40 CFR 60.4244. No less than 30 days prior to any 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.² **(40 CFR 60.4243, 40 CFR 60.4244, 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 of the time and place before performance tests are 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 FG-RICENSPS 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 monitor emissions and operating information, including monitoring and recording the hours of operation of each engine in FG-RICENSPS, in accordance with the federal Standards of Performance for New Stationary Sources as specified in 40 CFR Part 60 Subparts A and JJJJ. The permittee shall keep records of all source emissions data and operating information for each engine in FG-RICENSPS on file at the facility and make the records available upon request.² **(40 CFR 60.4245, 40 CFR Subparts A & JJJJ)**

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 initial notification as required by 40 CFR 60.7(a)(1) for each engine in FG-RICENSPS if the engine(s) installed is/are not certified by an engine manufacturer to meet the emission standards in 40 CFR 60.4231. The notification shall include the information below, as specified in 40 CFR 60.4245 (c)(1) through (5):²
 - a. Name and address of the owner or operator; **(40 CFR 60.4245(c)(1))**
 - b. The address of the affected source; **(40 CFR 60.4245(c)(2))**
 - c. Engine information including make, model, engine family, serial number, model year, maximum engine power, and engine displacement; **(40 CFR 60.4245(c)(3))**
 - d. Emission control equipment; and **(40 CFR 60.4245(c)(4))**
 - e. Fuel used. **(40 CFR 60.4245(c)(5))**
 - f. The permittee shall submit the initial notification to the AQD District Supervisor in an acceptable format within 30 days of commencing construction of any engine in FGRICENSPS. **(40 CFR Part 60 Subpart JJJJ)**
5. The permittee shall submit two complete test protocols to the AQD, one to the Technical Programs Unit Supervisor and one to the District Supervisor for approval at least 30 days prior to the anticipated test date. The protocol shall describe the test method(s) and the maximum routine operating conditions, including targets for

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key operational parameters associated with air pollution control equipment to be monitored and recorded during testing.² (R 336.1205, R 336.2001(3))

See Appendix 8-1

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, Subpart A and Subpart JJJJ, as they apply to each engine in FG-RICENSPS.² (40 CFR Part 60 Subparts A and JJJJ)

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).

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. 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
SNCR	Selective Non-Catalytic Reduction	TAC	Toxic Air Contaminant
SRN	State Registration Number	Temp	Temperature
TEQ	Toxicity Equivalence Quotient	THC	Total Hydrocarbons
USEPA/EPA	United States Environmental Protection Agency	tpy	Tons per year
VE	Visible Emissions	µg	Microgram
		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.

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Appendix 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 must 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. 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. 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. Testing Procedures

Specific testing requirement plans, procedures, and averaging times are detailed in the appropriate Source-Wide, Emission Unit and/or Flexible Group Special Conditions. Therefore, this appendix is not applicable.

Appendix 6. 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-N5984-2019. 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-N5984-2019 is being reissued as Source-Wide PTI No. MI-PTI-N5984-2024.

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

Appendix 7. 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 **FGACTIVECOLLECTION-AAAA** and **FGOPENFLARE-AAAA** for 40 CFR Part 63, Subpart AAAA.

Calculation used to determine NMOC emissions from any nonproductive area

The following must be used to determine if any nonproductive area of the landfill may be excluded from control, provided that the total of all excluded areas can be shown to contribute less than one percent of the total amount of

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NMOC emissions from the landfill. The amount, location, and age of the material must be documented and provided to the Department upon request. A separate NMOC emissions estimate must be made for each section proposed for exclusion, and the sum of all such sections must be compared to the NMOC emissions estimate for the entire landfill. **(40 CFR 63.1962(a)(3)(ii))**

The NMOC emissions from each section proposed for exclusion must be computed using Equation 7 (40 CFR 63.1962(a)(3)(ii)(A)):

$$Q_i = 2 k L_o M_i (e^{-kt_i}) (C_{NMOC}) (3.6 \times 10^{-9})$$

Where:

Q_i = NMOC emission rate from the i th section, Mg/yr

k = methane generation rate constant, year⁻¹

L_o = methane generation potential, m³/Mg solid waste

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

t_i = age of the solid waste in the i th section, years

C_{NMOC} = concentration of non-methane organic compounds, ppmv

3.6×10^{-9} = conversion factor

If the permittee is proposing to exclude, or cease gas collection and control from, nonproductive physically separated (e.g., separately lined) closed areas that already have gas collection systems, NMOC emissions from each physically separated closed area must be computed using either Equation 3 in 40 CFR 63.1959(c) or Equation 7 in 40 CFR 63.1962(a)(3)(ii)(A). **(40 CFR 63.1962(a)(3)(ii)(B))**

The values for k and C_{NMOC} determined in field testing must be used if field testing has been performed in determining the NMOC emission rate or the radii of influence (this distance from the well center to a point in the landfill where the pressure gradient applied by the blower or compressor approaches zero). If field testing has not been performed, the default values for k , L_o and C_{NMOC} provided in 40 CFR 63.1959(a)(1) or the alternative values from 40 CFR 63.1959(a)(5) must be used. The mass of nondegradable solid waste contained within the given section may be subtracted from the total mass of the section when estimating emissions provided the nature, location, age, and amount of the nondegradable material is documented as provided in 40 CFR 63.1962(a)(3)(i). **(40 CFR 63.1962(a)(3)(iii))**

Net Heating Value of the gas being combusted in the flare:

The permittee has the choice of adhering to the heat content specifications in 40 CFR 63.11(b)(6)(ii) (equations below), and the maximum tip velocity specifications in 40 CFR 63.11(b)(7) or (b)(8), or adhering to the requirements in 40 CFR 63.11(b)(6)(i). **(40 CFR 63.11(b)(6))**

$$H_T = K \sum_{i=1}^n C_i H_i$$

Where:

H_T = Net heating value of the sample,

MJ/scm; where the net enthalpy per mole of off gas is based on combustion at 25°C and 760 mmHg, but the standard temperature for determining the volume corresponding to one mole is 20°C;

$$K = Constant = (1.740 \times 10^{-7}) \left(\frac{1}{ppm} \right) \left(\frac{g \text{ mole}}{scm} \right) \left(\frac{MJ}{kcal} \right)$$

Where the standard temperature for $\left(\frac{g \text{ mole}}{scm} \right)$ is 20°C;

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C_i = Concentration of sample component i in ppm on a wet basis, as measured for organics by Reference Method 18 and measured for hydrogen and carbon monoxide by ASTM D1946–77 or 90 (Reapproved 1994) (Incorporated by reference as specified in 40 CFR 63.14); and

H_i = Net heat of combustion of sample component i , kcal/g mole at 25°C and 760 mmHg. The heats of combustion may be determined using ASTM D2382–76 or 88 or D4809–95 (incorporated by reference as specified in 40 CFR 63.14) if published values are not available or cannot be calculated.

n = Number of sample components.

Calculation for V_{max} steam-assisted and non-assisted flares

The maximum permitted velocity, V_{max} , for flares complying with 40 CFR 63.11(b)(7)(i) must be calculated and recorded using the equation provided in 40 CFR 63.11(b)(7)(iii). **(40 CFR 63.11(b)(7)(iii))**

$$\text{Log}_{10}(V_{max}) = (H_T + 28.8)/31.7$$

Where:

V_{max} = Maximum permitted velocity, M/sec

28.8 = Constant

31.7 = Constant

H_T = The net heating value as determined in 63.11(b)(6).

Calculation for V_{max} for air-assisted flares

The maximum permitted velocity, V_{max} , for air-assisted flares must be calculated and recorded using the equation provided in 40 CFR 63.11(b)(8). **(40 CFR 63.11(b)(8))**

$$V_{max} = 8.71 + 0.708 (H_T)$$

Where:

V_{max} = Maximum permitted velocity, m/sec

8.71 = Constant

0.708 = Constant

H_T = The net heating value as determined in 63.11(b)(6)(ii).

Appendix 8. Reporting

A. Annual, Semiannual, and Deviation Certification Reporting

The permittee must 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 – SUMPTER ENERGY ASSOCIATES, 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

4. 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))**
5. 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))**
6. 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))**
9. 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.
10. 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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11. 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))**
12. The permittee shall pay fees consistent with the fee schedule and requirements pursuant to Section 5522 of Act 451. **(R 336.1213(1)(g))**
13. This ROP does not convey any property rights or any exclusive privilege. **(R 336.1213(1)(h))**

Equipment & Design

10. 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)**
11. 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

13. 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.

14. 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

16. 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)**
17. 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))**
18. 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))**

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Monitoring/Recordkeeping

18. 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.
19. 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

22. 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 states 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))**
23. 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))**
24. 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))**
25. 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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26. 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.
27. 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))**
28. 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))**
29. 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

27. 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.
28. Nothing in this ROP shall alter or affect any of the following:
 - d. 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))**
 - e. 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))**
 - f. 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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- e. The ability of the USEPA to obtain information from a source pursuant to Section 114 of the CAA. **(R 336.1213(6)(b)(iv))**
- 29. The permit shield shall not apply to provisions incorporated into this ROP through procedures for any of the following:
 - f. Operational flexibility changes made pursuant to Rule 215. **(R 336.1215(5))**
 - g. Administrative Amendments made pursuant to Rule 216(1)(a)(i)-(iv). **(R 336.1216(1)(b)(iii))**
 - h. 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))**
 - i. Minor Permit Modifications made pursuant to Rule 216(2). **(R 336.1216(2)(f))**
 - j. State-Only Modifications made pursuant to Rule 216(4) until the changes have been approved by the department. **(R 336.1216(4)(e))**
- 34. 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

- 35. 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)**
- 36. 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))**
- 37. 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))**
- 38. 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

- 35. 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))**

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Renewals

38. 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

39. 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 reclaiming, 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.
40. 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

42. 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).
43. 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.
44. 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.
45. 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

47. 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))**

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Permit to Install (PTI)

48. 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))**
49. 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)**
50. 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)**
51. 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).

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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.

SOURCE-WIDE CONDITIONS

POLLUTION CONTROL EQUIPMENT

Sulfur/Total Reduced Sulfur removal system

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))

NA

VI. MONITORING/RECORDKEEPING

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

NA

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))

See Appendix 8-2

VIII. STACK/VENT RESTRICTION(S)

NA

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IX. OTHER REQUIREMENT(S)

1. The operational restrictions and testing requirements in SC II.1, SC III.3 and SC V.3 under FG-ICENGINES at Pine Trees Acres (section 1) also applies to the landfill gas supplied to FG-ENGINES at the facility operated by Sumpter Energy (section 2). **(R 336.1213(3), R 336.2803, R 336.2804, 40 CFR 52.21 (c) & (d))**

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).

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C. EMISSION UNIT 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
EU-ENGINE1	Reciprocating internal combustion engine. Landfill gas fired internal combustion engines (ICE) manufactured by Caterpillar Inc. (Model No. 3516) and rated at 1138 HP and 8.6 MMBtu/hr	07/24/01	FG-ENGINES FG-RICEMACT
EU-ENGINE2	Reciprocating internal combustion engine. Landfill gas fired internal combustion engines (ICE) manufactured by Caterpillar Inc. (Model No. 3516) and rated at 1138 HP and 8.6 MMBtu/hr	07/24/01	FG-ENGINES FG-RICEMACT
EU-ENGINE3	Reciprocating internal combustion engine. Landfill gas fired internal combustion engines (ICE) manufactured by Caterpillar Inc. (Model No. 3516) and rated at 1138 HP and 8.6 MMBtu/hr	07/24/01	FG-ENGINES FG-RICEMACT
EU-ENGINE4	Reciprocating internal combustion engine. Landfill gas fired internal combustion engines (ICE) manufactured by Caterpillar Inc. (Model No. 3516) and rated at 1138 HP and 8.6 MMBtu/hr	07/24/01	FG-ENGINES FG-RICEMACT
EU-ENGINE5	Reciprocating internal combustion engine. Landfill gas fired internal combustion engines (ICE) manufactured by Caterpillar Inc. (Model No. 3516) and rated at 1138 HP and 8.6 MMBtu/hr	07/24/01	FG-ENGINES FG-RICEMACT
EU-ENGINE6	Reciprocating internal combustion engine. Landfill gas fired internal combustion engines (ICE) manufactured by Caterpillar Inc. (Model No. 3516) and rated at 1138 HP and 8.6 MMBtu/hr	07/24/01	FG-ENGINES FG-RICEMACT
EU-ENGINE7	Reciprocating internal combustion engine. Landfill gas fired internal combustion engines (ICE) manufactured by Caterpillar Inc. (Model No. 3516) and rated at 1138 HP and 8.6 MMBtu/hr	07/24/01	FG-ENGINES FG-RICEMACT

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Emission Unit ID	Emission Unit Description (Including Process Equipment & Control Device(s))	Installation Date/ Modification Date	Flexible Group ID
EU-ICENGINE8	Spark ignition, lean burn, reciprocating internal combustion engine (Caterpillar G3520C, 2,233 bhp at 100% load) for combusting treated landfill gas to produce electricity (1.6-megawatt gross electrical output). The engine will drive an associated generator set to produce the electricity.	03/02/10	FG-ICENGINE2 FG-RICEMACT
EU-ICENGINE9	Spark ignition, lean burn, reciprocating internal combustion engine (Caterpillar G3520C, 2,233 bhp at 100% load) for combusting treated landfill gas to produce electricity (1.6-megawatt gross electrical output). The engine will drive an associated generator set to produce the electricity.	03/02/10	FG-ICENGINE2 FG-RICEMACT
EU-ICENGINE10	Spark ignition, lean burn, reciprocating internal combustion engine (Caterpillar G3520C, 2,242 bhp at 100% load) for combusting treated landfill gas to produce electricity (1.6-megawatt gross electrical output). The engine will drive an associated generator set to produce the electricity. This emission unit, and any replacement of this unit as applicable under R 336.1285(a)(vi), is for a Caterpillar G3520C internal combustion engine greater than 500hp fueled with treated landfill/digester gas to produce electricity. The engine is subject to the New Source Performance Standard for spark ignition engines (40 CFR Part 60 Subpart JJJJ) that meet the following definition: 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.	TBD	FG-RICEMACT10

**EU-ICENGINE10
EMISSION UNIT CONDITIONS**

DESCRIPTION

Spark ignition, lean burn, reciprocating internal combustion engine (Caterpillar G3520C, 2,242 bhp at 100% load) for combusting treated landfill gas to produce electricity (1.6-megawatt gross electrical output). The engine will drive an associated generator set to produce the electricity. This emission unit, and any replacement of this unit as applicable under R 336.1285(a)(vi), is for a Caterpillar G3520C internal combustion engine greater than 500hp fueled with treated landfill/digester gas to produce electricity.

The engine is subject to the New Source Performance Standard for spark ignition engines (40 CFR Part 60 Subpart JJJJ) that meet the following definition: 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.

Flexible Group ID: FG-RICEMACT10

POLLUTION CONTROL EQUIPMENT

Electronic air-to-fuel ratio controller

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. NO _x	3.00 lb/hr ²	Hourly	EU-ICENGINE10	SC V.1	R 336.1205 40 CFR 52.21(c) & (d)
2. NO _x	2.0 g/bhp-hr ² or 150 ppmvd corrected to 15% O ₂	Hourly	EU-ICENGINE10	SC V.3	40 CFR Part 60 Subpart JJJJ 40 CFR 60.4233(e) and Table 1
3. CO	16.3 lb/hr ²	Hourly	EU-ICENGINE10	SC V.1	R 336.1205 40 CFR 52.21(d)
4. CO	5.0 g/bhp-hr ² or 610 ppmvd corrected to 15% O ₂	Hourly	EU-ICENGINE10	SC V.3	40 CFR Part 60 Subpart JJJJ 40 CFR 60.4233(e) and Table 1
5. VOC	4.84 lb/hr ²	Hourly	EU-ICENGINE10	SC V.1	R 336.1702
6. VOC	1.0 g/bhp-hr ² or 80 ppmvd corrected to 15% O ₂	Hourly	EU-ICENGINE10	SC V.3	40 CFR Part 60 Subpart JJJJ 40 CFR 60.4233(e) and Table 1
7. Formaldehyde	2.08 lb/hr ¹	Hourly	EU-ICENGINE10	SC V.2	R 336.1225
8. SO ₂	4.71 lb/hr ²	Monthly Average (based on the calculation in Appendix 7-2)	EU-ICENGINE10	SC V.1 SC V.4 SC VI.5	40 CFR 52.21(c) & (d)

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II. MATERIAL LIMIT(S)

Material	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. Treated Landfill Gas as specified in SC III.1	321.7 MMscf ² per year	12-month rolling time period as determined at the end of each calendar month	EU-ICENGINE10	SC VI.4	R 336.1205(1)(a) & (3) R 336.1225 R 336.1702(a)

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall only burn landfill gas in EU-ICENGINE10. The landfill gas must be treated in a system which complies with 40 CFR 60.752(b)(2)(iii)(C).² **(R 336.1225, R 336.1331, R 336.1702, 40 CFR 60.752(b)(2)(iii)(C))**
2. No later than 60 days prior to startup, the permittee shall submit to the AQD District Supervisor, for review and approval, a malfunction abatement/preventative maintenance plan for EU-ICENGINE10. After approval of the malfunction abatement/preventative maintenance plan by the AQD District Supervisor, the permittee shall not operate EU-ICENGINE10 unless the malfunction abatement/preventative maintenance plan, or an alternate 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.
 - f. For the exhaust system, include the design flow rate of the system and the method with which the exit velocity will be monitored, including a description of how the monitoring device will be operated and maintained

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, 40 CFR 52.21(c) & (d))**

3. The permittee shall operate and maintain EU-ICENGINE10 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))**
4. 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 EU-ICENGINE10 and shall, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions.² **(40 CFR 60.4243(b))**
5. EU-ICENGINE10 shall operate in a manner which reasonably minimizes HAP emissions.² **(40 CFR 63.6625(c))**

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6. EU-ICENGINE10 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 the engine, not to exceed 30 minutes.² **(40 CFR 63.6625(h))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall not operate EU-ICENGINE10 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 EU-ICENGINE10 shall not exceed 2,242 hp, (engine work output) 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 permittee shall equip and maintain EU-ICENGINE10 with a device to monitor and record the daily fuel usage.² **(R 336.1205, R 336.1225, R 336.1702)**
4. The permittee shall equip and maintain EU-ICENGINE10 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. Within 180 days after initial startup of EU-ICENGINE10 and within every five years from the date of completion of the most recent stack test, thereafter, the permittee shall verify NO_x, CO, SO₂, and VOC emission rates, from EU-ICENGINE10 at maximum routine operating conditions, by testing at owner's expense, in accordance with Department requirements. No less than 30 days prior to any 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.² **(R 336.1702(a), R 336.2001, R 336.2003, R 336.2004, 40 CFR 52.21(c) & (d))**
2. Within 180 days after initial startup of EU-ICENGINE10 and within every five years from the date of completion of the most recent stack test, thereafter, the permittee shall verify formaldehyde emission rate from EU-ICENGINE10 at maximum routine operating conditions, by testing at owner's expense, in accordance with Department requirements. 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 final plan must be approved by the AQD 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.² **(R 336.1225, R 336.2001, R 336.2003, R 336.2004)**
3. Except as provided in 40 CFR 60.4243(b), the permittee shall conduct an initial performance test for EU-ICENGINE10 within one year after startup of the engine and 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), unless the engine(s) have been certified by the manufacturer in accordance with 40 CFR Part 60 Subpart JJJJ and the permittee maintains the engine as required by 40 CFR 60.4243(a)(1). If a performance test is required, the performance tests shall be conducted according to 40 CFR 60.4244. No less than 30 days prior to any 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.² **(40 CFR 60.8, 40 CFR 60.4243, 40 CFR 60.4244, 40 CFR 60.4245, 40 CFR Part 60 Subpart JJJJ)**
4. The permittee shall verify the hydrogen sulfide (H₂S) or total reduced sulfur (TRS) content of the treated landfill gas burned in EU-ICENGINE10 on a monthly basis by gas testing at owner's expense, in accordance with Department requirements. No less than 60 days prior to the initial test, the permittee shall submit a complete test plan to the AQD District Office. The AQD must approve the final plan prior to the first test. Thereafter, the permittee shall submit a test plan upon the request of the AQD District Supervisor. If at any time the H₂S (TRS

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equivalent) concentration readings exceed 770 ppm, the permittee shall conduct sampling and recording on a weekly basis 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 concentration determined from the weekly readings are maintained below 770 ppm of H₂S/TRS concentration in the landfill gas for one month after an exceedance, the permittee may resume monthly monitoring and recordkeeping. 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), 40 CFR 52.21 (c) & (d))**

5. Testing shall be performed using an approved EPA Method listed in:

Pollutant	Test Method Reference
NOx	40 CFR Part 60, Appendix A
SO ₂	40 CFR Part 60, Appendix A
CO	40 CFR Part 60, Appendix A
VOC	40 CFR Part 60, Appendix A
HAPs	40 CFR Part 63, Appendix A

An alternate method, or a modification to the approved EPA Method, may be specified in an AQD-approved Test Protocol. **(R 336.1213(3), R 336.2003)**

6. The permittee shall notify the AQD Technical Programs Unit Supervisor and the District Supervisor not less than 30 days of the time and place before performance tests are conducted. **(R 336.1213(3))**

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years.² **(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, in a satisfactory manner, the total landfill gas fuel usage for EU-ICENGINE10 and the hours of operation for EU-ICENGINE10.² **(40 CFR 52.21(c) & (d), 40 CFR Part 60 Subpart JJJJ)**
3. The permittee shall maintain a log of all maintenance activities conducted according to the malfunction abatement/preventative maintenance plan (pursuant to SC III.2). The permittee shall keep this log on file at the facility and make it available to the Department upon request.² **(R 336.1702(a), R 336.1911, R 336.1912, 40 CFR 52.21(c) & (d))**
4. The permittee shall keep, in a satisfactory manner, records of the landfill gas usage for EU-ICENGINE10 and the hours of operation for EU-ICENGINE10 on a daily basis, as required by SC VI.2. The permittee shall keep all records on file at the facility and make them available to the Department upon request.² **(R 336.1225, R 336.1702, R 336.1910, 40 CFR 52.21(c) & (d), 40 CFR Part 60 Subpart JJJJ, 40 CFR 63.6625(c))**
5. The permittee shall calculate and record the SO₂ emission rates from EU-ICENGINE10 using the equation in Appendix 7-2, or other method as approved by the AQD District Supervisor. The calculations shall utilize monthly gas testing data collected (SC V.4), the actual monthly gas usage, hours of operation, and the average ratio of total sulfur to sulfur as H₂S from the most recent laboratory test. 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))**
6. The permittee shall monitor emissions and operating information, including monitoring and recording the hours of operation of EU-ICENGINE10, in accordance with the federal Standards of Performance for New Stationary Sources as specified in 40 CFR Part 60 Subparts A and JJJJ. The permittee shall keep records of all source emissions data and operating information for EU-ICENGINE 10 on file at the facility and make the records available upon request.² **(40 CFR Subparts A & JJJJ, 40 CFR 60.4245))**

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7. The permittee shall monitor and record, on a monthly basis, the average Btu content of the landfill gas burned in EU-ICENGINE10. The permittee shall keep all records on file at the facility and make them available to the Department upon request.² **(R 336.1702(a), 40 CFR 52.21(c) & (d))**
8. The permittee shall maintain the following record for EU-ICENGINE10. 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 and model year;
 - d. Maximum engine power;
 - e. Engine serial number;
 - f. Engine specification sheet;
 - g. Date of initial startup of the engine; and
 - 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))**

9. The permittee shall maintain records of all information necessary for all notifications and reports for EU-ICENGINE10, 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 and landfill gas usage;
 - c. Calculated amount of landfill gas combusted in the engine on a monthly and 12-month rolling basis;
 - d. Hours of operation on a monthly and 12-month rolling basis;
 - e. Manufacturer's data, specifications, and operating and maintenance procedures;
 - f. Maintenance activities conducted according to the PM/MAP;
 - g. All calculations necessary to show compliance with the limits contained in this permit.

All of the above information shall be kept on file and 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))**

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 initial notification as required by 40 CFR 60.7(a)(1) for EU-ICENGINE10 if the engine(s) installed is/are not certified by an engine manufacturer to meet the emission standards in 40 CFR 60.4231. The notification shall include the information below, as specified in 40 CFR 60.4245 (c)(1) through (5):
 - a. Name and address of the owner or operator; **(40 CFR 60.4245(c)(1))**
 - b. The address of the affected source; **(40 CFR 60.4245(c)(2))**

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- c. Engine information including make, model, engine family, serial number, model year, maximum engine power, and engine displacement; **(40 CFR 60.4245(c)(3))**
- d. Emission control equipment; and **(40 CFR 60.4245(c)(4))**
- e. Fuel used. **(40 CFR 60.4245(c)(5))**

The permittee shall submit the initial notification to the AQD District Supervisor in an acceptable format within 30 days of commencing construction of EU-ICENGINE10.² **(40 CFR Part 60 Subpart JJJJ)**

- 5. 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 no later than January 31.² **(40 CFR 63.6650(g), 40 CFR 63.6650(b)(5))** 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))**
- 6. At least seven (7) days prior to startup of EU-ICENGINE10, the permittee shall notify the AQD District Supervisor that the stack installation has been completed and certify that the stack meets the parameters as specified in SC VIII.1 to the satisfaction of the AQD. The permittee shall submit the exhaust fan design specifications, if applicable, for EU-ICENGINE10 exhaust stack along with the certification/demonstration that the stack for EU-ICENGINE10 meets the parameters specified in SC VIII.1. ² **(R 336.1201(3), R 336.1225, 40 CFR 52.21(c) & (d))**
- 7. The permittee shall notify the AQD district office within one week of when the frequency of the gas sampling changes for any reason. **(R 336.1201(3))**
- 8. 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)

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 Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SV-ENG10	16 ²	95 ²	R 336.1225 40 CFR 52.21(c) & (d)

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, Subpart A and Subpart JJJJ, as they apply to EUICENGINE10. **(40 CFR Part 60 Subparts A and JJJJ)**

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2. The permittee shall comply with all applicable provisions of the National Emission Standards for Hazardous Air Pollutants, as specified in 40 CFR, Part 63, Subpart A and Subpart ZZZZ. **(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).

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D. FLEXIBLE GROUP 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
FG-ENGINES	Seven reciprocating internal combustion engines (RICE) that will only combust treated landfill gas for fuel. Each engine drives an associated generator set for producing electricity.	EU-ENGINE1 EU-ENGINE2 EU-ENGINE3 EU-ENGINE4 EU-ENGINE5 EU-ENGINE6 EU-ENGINE7
FG-ICENGINE2	Two reciprocating internal combustion engines (RICE) that will only combust treated landfill gas for fuel. Each engine drives an associated generator set for producing electricity.	EU-ICENGINE8 EU-ICENGINE9
FG-RICEMACT	All existing, new and reconstructed engines located at a Major Source of HAPS, > 500 HP, non-emergency, firing Landfill/Digester Gas. New and reconstructed engines commenced construction or reconstruction on or after December 19, 2002, and the compliance date for these engines is upon start-up.	EU-ENGINE1 EU-ENGINE2 EU-ENGINE3 EU-ENGINE4 EU-ENGINE5 EU-ENGINE6 EU-ENGINE7 EU-ICENGINE8 EU-ICENGINE9
FG-RICEMACT10	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	EU-ICENGINE10

**FG-ENGINES
FLEXIBLE GROUP CONDITIONS**

DESCRIPTION

Seven reciprocating internal combustion engines (RICE) that will only combust treated landfill gas for fuel. Each engine drives an associated generator set for producing electricity.

Emission Units: EU-ENGINE1, EU-ENGINE2, EU-ENGINE3, EU-ENGINE4, EU-ENGINE5, EU-ENGINE6, EU-ENGINE7

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. NO _x	35.2 lbs/hr ²	Hour	FG-ENGINES	SC V.1	R 336.1201(3)
2. NO _x	154.2 tpy ²	12-month rolling time period as determined at the end of each calendar month	FG-ENGINES	SC V.1	R 336.1201(3)
3. CO	51.1 lbs/hr ²	Hour	FG-ENGINES	SC V.1	R 336.1201(3)
4. CO	223.8 tpy ²	12-month rolling time period as determined at the end of each calendar month	FG-ENGINES	SC V.1	R 336.1201(3)
5. HCl	0.7 lbs/hr ¹	Hour	FG-ENGINES	SC V.1	R 336.1224(1) R 336.1225
6. HCl	3.0 tpy ¹	12-month rolling time period as determined at the end of each calendar month	FG-ENGINES	SC V.1	R 336.1224(1) R 336.1225
7. NMOC	8.8 lbs/hr ²	Hour	FG-ENGINES	SC V.1	R 336.1702(a)
8. NMOC	38.5 tpy ²	12-month rolling time period as determined at the end of each calendar month	FG-ENGINES	SC V.1	R 336.1702(a)

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

- The permittee shall only burn landfill gas in FG-ENGINES that has been treated in a system which complies with 40 CFR 60.752(b)(2)(iii)(C). (R 336.1213(2))

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2. Within 60 days of permit issuance, the permittee shall not operate FG-ENGINES unless the preventative maintenance/malfunction abatement plan (PM/MAP) or an alternate 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 PM/MAP to be inadequate, the AQD District Supervisor may request modification of the plan to address those inadequacies. **(R 336.1213(2), R 336.1911)**

3. Based on each engine's kilowatt output, the permittee shall adjust the engine's air/fuel ratio, as needed, to ensure that the engine operates at its maximum design output based on the fuel available to burn. **(R 336.1213(2))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall not operate any engine in FG-ENGINES unless that engine's air/fuel ratio controller is installed, maintained and operated in a satisfactory manner. **(R 336.1213(2))**
2. The permittee shall equip each engine in FG-ENGINES with a device to monitor and record the hours of operation for each engine. **(R 336.1213(2))**
3. The permittee shall equip FG-ENGINES with a device to monitor and record the total daily fuel usage of the engines. **(R 336.1213(2))**

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 verify NO_x, CO, HCl and NMOC emission rates from each engine in FG-ENGINES by testing at owner's expense, in accordance with the Department requirements. Testing shall be performed using an approved EPA Method listed in:

Pollutant	Test Method Reference
NO _x	40 CFR Part 60, Appendix A
CO	40 CFR Part 60, Appendix A
HCl	40 CFR Part 60, Appendix A
NMOC	40 CFR Part 60, Appendix A

An alternate 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

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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.

The permittee must submit 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)**

2. The permittee shall determine, by sampling on an annual basis, the chlorine compounds present in the landfill gas (LFG) stream influent to FG-ENGINES. Sampling shall be done by Method 18, or alternate method as approved by the AQD District Supervisor. No less than 30 days prior to testing, the permittee shall submit a complete sampling plan to the AQD Technical Programs Unit and District Office. The AQD must approve the final plan prior to sampling, 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 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)**
3. Within 180 days of permit issuance or five years from the last test date, whichever is later, and then every five years thereafter, the permittee shall verify the NO_x, CO, HCl and NMOC emission rates from each engine in FG-ENGINES. **(R 336.1213(3), R 336.2001, R 336.2003, R 336.2004)**
4. The permittee shall notify the AQD Technical Programs Unit Supervisor and the District Supervisor not less than 30 days of the time and place before performance tests are conducted. **(R 336.1213(3))**

See Appendix 7-2

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 continuously monitor and record the following parameters:
 - a. Electrical output (KW) of each generator driven by each internal combustion engine.
 - b. Hours of operation of each generator driven by each internal combustion engine.²
 - c. Total flow of landfill gas to FG-ENGINES (HCl compliance).

The permittee shall use the equations and emission factors as specified in Appendix 7-2 to calculate the emissions of CO, NO_x, HCl, and NMOC for each engine. Records of the monitored parameters and calculations shall be kept on file and made available to the Department upon request.² **(R 336.1224, R 336.1225, R 336.1702(a), 40 CFR 52.21(c) & (d))**

2. The permittee shall measure and record the heating value of the landfill gas used as fuel in the ICEs on a weekly basis (for HCl compliance). **(R 336.1213(3))**
3. The permittee shall keep a written record of the chlorinated compound content of the LFG as determined in the most recent sampling and analysis. **(R 336.1213(3))**
4. The permittee shall monitor and record the temperature of the air/fuel mixture at the after cooler outlet a minimum of once per day, excluding holidays and weekends, when an engine operator is not scheduled or called in, to be on site. A list of excluded holidays shall be maintained on site and be made available to the Air Quality Division upon request. **(R 336.1213(3))**
5. The permittee shall record and report as a deviation any air/fuel mixture temperature reading greater than five degrees Fahrenheit in excess of the maximum air/fuel mixture temperature observed during the performance test in which compliance with the NO_x emission limit was established. **(R 336.1213(3))**
6. The permittee shall maintain a monthly log of all maintenance activities conducted on each engine in FG-ENGINES, including but not limited to the following: daily maintenance activities, top-end repairs, major overhauls, and engine replacements. **(R 336.1213(3))**

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7. The permittee shall maintain the following record for FG-ENGINES. 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 and model year;
 - d. Maximum engine power;
 - e. Engine serial number;
 - f. Engine specification sheet;
 - g. Date of initial startup of the engine; and
 - 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. **(R 336.1213(3), R 336.1911)**

8. The permittee shall maintain records of all information necessary for all notifications and reports for FG-ENGINES, 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/sampling required under the special conditions of this permit;
 - b. Monitoring data for the hours of operation and landfill gas usage;
 - c. Calculated amount of landfill gas combusted in the engines on a monthly and 12-month rolling basis;
 - d. Hours of operation on a monthly and 12-month rolling basis;
 - e. Manufacturer's data, specifications, and operating and maintenance procedures;
 - f. Maintenance activities conducted according to the PM/MAP;
 - g. All calculations necessary to show compliance with the limits contained in this permit.

All of the above information shall be kept on file and stored in a format acceptable to the AQD District Supervisor. **(R 336.1213(3))**

See Appendix 7-2

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))**

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:

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Stack & Vent ID	Maximum Exhaust Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SV-ICE1	12 ²	23 ²	R 336.1225, 40 CFR 52.21(c) & (d)
2. SV-ICE2	12 ²	23 ²	R 336.1225, 40 CFR 52.21(c) & (d)
3. SV-ICE3	12 ²	23 ²	R 336.1225, 40 CFR 52.21(c) & (d)
4. SV-ICE4	12 ²	23 ²	R 336.1225, 40 CFR 52.21(c) & (d)
5. SV-ICE5	12 ²	23 ²	R 336.1225, 40 CFR 52.21(c) & (d)
6. SV-ICE6	12 ²	23 ²	R 336.1225, 40 CFR 52.21(c) & (d)
7. SV-ICE7	12 ²	23 ²	R 336.1225, 40 CFR 52.21(c) & (d)

IX. OTHER REQUIREMENT(S)

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

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).

**FG-ICENGINE2
FLEXIBLE GROUP CONDITIONS**

DESCRIPTION

Two reciprocating internal combustion engines (RICE) that will only combust treated landfill gas for fuel. Each engine drives an associated generator set for producing electricity.

Emission Unit: EU-ICENGINE8, EU-ICENGINE9

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. CO	3.3 g/bhp-hr ²	Hour	Each engine in FG-ICENGINE2	SC V.1 SC V.2	R 336.2804 R 336.2810 40 CFR 52.21(d) & (j) 40 CFR Part 60 Subpart JJJJ
2. CO	16.3 lbs/hr ²	Hour	Each engine in FG-ICENGINE2	SC V.1	R 336.2804 40 CFR 52.21(d) & (j)
3. NO _x	0.6 g/bhp-hr ²	Hour	Each engine in FG-ICENGINE2	SC V.1 SC V.2	40 CFR Part 60 Subpart JJJJ
4. NO _x	3.0 lbs/hr ²	Hour	Each engine in FG-ICENGINE2	SC V.1	R 336.2803 R 336.2804 40 CFR 52.21(c) & (d)
5. SO ₂	7.5 lbs/hr ²	Hour	FG-ICENGINE2	SC V.1 SC V.3	R 336.1205(3) R 336.2803 R 336.2804 40 CFR 52.21(c) & (d)
6. VOC	1.0 g/bhp-hr ²	Hour	Each engine in FG-ICENGINE2	SC V.2	40 CFR Part 60 Subpart JJJJ R 336.1702(b)

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall only burn landfill gas in FG-ICENGINE2 that has been treated in a system which complies with 40 CFR 60.752(b)(2)(iii)(C).² (R 336.1225, R 336.1331, R 336.1702(b), 40 CFR 63.6625(c))

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2. The permittee shall not operate FG-ICENGINE2 unless the malfunction abatement/preventative maintenance plan, or an alternate 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, R 336.1910, R 336.1911, R 336.1912, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d))**

3. The permittee shall operate each of the stationary reciprocating internal combustion engines (RICE) in a manner which reasonably minimizes HAP emissions.² **(40 CFR 63.6625(c))**
4. Based on each engine's kilowatt output, the permittee shall adjust the engine's air/fuel ratio, as needed, to ensure that the engine operates at its maximum design output based on the fuel available to burn.² **(R 336.1702, R 336.1910, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d))**
5. The permittee shall not operate FG-ICENGINE2 unless the sulfur monitoring and emission curtailment plan on file, or an alternate plan approved by the AQD District Supervisor, is implemented and maintained. **(R 336.1213(3))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall not operate any engine in FG-ICENGINE2 unless that engine's air/fuel ratio controller is installed, maintained and operated in a satisfactory manner.² **(R 336.1702, R 336.1910)**
2. The permittee shall equip each engine in FG-ICENGINE2 with a device to monitor and record the hours of operation for each engine.² **(40 CFR Part 60, Subpart JJJJ)**
3. The permittee shall equip FG-ICENGINE2 with a device to monitor and record the total daily fuel usage of the engines.² **(R 336.1201(3), R 336.1225, 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))**

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1. Except as provided in 40 CFR 60.4243(b), the permittee shall conduct an initial performance test for each engine in FG-ICENGINE2 within one year after startup of the engine and 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), unless the engines have been certified by the manufacturer as required by 40 CFR Part 60, Subpart JJJJ and the permittee maintains the engine as required by 40 CFR 60.4243(a)(1). If a performance test is required, the performance test(s) shall be conducted according to 40 CFR 60.4244. No less than 30 days prior to testing, a complete test plan shall be submitted to the AQD. The final plan must be approved by the AQD prior to testing.² **(40 CFR 60.4243, 40 CFR 60.4244, 40 CFR Part 60, Subpart JJJJ)**
2. The permittee shall verify NO_x, SO₂, VOC, and CO emission rates from each engine in FG-ICENGINE2, by testing at owner's expense, in accordance with Department requirements. 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.² **(R 336.1213(3), R 336.2001, R 336.2803, R 336.2804, R 336.2003, R 336.2004, 40 CFR 52.21(c) & (d))**
3. The permittee shall verify the hydrogen sulfide or total reduced sulfur content of the treated landfill gas burned in FG-ICENGINE2 on a monthly basis by gas sampling. In addition, as outlined in the sulfur monitoring and emission curtailment plan, gas sampling shall be verified on a weekly basis whenever the monthly hydrogen sulfide or total reduced sulfur content level indicates a concentration of 500 ppmv or greater, and on a daily basis whenever a hydrogen sulfide or total reduced sulfur content concentration of 600 ppmv is observed. Once daily monitoring is triggered, the permittee will perform monitoring at least once per day (excluding weekends and holidays) until the measured hydrogen sulfide or total reduced sulfur content returns to a value of less than 600 ppmv. If after a year, each of the monthly concentrations of the hydrogen sulfide or total reduced sulfur concentration of the landfill gas are below 500 ppm (TRS equivalent), the permittee may petition the District Supervisor, Air Quality Division to reduce the frequency of gas sampling and recording the hydrogen sulfide/total reduced sulfur concentration of the treated landfill gas to once each calendar quarter. If, after two calendar years of quarterly sampling, each of the quarterly concentrations of the hydrogen sulfide or total reduced sulfur concentration of the landfill gas are below 500 ppm (TRS equivalent), the permittee may petition the District Supervisor, Air Quality Division to reduce the frequency of gas sampling and recording the hydrogen sulfide/total reduced sulfur concentration of the treated landfill gas to once each calendar year. If at any time the concentration readings exceed 500 ppm (TRS equivalent), the permittee shall review all operating and maintenance activities for the landfill gas collection and treatment system along with keeping records of corrective actions. The permittee shall notify the Department at least seven (7) days prior to sampling. The permittee shall keep all records on file at the facility for a period of at least five years and make them available to the Department upon request. **(R 336.1213(3))**
4. Testing shall be performed using an approved EPA Method listed in:

Pollutant	Test Method Reference
NO _x	40 CFR Part 60, Appendix A
SO ₂	40 CFR Part 60, Appendix A
VOC	40 CFR Part 60, Appendix A
CO	40 CFR Part 60, Appendix A

An alternate method, or a modification to the approved EPA Method, may be specified in an AQD-approved Test Protocol. **(R 336.1213(3), R 336.2001, R 336.2003, R 336.2004)**

5. Within 180 days of permit issuance or five years from the last test date, whichever occurs later, and then every five years thereafter, the permittee shall verify the CO, NO_x, SO₂, and VOC emission rates from each engine in FG-ICENGINE2. **(R 336.1213(3), R 336.2001, R 336.2003, R 336.2004)**
6. The permittee shall notify the AQD Technical Programs Unit Supervisor and the District Supervisor not less than 30 days of the time and place before performance tests are conducted. **(R 336.1213(3))**

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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 continuously monitor, in a satisfactory manner, the total landfill gas fuel usage of the engines and the hours of operation for each engine in FG-ICENGINE2.² **(R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d), 40 CFR 63.6625(c), 40 CFR Part 60 Subpart JJJJ)**
2. The permittee shall maintain a log of all maintenance activities conducted according to the malfunction abatement/preventative maintenance plan (pursuant to SC III.2). The permittee shall keep this log on file at the facility and make it available to the Department upon request.² **(R 336.1702, R 336.1911, R 336.1912, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d))**
3. The permittee shall keep, in a satisfactory manner, records of the total landfill gas usage of the engines and the hours of operation for each engine in FG-ICENGINE2 on a daily basis, as required by SC VI.1. The permittee shall keep all records on file at the facility and make them available to the Department upon request.² **(R 336.1225, R 336.1702, R 336.1910, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d), 40 CFR 63.6655(c), 40 CFR Part 60 Subpart JJJJ)**
4. The permittee shall keep, in a satisfactory manner, monthly SO₂ mass emission calculation records for each engine in FG-ICENGINE2. The SO₂ emission calculations shall be based on the most recent landfill gas sulfur content sampling results (per the sampling required under SC V.3) and the monthly landfill gas usage of the engines. The permittee shall keep all records on file and make them available to the Department upon request.² **(R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d))**
5. The permittee shall monitor emissions and operating information, including monitoring and recording the hours of operation of each engine in FG-ICENGINE2, in accordance with the federal Standards of Performance for New Stationary Sources as specified in 40 CFR Part 60, Subparts A and JJJJ. The permittee shall keep records of all source emissions data and operating information for each engine in FG-ICENGINE 2 on file at the facility and make the records available upon request.² **(40 CFR Part 60, Subparts A & JJJJ, 40 CFR 60.4245)**
6. The permittee shall continuously monitor and record, in a satisfactory manner, the kilowatt output from each engine in FG-ICENGINE2.² **(R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d))**
7. The permittee shall calculate and keep records of the daily gas usage for each engine on a monthly basis using the kilowatt output from each engine. All daily gas usage calculations for each engine in FG-ICENGINE2 shall be done at the end of each calendar month and made available by the 15th of the following calendar month. The permittee shall keep all records on file at the facility and make them available to the Department upon request.² **(R 336.1702, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d))**
8. The permittee shall monitor and record, on a monthly basis, the average Btu content of the landfill gas burned in FG-ICENGINE2. The permittee shall keep all records on file at the facility and make them available to the Department upon request.² **(R 336.1702, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d))**

VII. REPORTING

1. The results of the monthly sulfur monitoring shall be submitted to the appropriate AQD District Office, along with SO₂ emission calculations, within 7 days of the monitoring event.
2. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**
3. 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))**

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4. 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))**
5. 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 reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(40 CFR 63.6650(g), 40 CFR 63.6650(b)(5))** The following information shall be included in this annual report:²
 - a. The permittee shall report the fuel flow rate and the heating value that was used in the permittee’s calculations. **(40 CFR 63.6650(g)(1))**
 - b. The permittee shall report the operating limits provided in the permittee’s federally enforceable permit, and any deviations from these limits. **(40 CFR 63.6650(g)(2))**
 - c. The permittee shall report any problems or errors suspected from the fuel flow rate meters. **(40 CFR 63.6650(g)(3))**
6. The permittee shall submit any performance test and sampling 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)

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 Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SV-ICENGINE8	16 ²	40 ²	R 336.1225 R 336.2803 R 336.2804 40 CFR 52.21 (c) & (d)
2. SV-ICENGINE9	16 ²	40 ²	R 336.1225 R 336.2803 R 336.2804 40 CFR 52.21 (c) & (d)

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, Subpart A and Subpart JJJJ, as they apply to FG-ICENGINE 2.² **(40 CFR Part 60, Subparts A and JJJJ)**
2. The permittee shall comply with all applicable provisions of the National Emission Standards for Hazardous Air Pollutants, as specified in 40 CFR, Part 63, Subpart A and Subpart ZZZZ, as they apply to FG-ICENGINE 2.² **(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).

**FG-RICEMACT
FLEXIBLE GROUP CONDITIONS**

DESCRIPTION

All existing, new and reconstructed engines located at a Major Source of HAPS, > 500 HP, non-emergency, firing Landfill/Digester Gas. New and reconstructed engines commenced construction or reconstruction on or after December 19, 2002, and the compliance date for these engines is upon start-up.

Emission Unit: EU-ENGINE1, EU-ENGINE2, EU-ENGINE3, EU-ENGINE4, EU-ENGINE5, EU-ENGINE6, EU-ENGINE7, EU-ICENGINE8, EU-ICENGINE9

POLLUTION CONTROL EQUIPMENT

Air-to-fuel ratio controller on each engine.

NA

I. EMISSION LIMIT(S)

NA

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. Each engine in FG-RICEMACT shall operate in a manner which reasonably minimizes HAP emissions. **(40 CFR 63.6625(c))**
2. Each engine in FG-RICEMACT 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. **(40 CFR 63.6625(h))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The engines in FG-RICEMACT shall be equipped with and maintain separate individual fuel meters to monitor and record the daily fuel usage and volumetric flow rate of each fuel used. **(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. The engines in FG-RICEMACT, which fire 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. **(40 CFR 63.6625(c))**

VII. REPORTING

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**

Section 2 – Sumpter Energy Associates, LLC

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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 January 31 for the previous calendar year. The following information shall be included in this annual report: **(40 CFR 63.6650(g), 40 CFR 63.6650(b)(5))**
 - 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. **(40 CFR 63.6650(g)(1))**
 - b. The operating limits provided in the permittee's federally enforceable permit, and any deviations from these limits. **(40 CFR 63.6650(g)(2))**
 - c. Any problems or errors suspected from the fuel flow rate meters. **(40 CFR 63.6650(g)(3))**

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 Subpart ZZZZ, as they apply to each engine in FGRICEMACT. **(40 CFR Part 63, Subparts A and ZZZZ)**

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).

**FG-RICEMACT10
FLEXIBLE GROUP CONDITIONS**

DESCRIPTION

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.

Emission Unit ID: EU-ICENGINE10

POLLUTION CONTROL EQUIPMENT

Air-to-fuel ratio controller on each engine.

NA

I. EMISSION LIMITS

NA

II. MATERIAL LIMITS

NA

III. PROCESS/OPERATIONAL RESTRICTIONS

1. Each engine in FG-RICEMACT10 shall operate in a manner which reasonably minimizes HAP emissions.² **(40 CFR 63.6625(c))**
2. Each engine in FG-RICEMACT10 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 PARAMETERS

1. The permittee shall equip and maintain separate fuel meters for the engine(s) in FG-RICEMACT10 to monitor and record the daily fuel usage and volumetric flow rate of each fuel used.² **(40 CFR 63.6625(c))**

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

NA

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years.² **(R 336.1201(3), 40 CFR 63.6660)**

1. The engines in FG-RICEMACT10, which fire 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))**

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))**

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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 no later than January 31.² **(40 CFR 63.6650(g), 40 CFR 63.6650(b)(5))** 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))**

VIII. STACK/VENT RESTRICTIONS

NA

IX. OTHER REQUIREMENTS

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 Subpart ZZZZ, as they apply to each engine in FG-RICEMACT.² **(40 CFR Part 63 Subparts A and ZZZZ)**

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).

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. 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
SNCR	Selective Non-Catalytic Reduction	TAC	Toxic Air Contaminant
SRN	State Registration Number	Temp	Temperature
TEQ	Toxicity Equivalence Quotient	THC	Total Hydrocarbons
USEPA/EPA	United States Environmental Protection Agency	tpy	Tons per year
VE	Visible Emissions	µg	Microgram
		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.

Section 2 – Sumpter Energy Associates, LLC

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Appendix 2-2. Schedule of Compliance

The permittee certified in this ROP application that this stationary source is in compliance with all applicable requirements of this ROP.

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

Specific testing requirement plans, procedures, and averaging times are detailed in the appropriate Source-Wide, Emission Unit and/or Flexible Group Special Conditions. 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-N8004-2013. 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-N8004-2013 is being reissued as Source-Wide PTI No. MI-PTI-N5984-2019.

Permit to Install Number	ROP Revision Application Number/ Issuance Date	Description of Equipment or Change	Corresponding Emission Unit(s) or Flexible Group(s)
105-16	201700155	Spark ignition, lean burn, reciprocating internal combustion engine (Caterpillar G3520C, 2,242 bhp at 100% load) for combusting treated landfill gas to produce electricity (1.6-megawatt gross electrical output). The engine will drive an associated generator set to produce the electricity.	EU-ICENGINE 10

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 EU-ICENGINE 10 and FG-ENGINES.

Section 2 – Sumpter Energy Associates, LLC

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Expiration Date: July 30, 2024

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I. Procedures for Calculating Emissions for EU-ICENGINE 10:

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 EUCENGINE10. The permittee shall use emission factors contained in the most recent AP-42 (Compilation of Air Pollutant Emission Factors) or the most recent FIRE (Factor Information Retrieval) database if vendor or stack testing data is not available. If emission factors from other sources are used, the permittee shall obtain the approval of the AQD District Supervisor before using the emission factors to calculate emissions. The permittee shall document the source of each emission factor used in the calculations.

Calculation for Monthly SO₂ Emissions:

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

SO₂ Emissions (tons per month)

$$= \frac{\text{Monthly H}_2\text{S Gas Sample(ppmv)}}{1,000,000} \times \frac{1.1733 \text{ mols Sulfur}}{\text{ft}^3} \times \frac{34.065 \text{ grams}}{\text{mol Sulfur}} \times \frac{\text{pound}}{453.59 \text{ grams}} \times \frac{\text{ton}}{2,000 \text{ pounds}} \times \frac{1.88 \text{ SO}_2}{\text{H}_2\text{S}}$$

× Average ratio of total sulfur to sulfur as H₂S × Actual Monthly Landfill Gas Usage (ft³/month)

Calculation for hourly SO₂ Emissions:

The monthly calculation along with the daily hours of operation shall be used to calculate the hourly SO₂ emissions, as a monthly average.

II. Nitrogen Oxide (NO_x), Carbon Monoxide (CO), and Non-Methane Organic Compound (NMOC) for FG-ENGINES:

The permittee shall calculate emissions using the emission factors and equations listed below or an alternative method approved by the District Supervisor. The emission factors shall be established and updated through stack testing and approved by the District Supervisor.

Internal Combustion Engine horsepower (EGICE HP) = generator output (kW) / (0.746kW/HP * 93.9/100)

Pounds per hour (lb/Hr) = EGICE HP * lb/454g * X g/HP*Hr, where X is a factor from table below.

Ton per month (ton/mo) = lb/Hr * Hours of operation/month * Ton/2000 lbs

Pollutant	X
CO	2.9g/HP*Hr
NO _x	2.0g/HP*Hr
NMOC	0.2g/HP*Hr

III. Hydrogen chloride (HCl) for FG-ENGINES:

Present in the landfill gas are numerous chlorinated compounds. The permittee shall calculate the emissions using the emission factor and equation listed below or an alternative method approved by the District Supervisor. The emission factor shall be established and updated through stack testing and approved by the District Supervisor.

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The following equations provide an example of how HCl emissions can be calculated using the measured landfill gas lower heating value to calculate the flow rate of gas entering the seven (7) ICEs:

Notes:

A heat input of 151,090 Btu/min (LHV) is required to operate the engines at 100% load = 9.0654 MMBtu/hr.

800 kilowatts (gross) of electricity are generated at 100% load; therefore, one kilowatt hour of power generation at 100% load requires a heat input of 11,331.75 Btu (LHV).

$151,090 \text{ Btu/Min} * 60 \text{ min/hr} / 800 = 11,331.75 \text{ Btu/kWhr}$

LFG = landfill gas

LHV = lower heating value

LFG LHV = landfill gas lower heating value, measured and recorded on a weekly basis

cf = cubic foot

kWhr = kilowatt hour

$\text{LFG consumed (cf)} = \text{total gross kWhr (units 1-7)} * (11,331.75 \text{ LHV Btu/kWhr}) / (\text{LFG LHV})$

$\text{Total LFG flow (cf)} = \text{cf of LFG consumed} / (\text{total engine hours} * 7 \text{ engines})$

Total HCl emitted per hour:

$\text{Pound(s) HCl /Hr} = (5.1\text{lbHCl/MMft}^3) * (\text{Total LFG flow})$

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.



Pine Tree Acres Landfill

Landfill Gas-to-Energy Facility Operation and Maintenance Plan (Malfunction, Abatement/Preventative Maintenance Plan)

Prepared for:

Waste Management, Inc.

Permit Number: 160-14

April 27, 2015

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APPENDICES

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 - Appendix 5 – Engine Radiator Level Readings
 - Appendix 6 – Gas Recovery Production Log
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-

1. INTRODUCTION

This document presents an Operation and Maintenance (O&M) Plan for the Pine Tree Acres Landfill Gas-To-Energy Facility (GTE Facility) in Lenox, MI.

Pine Tree Acres, Inc. (PTA) operates an eight (8) internal combustion (IC) reciprocating engine GTE Facility at 36289 29 Mile Road, Lenox, Michigan. The GTE Facility is designed to combust landfill gas (Methane) in eight (Caterpillar 3520) internal combustion reciprocating engines and generates electrical power. Landfill gas (Methane) is produced by the decomposition of material in the landfill. This gas is collected, processed, and compressed to be used as fuel to run the engine/generator set. The GTE Facility will produce approximately 12.8 megawatts (MW) of electrical power that can be transmitted through a local utility company's power distribution grid to power the equivalent of 11,000 to 11,500 homes for one year. Each Caterpillar engine is capable of combusting approximately 583 cubic feet per minute (cfm) of landfill gas.

2. ORGANIZATION

The underlying applicable requirement for this O&M Plan is State Rule 911 that provides minimum requirements for a malfunction abatement/preventative maintenance plan. This plan was developed in accordance with the provisions of Rule 911 as well as Michigan Department of Environmental Quality – Air Quality Division's Preventative Maintenance/Malfunction Abatement Plan Checklist Guidance Document. The remainder of this O&M Plan is organized into the following sections:

- Section 3 provides a description of the facility supervisory personnel responsible for inspection, maintenance, and repair accordance with Rule 911(2)(a).
 - Section 4 provides a description of the operating variables monitored to detect malfunction, the normal operating range of these variables, and the method of inspection in accordance with Rule 911(2)(b).
 - Section 5 provides a description of site safety features and details corrective action in the event of a malfunction in accordance with Rule 911(2)(c).
 - Section 6 provides a description of site security and facility monitoring systems.
-

- Section 7 provides a description of the procedures for emergency response and contingency plans.
- Section 8 provides a description of the recordkeeping performed to document compliance with this O&M Plan.
- Section 9 provides a description of replacement parts maintained in inventory in accordance with Rule 911(2)(a).

3. PERSONNEL REQUIREMENTS

3.1 Management Organization

WM is responsible for the management of Pine Tree Acres Landfill and related facilities including the GTE Facility. The District Manager is responsible for making all primary decisions related to the administration and operation of the site. A GTE Facility Manager is responsible for the operation and maintenance of the GTE Facility and reports to the WM Renewable Energy staff concerning the daily operation of the GTE Facility; technical repairs and diagnostic troubleshooting; and purchasing tools, equipment and supplies for the GTE Facility. The specific individuals responsible for GTE maintenance and implementation of this O&M Plan are:

David Bauman (primary)

Richard Kunze (secondary)

WMRE Plant Manager

WMRE Operations Manager

586-749-5182

231-220-4585

dbauman@wm.com

rkunze@wm.com

3.2 Personnel Responsibilities

Operation of the GTE Facility requires a full-time staff. The staff members can vary in number and level of responsibility. However, in general, staff members and their responsibilities are as follows:

- A District Manager is one who will (i) manage all landfill operations, (ii) make and manage contracts with waste hauling companies, (iii) oversee any construction at the site, and (iv) ensure that the landfill is operating in compliance with the terms and conditions of the permit.
- A GTE Facility Manager and a GTE Operator are the people who will operate and maintain the landfill gas recovery plant.
- A Well Field Technician who will be responsible for maintaining and tuning the well field, and operating and maintaining the enclosed flares and landfill gas collection system.
- A Site Engineer who will (i) ensure that the landfill and related facilities including the GTE Facility are developed according to the engineering plans; (ii) record any variations from the engineering plans; and (iii) monitor environmental compliance of the facility.

In addition to the normal full-time staff, third party contractor personnel may be added during scheduled and unscheduled maintenance of the facility. If conditions warrant, additional engineering and operations and safety personnel may be obtained from other Waste Management facilities in the area.

Personnel related to the GTE Facility operation are trained to perform their specific duties and to recognize potentially hazardous or dangerous situations at the landfill and the GTE Facility. Training for GTE Facility related personnel includes but is not limited to the following topics under supervised review:

- Construction and Operating Permit Conditions
 - Spill Prevention
 - Emergency Management and Reporting Procedures
 - Lock Out Tag Out Procedures
 - Special Waste Management
-

4. FACILITY OPERATIONS

The GTE Facility operation is divided into four main segments:

- The landfill gas collection system
- The GTE facility gas compressor room
- The GTE facility engine room
- The GTE facility control room

Electrical power transmission to the local utilities transmission lines is controlled by two main circuit breakers 52U and 52T. Tie Breaker 52T is used to control electrical power from the generators and utility circuit breaker 52U is the main breaker connecting the GTE Facility to the utility's grid system. Breaker 52U is located in a substation adjacent to the facility and breaker 52T is located in the switchgear in the control room with the generator breakers. For initial start up of the GTE Facility, power from the local electrical utility system is used via the 4.16 KV switchgear, to activate the GTE Facility systems. This is accomplished by closing the utility circuit breaker (52U), and tie breaker (52T). An electrical interlock controls the sequencing of utility breaker (52U) and tie breaker (52T). The tie breaker (52T) cannot be closed until the utility breaker (52U) breaker has been closed.

4.1 Facility Start-Up

After the auxiliary load has been activated, normal operation of the reciprocating engine generator set is started as follows:

- Verify that the Main Gas Inlet Valve for the well field header to the plant is in the open position.
 - Visually inspect the gas compressor. Verify that the oil level is correct and that the unit is ready for operation.
 - Open Main Header Bleed valve for re-circulation of gas to the nearest flare or logical tie in point in the existing LFG header system.
 - Start the compressor and verify compressor pressure to the main gas header.
 - Verify fluid levels and coolant and oil valve positions for each engine prior to
-

start sequence.

- Place Engine Control Switch to the Run position.
- Depress start button on switchgear to initiate engine start sequence.
- Unit should start and obtain normal operating RPM.
- After engine oil has obtained a minimum operating temperature, then the unit can be paralleled with utility and loaded to desired load. After achieving the required voltage and frequency, the generator is manually synchronized with the utility electrical system and breaker 52G1 is closed. After breaker 52G1 is closed, generator loading takes place and the generator power is supplied to the 4.16 KV switchgear and the utility system. This procedure is the same for remaining generators G2, G3, G4, G5, G6, G7, & G8.
- After at least one unit is running the Gas Bypass Valve off of the main header can now be closed.
- Bring the engine to desired load.
- Once at load, verify proper operation by checking all panels and instrument readings.

4.2 Facility Shutdown

In the event the GTE Facility has to be shutdown the following procedures are used:

- Unload engine by depressing the soft unload push button. The engine will gradually unload at a rate of 3kW per second and then will automatically trip the generator breaker at 50kW.
 - Once the main generator breaker trips off-line the unit will then go into cool down mode. The engine will operate for an additional 5 minutes and will then shutdown.
 - Once all eight units have been shutdown then the gas compressor will be shut off by switching the compressor from “run” to “off” mode.
-

4.3 Landfill Gas Collection System

The existing landfill gas collection systems at the Pine Tree Acres Landfill consist of vertical gas extraction wells and associated header piping. The collected gas was previously sent to an existing flare system and an existing landfill gas to energy facility operated by LES.

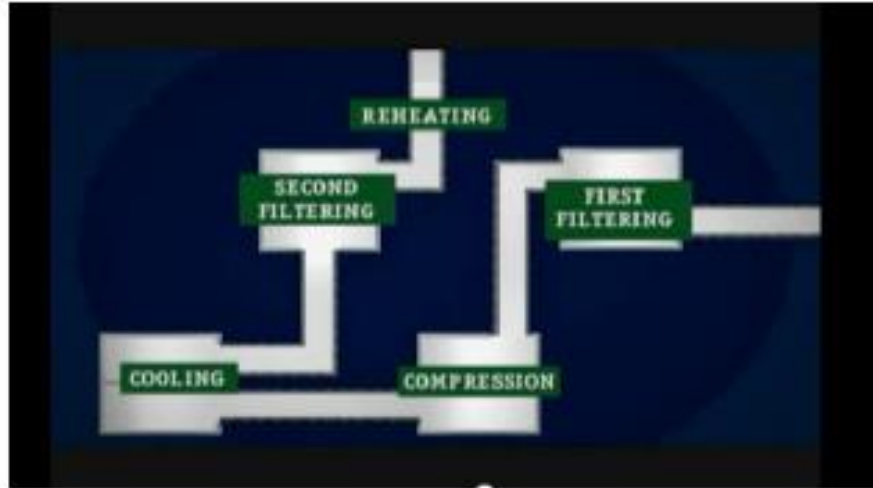
The GTE Facility is designated as one of the prime users with the flare system and the two LES plants combusting the landfill gas that the GTE Facility doesn't use. If the gas collected exceeds the gas needed to operate the WM engines and the LES engines, the existing flare system will ensure control of all the gas collected by burning off the excess gas.

4.4 Gas Compression System

The GTE Facility compressor room contains the equipment required to pump the landfill gas from the main header and treat the landfill gas prior to combustion in the engines. The landfill gas treatment as described below includes filtration, compression and moisture removal.

- **Filtration** - Landfill gas passes through two filtering steps in the treatment system. An in-line demister mesh pad, installed prior to the compressor, is designed to protect equipment by removing larger pieces of debris from the gas stream. Secondary coalescing filters, placed in-line after the gas cooler, to provide additional filtration at the back end of the system prior to re-heating and delivery to the engine combustion system.
 - **Compression** - Landfill gas extracted from the hill under vacuum. The compression step is required to ensure gas is delivered to the engines as a fuel at a pressure required for combustion. The compression process increases the pressure and temperature of the gas.
 - **Moisture Control** – After compression heats the gas, the gas is processed through a gas cooler to lower the temperature. As the gas is cooled, entrained
-

moisture is condensed and trapped by the in-line coalescing filters, removed from the process and managed in the condensate removal system.



4.5 GTE Facility Engine/Generator Room

The GTE Facility engine/generator room includes the eight engine/generator sets and local control cabinets, storage tanks for virgin and used motor oil, storage tanks for engine coolant, exterior radiators to cool the engine coolant, and a work area for equipment maintenance. The engine/generator sets are comprised of a Caterpillar 3520 landfill gas V-20 engine driving a Caterpillar 4.16 kilovolts (KV) generator. The Caterpillar 3520 engine/generator set is rated at 2000 kVA, 1600KW, 0.80 power factor, 3 phase, 60 hertz, 4,160 volts output at 278 amperes. Each engine is equipped with an automatic air-to-fuel ratio controller (AFRC) for NOx and CO emission control. The AFRC are inspected daily for proper operation. The table below provides identifying information for each engine.

ENGINE No.	ENGINE MAKE	ENGINE MODEL	ENGINE FAMILY	SERIAL No.	MODEL YEAR	POWER (bhp)	AFRC	DISPLACEMENT (liters)
No. 1	Lean burn; 4 stroke	G3520C	Gas	GZJ00469	2010	2,233	yes	86
No. 2	Lean burn; 4 stroke	G3520C	Gas	GZJ00464	2010	2,233	yes	86
No. 3	Lean burn; 4 stroke	G3520C	Gas	GZJ00467	2010	2,233	yes	86
No. 4	Lean burn; 4 stroke	G3520C	Gas	GZJ00466	2010	2,233	yes	86
No. 5	Lean burn; 4 stroke	G3520C	Gas	GZJ00462	2010	2,233	yes	86
No. 6	Lean burn; 4 stroke	G3520C	Gas	GZJ00468	2010	2,233	yes	86
No. 7	Lean burn; 4 stroke	G3520C	Gas	GZJ00463	2010	2,233	yes	86
No. 8	Lean burn; 4 stroke	G3520C	Gas	GZJ00465	2010	2,233	yes	86

The generator output is connected a 4.16 KV switchgear, providing power to station auxiliary loads with the balance of power exported to the utility grid via a 3 phase station transformer which steps up the generated voltage from 4,160V to the high line voltage and provides power as "sell-back" to the utility grid.

The engine/generator sets are supplied lube oil and coolant from two storage tanks located in the engine room. Adjacent to these two tanks is the used oil storage. A level alarm panel in the tank area monitors the tank levels and leak detection.

4.6 GTE Facility Control Room

The GTE Facility control room contains master controls for landfill gas recovery through the gas compressor, control of the engine and generator systems, synchronization control for the utility grid, and an annunciation panel and autodialer in the event of an upset condition in the GTE Facility.

Eight control panels make up the station switchboard and include a System

Compartment, Tie Compartment, and a Generator Control Compartments. These compartments include the following:

- One System Compartment, which contains the station Operator Interface Module (OIM) with a touchscreen mounted on the cubicle door, system indicating lights and control switches, the utility protective relays.
- One Tie Breaker Compartment, which contains the Digital Metering Display (DMD), a synchroscope switch and synchronizing mode selector switch for manual paralleling. The tie breaker Compartment also contains the bus tie breaker control switches, tie breaker status indicators, tie breaker protective relays, and the 86T lockout relay. The tie breaker is located in a separate cabinet in the facility switchgear room.
- Eight Engine/generator set Control Cubicles for Gen #1 (52G1), Gen #2 (52G2), Gen #3 (52G3), Gen #4 (52G4), Gen #5 (52G5), Gen #6 (52G6), Gen #7 (52G7), and Gen #8 (52G8). The cubicle contains a Digital Metering Display (DMD), generator protective relays, Operator Interface Module (OIM) with a touchscreen mounted on the cubicle door, control switches, a high speed trip relay (86 Device) and the generator Emergency Stop Pushbutton (ESPB). The generator breaker is located in a separate cabinet in the facility switchgear room.

Each cubical is constructed of a metal cabinet with internal steel barriers. Each cabinet has hinged front and rear doors for access to the cabinet interiors.

4.7 Planned and Unplanned Shutdowns

Company records indicate the average on-line time for a GTE Facility owned and operated by Waste Management using the CAT 3520 engines exceeds 92%. The 8% off-line time includes planned and unplanned shutdowns.

4.7.1 Planned Shutdowns

Planned shutdowns are generally performed for maintenance reasons, or at scheduled intervals as requested by the utility receiving the electrical power

from the GTE Facility. The Facility Manager will use the following maintenance schedule as a general guideline. Scheduled maintenance items, shown below and on the next page, may be adjusted for specific operating conditions as required by the engine:

Fuel Gas Compressor		
Unit	Maintenance Action	Maintenance Interval (run hours)
Fuel Gas Compressor	Change oil and oil filter	Every 1,500 to 5,000 hrs based on sample results
	Change micron filters	Every 1,500 to 5,000 hours based on inspection
	All other repairs	As needed

CAT 3520 Engine Preventative Maintenance Schedule

	Daily	Weekly	Monthly	750 Hrs	1500 Hrs	3 Mos	6 Mos	Yearly	As Req'd	Comments
Monitor Operations										
Check Oil Level										
Check Radiator Level										
Check Air/Fuel Ratio										
Check Engine DDT										
Read Crankcase Pressure										Adjust as required
Check Batteries										Wear proper PPE
Check Air Filter										
Lube Oil Analysis										
Add Coolant Conditioner										If required
Check Crankcase Breather										
Check Radiator Fan Belts										
Clean Radiator Fins										If needed
Change Oil										Ck oil analysis
Change Oil Filters										
Replace Spark Plugs										
Grease & Inspect Fuel Linkage										
Check Ignition Timing										
Check Valve Clearance										
Inspect Turbocharger										
Inspect Exhaust Bypass Valve										
Inspect Carburetor Diaphragm										
Replace Air Filter										Or as required
Test Safety Shutdowns										
Clean & Flush Cooling System										If required
Check Compression										If required

Planned shutdowns for regularly scheduled maintenance occur as follows:

- Each engine is typically shutdown for approximately 1.5 hours each month for general service including oil, filter, and sparkplug changes. These guidelines may be adjusted if operational characteristics require change.
 - Each engine is typically shutdown annually for approximately 8 hours for overhauling of the engine top end (heads and valves) based on operating characteristics of the engine, once again this may be adjusted based on operational requirements.
 - The plant is shutdown for approximately 4 times each year in order to service the landfill gas compressor (treatment) system, and the electrical system by changing the oil and filters in the compressor and checking the safety system. Specific maintenance schedules and procedures are described in the manufacturers operation and maintenance guide, which is kept in the Facility Manager's office and can be provided upon request. Electrical maintenance is also performed at this time.
 - Electrical switchgear is maintained annually by an outside contractor. At this time all safety shutdown devices and generator breakers are tested and re-certified to manufacturer specifications.
 - The flow computer will be calibrated annually in accordance with the instructions and guidelines in the Flow Computer operation and maintenance manual.
 - Leak testing of the gas header entry to the plant was performed prior to the commissioning of the plant. Methane detection is provided throughout the plant. In the event of methane contamination an alarm will sound, the gas supply to the plant will be shut off, the engines will shutdown and the exhaust and supply fans will automatically start to supply fresh air to the building and exhaust the contaminated air.
-

- A leak test is also performed on the pipe connections and valves whenever an engine or compressor is replaced. This is accomplished using a bottle with leak detection solution and saturating all connection points, and evaluating each joint for possible leaks.
- Major overhauls of engines are anticipated approximately every five years. Typically, this entails a like-kind engine replacement in accordance with Rule 285(a)(vi) and the engine overhaul is performed off-site.

4.7.2 Unplanned Shutdowns

Unplanned shutdowns are generally the result of unexpected events such as:

- Power interruptions within the utility power grid due to increased power usage tripping main breakers or blowing transformers or lightning strikes.
- Detection of explosive concentrations of flammable gases within the GTE Facility.
- Excessive detonation and resulting vibration in the engine.
- High levels of oxygen in the landfill gas.
- Failure of a component in the engine, generator or landfill gas treatment system compressor.
- Failure of one of the components of the main facility step-up transformer.
- Acts of nature such as ice storms, electrical storms and wind.
- Premature engine failure that necessitates engine replacement. These unplanned shutdowns entail a like-kind engine replacement in accordance with Rule 285(a)(vi) and the failed engine is overhauled off-site.

In most cases, unexpected events listed above will trigger an automatic shutdown of the engine generator set, the gas compressor or the whole plant. At the same time, an annunciator alarm and panel light will be activated on the annunciator

panel in the control room. The GTE Facility will automatically notify the Facility Manager through an autodialer that there is an issue that requires attention at the GTE Facility. The Facility Manager, as part of his/her job responsibilities, is required to respond to the alert and troubleshoot and correct the cause of the unexpected shutdown.

During times when the GTE Facility is shutdown for planned or unplanned reasons, landfill gas that is normally combusted in the plant, will be diverted through the enclosed flare by manually adjusting valves and starting the flare.

5. DESCRIPTION OF SAFETY FEATURES

The GTE Facility has been designed to detect a number of upset conditions during facility operation as described below. Upset conditions are sensed by relay elements that will cause an autodialer to be activated notifying the Facility Manager or designated person of the upset condition. The autodialer functions as a remote alarm monitor, typically monitors critical facilities which are not staffed 24 hours a day. The Facility Manager or designee is on call 24 hours a day seven days a week to respond to upset conditions at the GTE Facility.

In addition to notifying the Facility Manager of an upset condition, the relay elements can also shutdown all or a portion of the GTE Facility. An upset condition might result in the termination of electrical energy flow to the utility grid, shutdown one or more engine/generator sets, and/or shutdown the gas treatment system. For example, upset conditions in the power utilities system, within the GTE Facility or the gas collection system might activate the upset condition detection and cause all or a portion of the GTE Facility to shutdown.

The landfill gas collection and control system at the existing Pine Tree Acres Landfill includes the landfill gas collection system, the flare system, the LES Facility and the GTE Facility. In the event of a partial or complete shutdown of the GTE Facility, the flare system has the capacity to control landfill gas generated by the Landfill.

5.1 Power Interruptions

When a power failure or voltage or frequency disturbance occurs on the utility line, the event is detected by one of the relays, which will initiate a trip the utility breaker

(52U). Opening breaker 52U will cause tie breaker 52T to trip. Upon restoration of the utility line voltage, the Facility Manager can close the utility breaker (52U) and the process of restarting power generation can occur.

Over power, over current or grounding fault on the utility line side of the main transformer is detected by Schweitzer relays, which will trip the utility breaker (52U) and tie breaker (52T) via lockout relays 86U and 86T. At the same time, an alarm will be annunciated as described in Section 5.3. The trip of any breaker will annunciate an alarm.

Each generator is equipped with an automatic voltage regulator and an automatic power factor controller. The generator is also protected by a multifunction Schweitzer SEL-300G relay against unbalanced current (46), instantaneous and time delay over current (50/51), reverse power (32), loss of excitation (40) and faults that cause a flow of differential currents through the generator windings (87G). Neutral grounding of the generator is achieved through the grounding resistor, to limit ground fault current to 200 Amps. In case of grounding, the fault will be sensed by relay elements 50N/51N. Actuation of any relay element will cause the associated generator breaker (52G1, 52G2, 52G3, 52G4, 52G5, 52G6, 52G7, & 52G8) to trip via its respective lockout relay (86G1, 86G2, 86G3, 86G4, 86G5, 86G6, 86G7, & 86G8). At the same time, an alarm will be annunciated as described in Section 5.4. The trip of any breaker will annunciate an alarm.

The protective relays for the system consist of a lockout switch (86 Device), a lock out relay (86T), a Schweitzer SEL-300G generator relay, a Schweitzer SEL-551 Overcurrent Relay, a Schweitzer SEL-587 Current Differential Relay, a Schweitzer SEL-351 Protection System, a Schweitzer SEL-351A Distribution Protection System Relay, and a Schweitzer SEL-551 Over current Relay. All Schweitzer relays are connected through a SEL-2030 Communication Processor.

Emergency Stop

Each generator breaker is also equipped with an Emergency Stop Pushbutton (ESPB) located at the genitor control cabinet for each unit. The emergency stop switch has a red mushroomed operator which makes it easy to locate. The switch, when activated is maintained and must be manually reset. Each generator has a local emergency stop

push button at the local control panel. As with the other switch, when activated, the switch is locked in and must be manually reset.

Lock Out Relay (86T)

This lock out relay is a high speed, electrically operated, manually reset switch with a trip target. It is used to accumulate the actions of the tie protective relays to initiate tripping of the tie circuit breaker (52T).

Lock Out Switch (86U Device)

This lock out switch is a high speed, electrically operated, manually reset switch with a trip target. It is used to accumulate the actions of the tie protective relay (Schweitzer SEL-351) to initiate tripping of the utility breaker (52U) and the tie breaker (52T) through its lock out relay (86T).

Schweitzer SEL-587

The Schweitzer SEL-587 is a Current Differential Relay. This relay provides protection control, monitoring and recording for two terminal apparatus including transformers with embedded tertiary windings. This relay provides protection elements including Differential (87), Instantaneous time overcurrent (50/51) and Instantaneous ground overcurrent (50/51G), for the utility line side of the main transformer will be detected by relays 87 (Differential) and 50/51 (Instantaneous) When activated, the SEL-587 relay will initiate tripping of the utility breaker 52U and tie breaker 52T via lockout relay 86T. The relay also provides status of the tie breaker (52T) and the utility breaker (52U).

Schweitzer SEL-351

The Schweitzer SEL-351 is a Multifunction Relay. This relay provides protection elements including Undervoltage (27), Overvoltage (59), Over/Under Frequency (81O/81U), Ground Overcurrent (50/51N), Instantaneous time Overcurrent (50/51), Ground Overvoltage (59G), and Synchronizing Check (25). When activated, the SEL-351 relay will initiate tripping of the tie breaker (52T) and/or the utility breaker (52U) through the lock out relay (86T). The relay also provides status of the tie breaker (52T), the utility breaker (52U) and the generator output breakers (G1).

Schweitzer SEL-351A

The Schweitzer SEL-351A is a Multifunction Distribution Protection Relay. This relay provides protection elements including Undervoltage (27), Overvoltage (59), Over/Under Frequency (81O/81U), Instantaneous time Overcurrent (50/51). When activated, the SEL-351 relay will initiate tripping of the tie breaker (52T) and/or the utility breaker (52U) through the lock out relay (86T). The relay also provides status of the tie breaker (52T) and the utility breaker (52U).

Schweitzer SEL-300G

The Schweitzer SEL-300G is a comprehensive, multifunction generator protection relay intended for primary and/or backup protection for any size synchronous machine. This relay provides protection elements including Over Excitation (24), Undervoltage (27), Overvoltage (59), Over/Under Frequency (81O/81U), Reverse Power (32), Differential (87), Voltage Restraint Time Overcurrent (51V), Ground Overcurrent (50N/51N), Instantaneous Overcurrent (50), Loss of Excitation (40), Sync Check (25), and Negative Sequence (46). When activated, the SEL-300G relay will initiate tripping of the associated generator breaker 52-G1, G2, or G3 via their respective lockout relay 86-G1. This will also initiate engine shutdown. At the same time, an alarm will be annunciated as described in Section 5.4. The relay also provides status of the generator breaker (52G1) and the engine condition.

Schweitzer SEL-551

The Schweitzer SEL-551 is an Overcurrent Relay. This relay provides protection elements including Phase Instantaneous Overcurrent (50) and Phase Time Overcurrent (51). This relay also provides status of the station step-down transformer circuit breaker (52SST). Breaker 52SST provides power for the 4160/480V Station Service Transformer and MCC.

5.2 Fire Prevention within the GTE Facility

The GTE Facility has been designed so that if any of the following faults occur, the generator breaker (52Gx) is tripped and the engine/generator set is shutdown:

- High methane
- Blower failure
- High oxygen
- Fire detection alarm

The engine/generator set is shutdown in order to control the potential for fire and explosion within the plant. It should be noted that the GTE Facility building is constructed with a minimum of combustible material, so as to limit the propagation of fire. The building fire protection consists of ionization detectors, thermal detectors, smoke detectors on the ceiling and in the duct work, methane detectors, audible and visual alarm devices, and manual fire pull stations.

5.3 System Alarm Screens

The GTE Facility has an Operator Interface Module (OIM) located in the system control cubicle in the control room. The OIM has two screens for system alarms. Each screen is provided with alarm windows labeled for both alarm and shutdown functions.

Examples of System alarm are listed below:

- Generator #x summary alarm
 - Generator #x shutdown
 - Blower failure - alarm / shutdown
 - Air compressor low air pressure - alarm
 - Tie breaker (52-T) trip-activated by tie cubicle 86-T device
 - Main power transformer high oil temperature (26-Q)
 - Main power transformer low oil level (71)
 - Fire detection system operation - shutdown
 - Fire detection system trouble - alarm
 - High-high methane - shutdown
 - High-high oxygen - shutdown
-

- High methane - alarm
- High oxygen - alarm
- Methane detector sensor failure - alarm
- Oxygen detector sensor failure - alarm
- Security system operation - alarm
- Low 24 VDC battery source - alarm
- Utility trip - alarm
- Condensate tank high level - alarm

The Facility Manager uses the annunciation panel as an initial diagnostic tool to determine where the upset condition is. Each screen panel provides a silence/acknowledge push button to acknowledge the alarm and silence horn. There is also a system reset push button to reset alarm once the upset condition has been corrected. The screens also have a test lamp push button used for testing the alarm windows.

5.4 Generator Alarm Screens

Each generator control panel has an Operator Interface Module (OIM) located in the system control cubicle in the control room. The OIM has two screens for system alarms. Each screen is provided with alarm windows labeled for both alarm and shutdown functions.

Examples of Generator alarm are listed below:

- Battery Charger Malfunction
 - High Inlet Air Temperature Alarm
 - Low Jacket Water Level Alarm
 - Air To Fuel Ratio Alarm
 - Common Engine Alarm
 - Low Aftercooler Water Level Alarm
 - Generator High Load Level Alarm
 - High Coolant Temperature Alarm
 - High Crankcase Pressure Alarm
 - Low Oil Pressure Alarm
 - Low Coolant Pressure Alarm
 - Oil Filter Differential Pressure Alarm
 - High Aftercooler Temperature Alarm
 - Generator Low Load Level Shutdown
-

- High Coolant Temperature Shutdown
- High Crankcase Pressure Shutdown
- Low Oil Pressure Shutdown
- Low Coolant Pressure shutdown
- Oil Filter Differential Pressure Shutdown
- High Aftercooler Temperature Shutdown
- Low Gas Pressure
- Overspeed Shutdown
- Overcrank Shutdown
- EMCP Diagnostic Failure Shutdown
- Emergency Stop
- Air Filter Restriction Alarm
- High Exhaust Temperature Alarm
- High Gas Pressure
- Low Oil Level Shutdown
- Multifunction Relay Failure
- Lockout Relay Tripped
- Voltage Regulator Failure
- Air Filter Restriction Shutdown
- High Exhaust Temperature Shutdown
- System Shutdown
- Common Engine Fault
- High Oil Temperature Shutdown
- Radiator High Vibration Shutdown
- High Methane Alarm Engine
- Methane Sensor Failure Engine
- High Methane Shutdown Engine

The Facility Manager uses the annunciation panel as an initial diagnostic tool to determine where the upset condition is. Each screen panel provides a silence/acknowledge push button to acknowledge the alarm. There is also a system reset push button to reset alarm once the upset condition has been corrected. The screens also have a test lamp push button used for testing the alarm windows.

5.5 Ventilation System Annunciation Panel

The GTE Facility also has an annunciation panel for the ventilation system. The ventilation control panel is provided with ten back-lighted windows labeled for both alarm and fault conditions.

Examples of Ventilation alarm are listed below:

- Eng 1 Fault
- Eng 2 Fault
- Eng 3 Fault
- Eng 4 Fault
- Eng 5 Fault
- Eng 6 Fault
- Eng 7 Fault
- Eng 8 Fault
- Compressor Room Fault
- Methane Detected

The Facility Manager uses the annunciation panel as an initial diagnostic tool to determine where the alarm/fault condition is located. The annunciation panel is provided with a touchscreen for alarm management, an auto operation ON/OFF selector switch, and an annunciator reset push button is available to reset the annunciator once the alarm condition has been corrected.

5.6 Storage Tank Level Alarm Panel

The GTE Facility is also equipped with an alarm panel for the Oil Storage System. The tank level alarm panel has six alarm indicators as noted below. When an alarm is received, the red alarm light will illuminate as well as the red strobe light.

Examples of Tank Level alarms are listed below:

- Coolant Tank High Level
 - Lube Oil High Level
 - Used Oil High Level
 - Coolant Tank Leak Detection
 - Lube Oil Leak Detection
 - Used Oil Leak Detection
-

The Facility Manager uses the alarm panel as an initial diagnostic tool to determine where the trouble is located. The alarm panel has a strobe cancel push button to clear the horn and strobe. The alarm indicator will remain lit until the alarm condition has been corrected.

6. SITE SECURITY METHODS

The area is enclosed by fence with locking gates in all areas where the public has access. The GTE Facility is locked during times when the GTE Facility Manager is not present. The access doors to the control room from the outside are steel insulated doors with locking hardware. Steel overhead doors provide access to the engine and generator room. The overhead doors are controlled from inside the GTE Facility. The GTE facility is also equipped with a monitored security system for all the exterior doors and windows.

7. SITE EMERGENCY

Site emergencies are handled in accordance with the site emergency Response / Contingency plan. This plan covers the following:

- Fire Response
- Medical Emergencies Response
- Spill/Release/Emission Response
- Natural Disasters
- Bomb Threats
- Civil Disturbance/Demonstration

8. RECORD KEEPING

Various readings are recorded at the beginning of each day. The different types of spreadsheets used at this facility are listed below.

Recording of utility readings is performed at the beginning of each day and maintained in the GTE facility manager's office for future reference and trending. An example of a typical utility reading spreadsheet is provided in Appendix 1.

Operation readings for the fuel gas compressor is recorded at the beginning of each day and

maintained in the GTE facility manager's office for future reference and trending. An example of a typical spreadsheet used for recording the gas compressor readings is provided in Appendix 2.

Operating readings for the engine is recorded at the beginning of each day and maintained in the GTE facility manager's office for future reference and trending. An example of a typical spreadsheet used for recording the engine operating readings is provided in Appendix 3.

Operating reading for the generator is recorded at the beginning of each day and maintained in the GTE facility manager's office for future reference and trending. An example of a typical spreadsheet used for recording the generator readings is provided in Appendix 4.

Engine radiator levels is recorded at the beginning of each day and maintained in the GTE facility manager's office for future reference and trending. An example of a typical spreadsheet used for recording the radiator levels is provided in Appendix 5.

A facility production log is completed at the beginning of each day and maintained in the GTE facility manager's office for future reference and trending. An example of a typical spreadsheet used for recording the production readings is provided in Appendix 6.

Records will be maintained for any engine replacements in accordance with Rule 285(a)(vi) and Permit to Install 160-14. Records will be maintained to demonstrate that reconstruction has not occurred. These records will demonstrate that the fixed capital cost of new components is less than 50% of the fixed capital cost of a comparable entirely new facility. (Caterpillar estimates that typical engine overhaul costs are 18-24% of a new replacement.)

9. SPARE PARTS

In accordance with Rule 911(2)(a), the facility maintains a stock of replacement parts to minimize down time of the engine. A list of the spare parts maintained on site is provided in Appendix 7. Note that part numbers and typical quantities in inventory are provided as examples and are subject to adjustment based on future plant operating conditions.

Appendix 5

Month _____		Engine Radiator Level Readings			
Day	Time	After Cooler Water Temp	Jacket Water Temp	Pressure	Comments
1.					
2.					
3.					
4.					
5.					
6.					
7.					
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10.					
11.					
12.					
13.					
14.					
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21.					
22.					
23.					
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25.					
26.					
27.					
28.					
29.					
30.					
31.					

Appendix 7

CAT 3520 Spare Parts List

Description	Part Number	Quantity
SEAL-O-RING	033-6031	4
SEAL-O-RING	061-9456	4
PLUG	090-9019	1
SEAL-O-RING	095-1674	20
BOLT HEAD	0S-1590	4
BEARING	107-7330	1
GASKET	107-8505	2
SEAL-O-RING	109-2332	4
GASKET CYLINDER HEAD	110-6991	20
SPACER PLATE	110-6994	4
GASKET	111-1349	1
GASKET	111-5822	2
GEAR	116-3242	1
GASKETS	122-8856	4
BOLT HEAD	131-0420	8
SEAL-O-RING	131-3718	2
GASKET	136-3246	4
SEAL-O-RING	136-7226	8
PIN PISTON	138-8506	1
REG WATER TEMP 120C	142-9675	10
ROD AS	144-0725	1
GASKET PLATE	144-5692	20
GASKET	146-7386	2
BELLOWS	153-4045	2
SEAL-O-RING	153-4906	5
SEAL	154-7477	4
BOLT M8X1.25X25-MM	156-2603	8
PLUG	162-0177	1
PIPE PLUG	168-3349	2
SEAL O RING	172-5635	3
SEAL-O-RING	174-3357	4
GASKET	186-2558	4
GASKET	190-5082	2
SEAL INTEGRAL	192-2262	2
HOSE	195-4403	4
GASKET	197-8120	2
PLUG PIPE	1A-5822	1
GASKET	1A-9066	1
BOLT	1B-2790	10
WASHER	1B-4218	2
BOLT 5/16-18X1.25	1B-7182	10

Description	Part Number	Quantity
BOLT 5/16-18X1.625	1H-5514	10
SCREEN	1W-1564	1
RETAINER	1W-4188	2
SCREW ADJUSTER	200-2003	4
ELBOW	200-6407	1
FLANGE	200-6409	1
SEAL O RING	200-6410	10
GASKET	200-6547	4
MAN-EXH-LH	200-6551	2
MAN-EXH-RH	200-6552	2
CAP	200-6553	1
BELLOWS	200-6554	2
SEAL	200-6555	15
SHAFT	201-8290	1
BASE ROCKER	201-8292	1
ROCKER ARM	201-8296	1
ROCKER ARM	201-8301	1
SEAL	203-4571	5
GASKET	203-7859	22
SEAL-O-RING	203-9745	10
GASKET	204-3506	20
SEAL	204-5426	80
SEAL	204-5427	80
CLAMP ASSY	204-6472	2
GASKET	205-9127	8
SEAL	206-5988	20
ADAPTER	207-1316	4
ADAPTER	207-1317	1
SEAL	208-2362	4
SEAL	208-2363	4
GASKET	209-1823	3
LINER	211-7826	2
SEAL O RING	213-9397	4
REG WATER 55C DEG	219-3306	4
SEAL-O-RING	219-7000	8
SEAL	220-7191	2
COVER VALVE	222-1962	2
GASKET	226-7485	4
BELLOWS	227-9027	2
ELBOW	230-3411	1
SEAL-O-RING	235-3546	3
SEAL-O-RING	235-3548	4
PUMP GRP WATER	235-4535	1
GASKET	235-5751	2
GASKET	239-1038	2

Description	Part Number	Quantity
ADAPTER	241-6953	8
COVER BASE BREATHER	244-5626	1
CLAMP	244-8861	6
GASKET	247-3796	2
REG TEMP 98C DEG	247-7133	8
PLUG	252-5060	2
NEW TURBO	254-0789	1
SEAL	255-6466	4
BRIDGE	256-4367	2
SEAL O RING	259-4596	2
TUBE AS OIL JET	260-0135	1
SEAL	261-7952	4
SEAL	261-7954	4
BODY PITON	262-2061	1
RING TOP	262-3066	2
SEAL	262-4568	2
LIFTER	263-6679	2
GASKET	273-3967	1
REGULATOR	273-4069	2
SEAL	2G-6303	2
SEAL-O-RING	2H-3928	3
SEAL-O-RING	2H-3928	2
SEAL-O-RING	2J-0157	42
GASKET	2N-0931	2
SCREW	2N-5842	4
FILTER ENG OIL	2P-4005	8
GASKET	2W-0752	2
RING RETAINER	2W-4005	2
FILTER AIR	2W-4246	2
GEAR	2W-7320	1
CYLINDER HEADS NEW	315-2633	20
SEAL-O-RING	3D-2824	4
PLUG	3E-2331	2
NUT FULL 3/8-16	3E-6916	10
SEAL-O-RING	3J-1907	3
SEAL-O-RING	3J-7354	4
NUT JAM	3J-9196	4
SEAL-O-RING	3K-0360	8
SEAL-O-RING	3P-0654	2
SEAL-O-RING	3P-0655	2
SEAL LIP	3S-9643	10
GASKETS	4B-8407	2
SEAL-O-RING	4J-5477	4
SEAL-O-RING	4K-1388	10

Description	Part Number	Quantity
GASKET	4L-8149	4
GASKETS	4N-0699	2
GASKETS	4N-0933	2
GASKET	4N-1320	2
GASKET	4P-3452	2
SEAL-O-RING	4S-5898	20
RING RETAINER	4W-0530	2
GASKET	4W-3100	2
PUSH ROD	4W-6682	4
PLUG	5F-0304	1
SEAL-O-RING	5F-9657	2
SEAL-O-RING	5H-6734	4
BOLT 3/8-16X5	5L-6887	20
GASKET	5M-0330	4
WASHER	5M-2894	10
BOLT 3/8-16X1.5	5P-0076	10
SEAL-O-RING	5P-0840	40
SEAL-O-RING	5P-5846	3
SEAL-O-RING	5P-7817	1
SEAL-O-RING	5P-7818	1
SEAL-O-RING	5P-8210	4
SEAL-O-RING	5P-8872	1
BOLT 3/8-16X1.75	5P-8880	8
WASHER SEALING	5R-7136	4
WASHER SEALING	5R-7137	4
GASKET	6F-4868	1
SEAL-O-RING	6V-1454	4
SEAL-O-RING	6V-1903	15
SEAL-O-RING	6V-3348	2
SEAL-O-RING	6V-3603	8
SEAL-O-RING	6V-3908	2
SEAL-O-RING	6V-4589	4
SEAL-O-RING	6V-5048	4
SEAL O RING	6V-5049	8
SEAL-O-RING	6V-5054	8
SEAL-O-RING	6V-5066	4
SEAL-O-RING	6V-5101	20
SEAL O RING	6V-5103	8
SEAL-O-RING	6V-5134	4
SEAL O RING	6V-5139	4
SEAL-O-RING	6V-5778	4
SEAL-O-RING	6V-6609	4
SEAL-O-RING	6V-7351	1
SEAL-O-RING	6V-7681	2
SEAL-O-RING	6V-8398	10

Description	Part Number	Quantity
REDUCER-O-RING	6V-8942	6
SEAL-O-RING	6V-9746	20
SEAL-O-RING	6V-9769	20
WASHER	7C-3258	1
SHAFT	7C-3259	1
SEAL-RING	7E-2326	4
GASKET	7E-6016	6
SEAL-O-RING	7J-0204	4
SEAL-O-RING	7J-9108	6
BOLT 3/8-16X2.25	7L-6443	8
SEAL-O-RING	7M-8485	6
SEAL-O-RING	7N-2046	9
BOLT ROD	7N-2405	4
GASKET	7N-3368	2
GASKETS	7N-4320	1
SPRING LIFTER GUIDE	7N-4782	2
GASKET	7N-4945	2
GASKET	7N-5057	1
OIL RING	7W-2221	2
SEAL-O-RING	7X-1547	2
SEAL-O-RING	7X-4805	3
PLUG	7X-7731	2
VALVE AS SAMPLING	8C-3446	2
SEAL	8C-5196	20
CONNECTOR	8C-6866	1
BUTTON VALVE	8F-8858	2
SEAL-O-RING	8L-2786	2
SEAL-O-RING	8L-9241	4
RING INTER	8N-1234	2
RETAINING RING	8N-1991	2
BAND-FILLER	8N-4707	2
RETAINER PIN	8N-7296	2
SEAL-O-RING	8T-1919	6
SEAL-O-RING	8T-2928	2
SEAL-O-RING	8T-2929	2
PLUG	8T-6761	1
PLUG PIPE	8T-6762	1
PLUG PIPE	8T-6763	1
PLUG PIPE	8T-6765	1
PLU PIPE	8T-6766	1
BOLT 12 PT	8T-7581	2
RING RETAINER	9F-7707	2
GASKET	9F-8127	2
GASKET	9L-1480	2
BOLT 3/8-16X2	9L-7373	20

Description	Part Number	Quantity
NUT 3/8-24	9L-7712	2
WASHER	9M-1974	10
SEAL-O-RING	9M-2092	4
PLUG	9S-4182	2
PLUG O RING	9S-4185	2
PLUG	9S-4190	1
PLUG	9S-8002	1
PLUG O RING	9S-8004	2
PLUG	9S-8005	2
PLUG	9S-8007	1
PLUG O RING	9S-8008	2
PLUG	9S-8009	1
NUT 3/8-16	9S-8752	6
NUT 3/8-16X3.5	9X-2068	4
SEAL-O-RING	9X-7371	1
SEAL	9X-7523	4
SEAL	9X-7538	2
SEAL O RING	9X-7562	4
GASKET	9Y-6893	4
GASKET	9Y-8069	2
GASKET	9Y-8387	4
GASKET	9Y-8388	1
BOLT	OS-1590	4
BOLT 3/8-16X1.5	OS-1591	10
SERVICE	REN5975	1
PARTS	SEBP3872	1

ELECTRICAL PARTS		
Description	Part Number	Quantity
SPEED SENSOR	102-9029	2
PRES SWITCH	110-1168	2
SENSOR MAIN AIR PRESSURE	130-8299	2
SENSOR TEMP	130-9811	2
SENSOR PRESSURE	149-5150	2
EXTENSION	150-2050	20
SENSOR GRP PRESSURE	163-8523	3
KIT	171-6721	1
CONTROL GRP	176-1286	1
TRANSFORMER ASSY	191-9346	8
	194-6724	1
DETONATION	195-2431	3
TEMP SENSOR	207-2371	4
C-BREAKER	207-8496	2
C-BREAKER	207-8497	2
C-BREAKER	207-8498	2
SEAL	231-9892	1
BAR BUSS (NONE ON HAND)(NONE FOUND OR HAND)	233-7424	1
VOLTAGE REGULATOR	235-5725	1
SPARK PLUG. CHECK TO SEE IF THIS IS MOST CURRENT NUMBER	243-4291	80
CONTROL GROUP BRAIN	256-7635	2
HARNESS	261-5678	1
SENSOR GP AIR	261-5731	2
SEAL-O-RING	6V-5048	3
SEAL	8L-2786	2
TOGGLE SWITCH	8N-0694	1
SWITCH	9F-3099	2
SPEED SENSOR MAG	9X-5392	1



PINE TREE ACRES' MALFUNCTION ABATEMENT PLAN FOR
FLARES 4 and 6 (8-6-2020 Revision)

Permit condition III.4 of FGFLARES in Pine Tree Acres' Renewable Operating Permit #MI-ROP-N5984-2019 requires a Malfunction Abatement Plan (MAP) for the landfill gas Flares 4 and 6. The underlying applicable requirement is State Rule 911 that specifies minimum requirements for a MAP. The following paragraphs document Pine Tree Acres' MAP for these two enclosed flares in accordance with the provisions of Rule 911.

R911(2)(a)

Pine Tree Acres identifies the following Supervisory personnel for the responsibility of overseeing the inspection, maintenance, and repair of Flares 4 and 6.

Rachael Gregory (primary)
District Manager
262-620-5073

Lee Bilinsky (secondary)
Gas Operations Supervisor
810-459-7017

Todd Brady (secondary)
Gas Operations Manager
419-467-8123

The attached MAP identifies the equipment covered by this MAP along with the inspection/service frequency and replacement parts maintained in inventory. Inspection records are maintained electronically and saved to a WM network drive. In addition, hardcopy records are maintained in a log book stored on-site.

R911(2)(b)

The attached MAP identifies operating variables to be monitored to detect equipment malfunction along with the normal operating range of these operating variables and the method of inspection. Inspection frequencies are based on continuous operation. These frequencies are subject to adjustment when equipment is idled or placed in extended cold storage.

R911(2)(c)

Pine Tree Acres' utility flares 3 and 5 operate as back-up control devices in the event of an extended malfunction of flares 4 and 6. Flare capacity is currently sufficient to extract landfill gas and maintain compliance.



WASTE MANAGEMENT, INC.

PINE TREE ACRES' MALFUNCTION ABATEMENT PLAN FOR FLARES 4 and 6 (4-24-2013 Revision)

Permit condition III.4 of FGFLARES in Pine Tree Acres' Renewable Operating Permit #MI-ROP-N5984-2013 requires a Malfunction Abatement Plan (MAP) for the landfill gas Flares 4 and 6. The underlying applicable requirement is State Rule 911 that specifies minimum requirements for a MAP. The following paragraphs document Pine Tree Acres' MAP for these two enclosed flares in accordance with the provisions of Rule 911.

R911(2)(a)

Pine Tree Acres identifies the following Supervisory personnel for the responsibility of overseeing the inspection, maintenance, and repair of Flares 4 and 6.

Joshua McFadden (primary)
Gas Operations Supervisor
586-531-8046

Rodney Nemeth (secondary)
Gas Operations Manager
734-231-8578

Terry Nichols (secondary)
District Manager
586-749-9698

The attached MAP identifies the equipment covered by this MAP along with the inspection/service frequency and replacement parts maintained in inventory. Inspection records are maintained electronically and saved to a WM network drive. In addition, hardcopy records are maintained in a log book stored on-site.

R911(2)(b)

The attached MAP identifies operating variables to be monitored to detect equipment malfunction along with the normal operating range of these operating variables and the method of inspection.

R911(2)(c)

Pine Tree Acres' utility flares 3 and 5 operate as back-up control devices in the event of an extended malfunction of flares 4 and 6. Flare capacity is currently sufficient to extract landfill gas and maintain compliance.

Flares 4 & 6 Operating Parameters

EQUIPMENT	OPERATING PARAMETER	RANGE
Blower	Motor Amperage Draw	(240 - 270 amps)
Blower	Bearing Temperature	(<220 F)
Blower	Vibration	Per Gardner Denver specification
Flare	Condensate Knockout Pot's Differential Pressure	(0 - 28 in. wc.)
Flare	Condensate Knockout Pot's Liquid Level	visible on sight glass
Flare	Flame Arrestor's Differential Pressure	(0 - 28 in. wc.)
Flare	Autodialer	Power on/enabled
Flare	Visual Check of Flare Stack and Burner	No visible emissions
Flare	Combustion Temperature	(Flare 4 > 1,600 F; Flare 6 >1,650 F)
Flare	Gas Flow Rate	(Flare 4 is 500 - 3,000 cfm; Flare 6 is 1,000 - 6,000 cfm)
Flare	Inlet Vacuum	(-50 to -90 in. wc)
Flare	Inlet Temperature	(40 - 90 F)

SPARE PARTS MAINTAINED IN INVENTORY

Thermocouples (main and pilot), spark plug igniter, UV detector, flow meter, panel indicator bulbs, grease, bearing oil, bearing and seal kits, mesh filter for KOPs, flare damper motor

Pine Tree Acres
Flares 4 and 6 - Malfunction Abatement Plan

Equipment Inspected/Serviced	Equipment	WEEKLY	MONTHLY	3 MOS.	6 MOS.	YEARLY
Check and Record Motor Amperage Draw	Blowers					
Landfill Gas Blower Lubrication	Blowers					
Check Blower Bearing Temperatures	Blowers					
Lubricate Blower Motor Bearings	Blowers					
Test All Blower Shutdowns	Blowers					
Check Condition of Motor Isolation Pads	Blowers					
Check Blower Motor Alignment	Blowers					
Record Line Current and Voltage on Blower Motors	Blowers					
Perform Vibration Analysis	Blowers					
Check Condensate Knockout Pot's Differential Pressure	Flare					
Check Condensate Knockout Pot's Liquid Level	Flare					
Check Flame Arrestor's Differential Pressure	Flare					
Check Propane Supply Tank Pressure	Flare					
Check Autodialer	Flare					
Check and Record Combustion Temperature	Flare					
Check and Record Gas Flow Rate	Flare					
Check and Record Inlet Vacuum	Flare					
Check and Record Inlet Temperature	Flare					
Complete Inspection Checklist	Flare					
Download Datagraph	Flare					
Visual Check of Flare Stack and Burner	Flare					
Check Pipe Supports	Flare					
Check Flare Flame Detection Equipment	Flare					
Check/Clean Flame Arrestor	Flare					
Inspect/Clean Flame Scanner View and Vent Port	Flare					
Inspect/Clean Flare Ignitor	Flare					
Verify Operation of Flare Pilot	Flare					
Calibrate Flow Meter	Flare					



WASTE MANAGEMENT, INC.

PINE TREE ACRES' MALFUNCTION ABATEMENT PLAN FOR THE LANDFILL GAS TREATMENT SYSTEM (8-6-2020 Revision)

Permit condition IX.3 for EUTREATMENTSYS in Pine Tree Acres' Renewable Operating Permit # MI-ROP-N5984-2013a requires a Malfunction Abatement Plan (MAP) for the landfill gas treatment system. The underlying applicable requirement is State Rule 911 that specifies minimum requirements for an MAP. The following paragraphs document Pine Tree Acres' MAP in accordance with the provisions of Rule 911.

R911(2)(a)

Pine Tree Acres identifies the following Supervisory personnel for the responsibility of overseeing the inspection, maintenance, and repair of the gas treatment system.

Rachael Gregory (primary)
District Manager
262-620-5073

Lee Bilinsky (secondary)
Gas Operations Supervisor
810-459-7017

Todd Brady (secondary)
Gas Operations Manager
419-467-8123

The attached MAP identifies the equipment covered by this MAP along with the inspection/service frequency and replacement parts maintained in inventory. Inspection records are maintained electronically and saved to a WM network drive. In addition, hardcopy records are maintained in a log book stored on-site.

R911(2)(b)

The attached MAP identifies operating variables monitored to detect equipment malfunction along with the normal operating range of these operating variables and the method of inspection. Inspection frequencies are based on continuous operation. These frequencies are subject to adjustment when equipment is idled or placed in extended cold storage.

R911(2)(c)

Pine Tree Acres' utility flares 3 and 5 operate as back-up control devices in the event of an extended malfunction of the landfill gas treatment system. Flare capacity is currently sufficient to extract landfill gas and maintain compliance.



PINE TREE ACRES' MALFUNCTION ABATEMENT PLAN FOR THE HYDROGEN SULFIDE REMOVAL SYSTEM

4/2/2015

PINE TREE ACRES' MALFUNCTION ABATEMENT PLAN FOR THE HYDROGEN SULFIDE REMOVAL SYSTEM

Permit condition III.4 for FG ENGINES and condition IV. 1 for FG FLARES in Pine Tree Acres' (PTAs) Renewable Operating Permit #MI-ROP-N5984-2013 require a Malfunction Abatement Plan (MAP) for the hydrogen sulfide-removal system. The monitoring frequency increased from monthly to daily with issuance of Permit to Install #160-14. Therefore, the following MAP has been revised to reflect recent changes. The underlying applicable requirement is State Rule 911 that specifies minimum requirements for a MAP. The following paragraphs document PTA's MAP for the hydrogen sulfide-removal system in accordance with the provisions of Rule 911.

PTA's hydrogen sulfide-removal system is comprised of two distinct technologies. The Thiopaq® process is PTA's primary H₂S control and the SulfaTreat® process serves as a secondary/backup control. Since these are distinct H₂S control technologies, they are discussed separately in the following MAP. The following plans identify operating variables to be monitored to detect equipment malfunction. In addition, the plans identify normal ranges of these operating variables and the method of inspection. The plans also identify relevant equipment, inspection/service frequency, and replacement parts maintained in inventory. Inspection records are maintained electronically and saved to a WM network drive. In addition, hardcopy records are maintained in a logbook stored on-site.

R911(2)(a) – Supervisory Personnel Responsible for MAP

PTA identifies the following Supervisory personnel for the responsibility of overseeing the inspection, maintenance, and repair of the hydrogen sulfide-removal system.

Lee Bilinsky (primary for Thiopaq/SulfaTreat)
District Manager
810-459-7017

Todd Brady (secondary for Thiopaq/SulfaTreat)
Gas Operations Manager
419-467-8123

R911(2)(b) – Operating Variables Monitored and Inspection Methods for SulfaTreat MAP

The following table identifies operating variables to be monitored to detect SulfaTreat malfunction along with the normal operating range of these operating variables and the method of inspection. SulfaTreat's product literature attached provides additional detail on operation and maintenance.

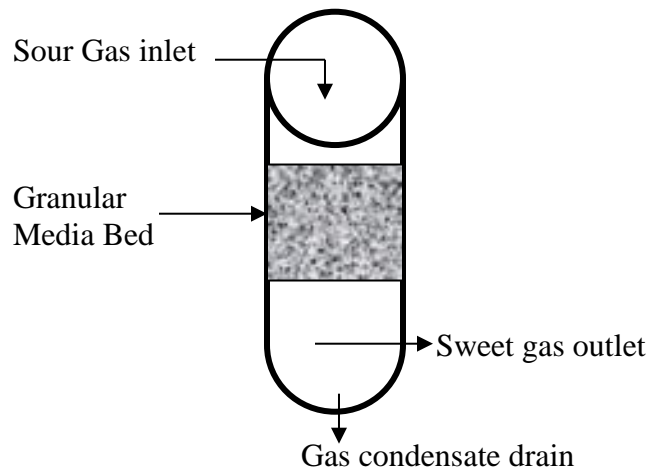
EQUIPMENT	OPERATING PARAMETER	MONITORING FREQUENCY	OPERATING RANGE
SulfaTreat vessel(s)	H ₂ S concentration	Daily (minimum) exclusive of weekends and holidays	< 269 ppm (TRS equivalent)
SulfaTreat vessel(s)	Differential pressure (balance flow if multiple tanks on-line)	Weekly	1 – 2 psi differential pressure
Vessel drain lines	Ensure that condensate does not accumulate	Weekly	Sufficient to maintain adequate gas flow
SulfaTreat vessels & piping	Ensure structural integrity. Ensure that valves, flanges, and piping are leak free.	Monthly	No gas odors; no evidence of cracks, leaks, or metal fatigue

R911(2)(c) – Corrective Action in the event of MAP Noncompliance

PTA's utility flares 3 and 5, along with one of PTA's 3rd party engine plants (Aria Energy Plant II), operate as back-up control devices in the event of an extended malfunction of the hydrogen sulfide-removal system. Flares 3 and 5 have a combined capacity of 5,100 scfm. Permit MI-ROP-N5984-2013 does not require hydrogen sulfide removal from landfill gas combusted in these two flares. Aria Energy's two-engine plant provides an additional 1,000 scfm of capacity, roughly. Therefore, flare and engine plant capacity is currently sufficient to extract landfill gas and maintain compliance. The media-based SulfaTreat control will serve as a back-up control to the primary Thiopaq control in the event of an extended malfunction.

SulfaTreat Process Description

The SulfaTreat process entails H₂S-laden (sour) gas flowing through granular media contained in a pressure vessel. A chemical reaction occurs on the iron-oxide coating of the SulfaTreat media and H₂S is permanently removed from the landfill gas stream. The spent media is nonhazardous. The general reaction and process are as follows:



H₂S Monitoring of SulfaTreat Tank Operation

Manual, gear-operated butterfly valves in the header and tank piping serve as the mechanical means for adjusting and optimizing the system. Prints of the SulfaTreat tank system are provided in the attachment for reference. Differential pressure gauges serve as the monitored parameter to ensure flow equilibrium through each of the four tanks. Orifice plates located in the tank outlet piping operate in conjunction with these pressure gauges as an indirect measure of gas flow.

Outlet H₂S concentration (ppm) will serve as the monitored parameter to properly adjust the inlet /outlet header piping. Two parallel 14-inch diameter blend lines connect the 24-inch diameter inlet and outlet header pipes. Manual adjustments of these 14-inch butterfly valves will ensure consistent H₂S concentrations below 269 ppm (TRS equivalent).

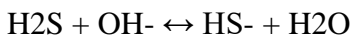
Gas condensate collecting in the base of each tank is drained manually to the adjacent (north) Process Liquids Sump. From the Process Liquids Sump, condensate is automatically pumped into the leachate force main via 4-inch diameter pipes (with dual containment). The SulfaTreat gas condensate ultimately discharges to the 40,000-gallon aboveground leachate storage tank.

SulfaTreat Reference Material

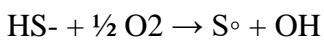
The vendor literature attached provides general process information, vessel drawings, and basic monitoring and operating recommendations. Storage and handling guidance is provided along with procedures for media change out and disposal. A material safety data sheet is included along with a waste analysis of the spent media.

Thiopaq Process Description

The THIOPAQ process consists of three integrated steps. First, the sour gas is scrubbed with a mildly alkaline solution (pH 8 to 9). Hydrogen sulfide is absorbed into aqueous solution and sweet gas exits the contactor. The absorption of H₂S and dissociation to hydrosulfide proceeds according to the following equation:

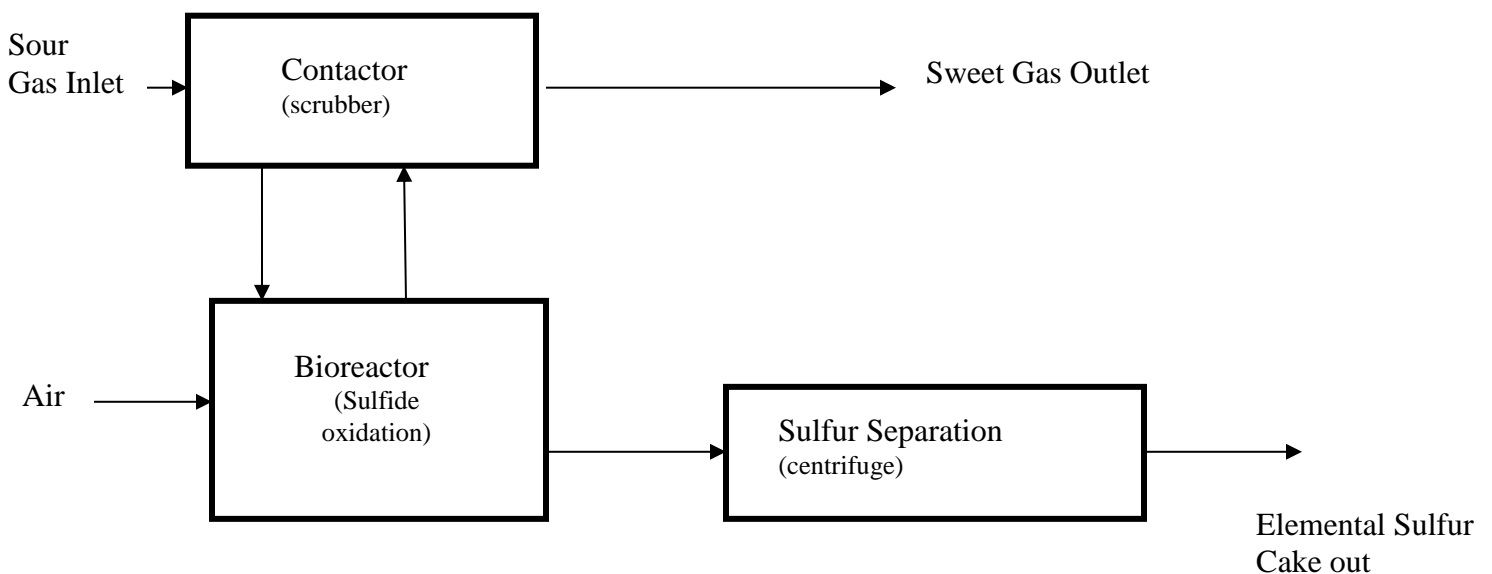


Second, the solution flows to a bioreactor where a controlled amount of air is introduced. The Thiobacillus bacteria, a naturally occurring organism, consume the sulfide ions and excrete elemental sulfur. This biological process evolves a hydroxide ion effectively regenerating the caustic used in the first absorption step. The oxidation of hydrosulfide to elemental sulfur and the regeneration of hydroxide proceeds according to the following equation:



Third, elemental sulfur is separated from the liquid phase as a concentrated sludge by a centrifuge. Thiopaq's Operations Manual, Sections 2 and 3, provide additional detail on the major process equipment and process chemistry.

Thiopaq Process Flow



R911(2)(b) – Operating Variables Monitored and Inspection Methods for Thiopaq MAP

The following table identifies operating variables to be monitored to detect Thiopaq equipment malfunction along with the normal operating range of these operating variables and the method of inspection. Thiopaq’s Operations Manual, Sections 9 and 11, provides additional detail on the maintenance and inspection schedule.

For purposes of this plan, a “daily” monitoring frequency refers to normal plant operating days. This excludes holidays, weekends, mandatory training, etc. It is assumed that pump overhauls will be performed as necessary. Initially, detailed pump inspections and major service is anticipated to occur on an annual frequency. The following pumps and blowers are spared for redundancy to minimize operational downtime: solution circulation pumps, sulfur slurry pumps, filtrate pumps, and bioreactor air blowers.

PROCESS EQUIPMENT	EQUIPMENT TYPE	OPERATING PARAMETER	MONITORING FREQUENCY	OPERATING RANGE
<i>Scrubber Skid Components</i>				
Inlet Scrubber Pump	Diaphragm Pump	Liquid level in inlet scrubber	Daily	30 psig, 30 gpm, 1 HP motor
Outlet Scrubber Pump	Diaphragm Pump	Liquid level in outlet scrubber	Daily	30 psig, 30 gpm, 3 HP motor
Inlet Gas Scrubber	Vessel	Liquid level in inlet scrubber	Daily	Below high level alarm < 10 psig Free of leaks, cracks
		Gas pressure Structural integrity	Daily Monthly	
Outlet Gas Scrubber	Vessel	Liquid level in outlet scrubber	Daily	Below high level alarm <269 ppm (TRS equivalent) Free of leaks, cracks
		H2S concentration	Daily (minimum)	
		Structural integrity	Monthly	
<i>Pump Skid Components</i>				
Solution Cooler	Heat Exchanger	Temperature of Paques solution in Contactor	Daily	77 - 104 degrees F
Solution Circulation Pumps (3)	Pump	Liquid flow to contactor, sump sprays, and Sulfur Settler	Daily	50 psig, 2,000 – 3,300 gpm, 150 HP motor
<i>Blower Skid Components</i>				
Bioreactor	Vessel	pH, redox, liquid level	Daily	pH of 7.9 – 8.9, redox of -150 to -350 mV, liquid level within setpoint Free of leaks, cracks
		Structural integrity	Monthly	
Bioreactor Air Blower (2)	Blower	Mixing/oxidation in bioreactor	Daily	14 psig, 450 scfm, 50 HP motor

Bioreactor Air Cooler	Heat Exchanger	Air Temperature introduced to bioreactor	Daily	Air temperature of approximately 77 degrees F
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PROCESS EQUIPMENT	EQUIPMENT TYPE	OPERATING PARAMETER	MONITORING FREQUENCY	OPERATING RANGE
<i>Off Skid Components</i>				
Decanting Centrifuge	Centrifuge	% solids in sulfur cake	Daily	65 – 85% elemental sulfur
Sulfur Slurry Pump (2)	Pump	Liquid flow to decanting centrifuge	Daily	Approximately 1 – 2 gpm
Caustic Dosing Pump	Pump	pH of bioreactor	Daily	Approximately 1 – 2 gph
PROCESS EQUIPMENT	EQUIPMENT TYPE	OPERATING PARAMETER	MONITORING FREQUENCY	OPERATING RANGE
Nutrient Dosing Pump	Pump	Oxidation in bioreactor	Daily	Approximately .1 - .2 gph 30 mL/kg S
Sulfur Settler	Vessel	Maintain slurry feed to centrifuge Structural integrity	Daily	Below high level alarm
Nutrient Tote	Vessel	Store nutrimix for bioreactor	Daily	Maintain sufficient level in 275-gallon tote
Contactor Vessel	Vessel	Liquid flow, pressure, differential pressure, temperature Structural integrity	Daily	Liquid level and pressure control settings established at commissioning
			Monthly	Free of leaks, cracks
Filtrate Tank	Vessel	Store process bleed stream to maintain process conductivity Structural integrity	Daily	Conductivity range of 45 – 85 mS/cm
			Monthly	Free of leaks, cracks
Filtrate Pump (2)	Pump	Liquid level in Filtrate Tank	Daily	30 psig, 5 gpm, 5 HP motor
Air Compressor	Compressor	Supply adequate instrument air to pumps and valves	Daily	80 psig, 30 – 50 cfm
Process Analytical Equipment	Redox and pH laboratory meters	Calibration	Weekly	Refer to vendor manuals

Process Analytical Equipment	Redox and pH probes	Inspect/Calibrate	Monthly	Refer to vendor manuals
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Corrective Action for Thiopaq Malfunctions

In the event of Thiopaq malfunction, one or more of the following corrective actions will be taken. The following table lists possible malfunctions, affected equipment, corrective actions, and relevant timelines for corrective actions. Thiopaq’s Operations Manual, Section 10, provides a detailed troubleshooting guide.

THIOPAQ MALFUNCTION	CORRECTIVE ACTION	APPROXIMATE TIMELINE
System shutdown	Investigate cause and restart Thiopaq. If extended downtime is anticipated, start SulfaTreat system.	Initiate investigation immediately. Timeline for correction depends on the nature of the shutdown.
Low H ₂ S removal efficiency	Check gas composition. Verify that nutrient dosing pump is operational. Check for contamination in nutrients, caustic and water.	Initiate investigation immediately. Corrective action may require 1 – 2 days to resolve.
pH alarm	Check caustic storage tank levels. Verify proper control setpoints. Check caustic pump and settings. Check pH meter and calibrate if necessary.	Initiate corrective action within 24 hours of discovery. Corrective action may require 1 – 2 days to resolve.
Foaming	Adjust flow foam sprayers. Clean spray nozzles. Evaluate process stability.	Initiate within 72 hours of discovery. Corrective action may require 1 – 2 days to resolve.
Tank leakage/freeze up	Ensure proper containment. Ensure tank components are working properly.	Initiate containment/isolation immediately. Corrective action may require 1 – 2 days to resolve.
Air Compressor	Ensure that components are working properly. Inspect for damage and/or leakage. Replace/repair as necessary.	Initiate corrective action within 24 hours if compressor is not functioning or preventing the thiopaq from operating properly. Corrective action may take 1 – 2 days to resolve.
Electrical outage	Notify site electrician. Restart thiopaq once power is restored.	Corrective action may require 1 – 7 days depending on utility power.

As thiopaq accomplishes H₂S removal via a biological process, establishing the proper bioreactor conditions is a time-dependent process. Process shakeout involves slowly acclimating the thiobacillus bacteria to the bioreactor environment to establish appropriate biomass. Therefore, landfill gas is gradually added to the process (e.g. 500 – 1,000 scfm/day increments). To initially establish, or re-establish, bacterial colonies may take 2 – 4 days, depending on process variables. Thiopaq’s Operations Manual, Section 8, provides a detailed start up procedure.

It is anticipated that completely re-establishing bacterial colonies will occur infrequently, possibly due to shock loadings, extended power outages, or other significant process malfunctions. By contrast, re-establishing thiopaq process equilibrium, will occur periodically as a result of more routine, short-term outages/malfunctions

(e.g. wellfield construction, gas quality fluctuations, power interruptions). SulfaTreat will be employed as a back up to thiopaq in response to process upsets.

H2S Sampling of SulfaTreat and Thiopaq Operations

PTA proposes to sample the inlet and outlet H2S concentration using Drager Tubes or other colorimetric sampling tubes (e.g. Gas Tech brand) of equal accuracy and quality. As an alternative, PTA will sample H2S concentration using Landtec’s GEM 2000 Gas Analyzer. An H2S monitor (Pod) attaches to Landtec’s standard landfill gas analyzer and is calibrated to accurately monitor H2S in the relevant range of 0 – 300 ppm.

H2S sampling will typically occur daily, exclusive of holidays and weekends, to document that the maximum outlet concentration does not exceed 269 ppm, Total Reduced Sulfur equivalent. Drager Tube and GEM Pod samples will be periodically quality assured by lab samples analyzed by EPA Methods 15 and 16.

SO2 Emission Recordkeeping

In accordance with permit #164-14, condition VI.6-c for FGENGINES and VI.2 for FGFLARES, PTA proposes to maintain monthly SO2 emission calculation records. The spreadsheet below illustrates how these records will be maintained. For flares 4 & 6, H2S-treated concentrations, measured daily by Drager Tube or GEM Pod, will be averaged to obtain a monthly, representative concentration. Mass emissions calculations will apply this average monthly concentration (ppm) to the total monthly operating time (hours) for flares 4 & 6. The resulting SO2 emission rate, recorded in pounds per hour, will demonstrate compliance with the permit limits in conditions I.1 and 2.

MONTH	FLARE #6 FLOW (MCF)	FLARE OPERATION (HOURS)	H2S CONC. (PPM)	SO2 EMISSIONS (LB/HR)	SO2 LIMIT (LB/HR)
Mar – ‘15	118,841	743	151	4.00	16.10

Example calculation for March 2015:

$$151 \text{ parts}/10^6 \text{ parts} \times 32 \text{ lbs. S} / \text{lb. mole} \times 64 \text{ moles SO}_2 / 32 \text{ moles S} \times 1 \text{ lb. mole lfg} / 386 \text{ cf} \times 118,841,000 \text{ cf} / \text{mo.} \times \text{Mar.} / 743 \text{ hrs} = 4.00 \text{ lbs SO}_2/\text{hr}$$

For the WMRE Engine Plant, the SO2 limit is 1.57 lbs/hr for each individual engine. However, flow is not metered to each individual engine, but rather, to the entire 8-engine plant. As a surrogate to flow metering, electrical output (KW) from each engine is used to demonstrate compliance (see below). Actual monthly KW output and runtime hours are used to calculate the single highest engine’s fuel flow for each month. For each month, the engine with the highest KW output and corresponding fewest engine hours is selected as the engine with highest fuel consumption (SCF/hr). Demonstrating compliance for the single, highest emitting engine demonstrates compliance for the entire 8-engine plant.

MONTH	HIGHEST ENGINE KW	ENGINE OUTPUT (KW)	ENGINE OPERATION (HOURS)	ENGINE FLOW (SCF/hr)	H2S CONC. (PPM)	SO2 EMISSIONS (LB/HR)	SO2 LIMIT (LB/HR)
Mar – ‘15	Engine #4	1,182,410	736	35,322	154	0.90	1.57

Example (SCF/hr) calculation - Mar. ‘15

$(17.8 \text{ MMBTU/hr} \times 1,182,410 \text{ KW-hr/mo.} \times 10^6 \text{ BTU/MMBTU}) / (1,600 \text{ KW/engine} \times 736 \text{ hr/mo.} \times 506 \text{ BTU/SCF}) = 35,322 \text{ SCF /hr}$

Example SO₂ calculation – Mar. ‘15

$154 \text{ parts}/10^6 \text{ parts} \times 34 \text{ lbs. H}_2\text{S} / \text{lb mole} \times 64 \text{ moles SO}_2 / 34 \text{ moles H}_2\text{S} \times 1 \text{ lb. mole lfg} / 386 \text{ cf} \times 35,322 \text{ SCF / hr} = 0.90 \text{ lbs SO}_2/\text{hr}$

Malfunction Abatement Plan Amendments

Pine Tree Acres’ MAP for the hydrogen sulfide-removal system will be reviewed annually, or more frequently if conditions warrant. The MAP will be updated and plan amendments will be submitted to MDEQ-AQD for approval.

Attachment A:

- Pine Tree Acres’ SulfaTreat Tank Arrangement – Plan View
- Pine Tree Acres’ SulfaTreat Tank Detail – Elevation View
- SulfaTreat Product Literature – General Application of the SulfaTreat Process
- SulfaTreat Product Literature – Safety and Handling Considerations
- SulfaTreat Product Literature – Changeout Procedure
- SulfaTreat 410HP media Material Safety Data Sheet
- SulfaTreat Product Literature – Non-hazardous Environmental Characteristics and Reaction Products



RENEWABLE OPERATING PERMIT RENEWAL APPLICATION FORM

This information is required by Article II, Chapter 1, Part 55 (Air Pollution Control) of P.A. 451 of 1994, as amended, and the Federal Clean Air Act of 1990. Failure to obtain a permit required by Part 55 may result in penalties and/or imprisonment. Refer to instructions for additional information to complete the Renewable Operating Permit Renewal Application Form.

GENERAL INSTRUCTIONS

This application form should be submitted as part of an administratively complete application package for renewal of a Renewable Operating Permit (ROP). This application form consists of nine parts. Parts A – H must be completed for all applications and must also be completed for each section of a sectioned ROP. Answer all questions in all parts of the form unless directed otherwise. Detailed instructions for this application form can be found at <http://michigan.gov/air> (select the Permits Tab, “Renewable Operating Permits (ROP)/Title V”, then “ROP Forms & Templates”).

PART A: GENERAL INFORMATION

Enter information about the source, owner, contact person and the responsible official.

SOURCE INFORMATION

SRN N5984	SIC Code 4911	NAICS Code 221119	Existing ROP Number MI-ROP-N5984-2019	Section Number (if applicable) 2
Source Name Sumpter Energy Associates, LLC				
Street Address 36450 29 Mile Road				
City Lennox	State MI	ZIP Code 48062	County Macomb	
Section/Town/Range (if address not available)				
Source Description Landfill gas to energy electricity generation facility located at the Pine Tree Acres Landfill. The existing facility consists of nine (9) treated landfill gas fueled reciprocating internal combustion engines (RICE) connected to electricity generators.				
<input type="checkbox"/> Check here if any of the above information is different than what appears in the existing ROP. Identify any changes on the marked-up copy of your existing ROP.				

OWNER INFORMATION

Owner Name Sumpter Energy Associates, LLC	Section Number (if applicable) 2			
Mailing address (<input type="checkbox"/> check if same as source address) 1605 N. Cedar Crest Blvd., Suite 509				
City Allentown	State PA	ZIP Code 18104	County Lehigh	Country USA

Check here if any information in this ROP renewal application is confidential. Confidential information should be identified on an Additional Information (AI-001) Form.

PART A: GENERAL INFORMATION (continued)

At least one contact and responsible official must be identified. Additional contacts and responsible officials may be included if necessary.

CONTACT INFORMATION

Contact 1 Name Ed Werkheiser		Title PGD Principal Environmental Specialist		
Company Name & Mailing address (<input type="checkbox"/> check if same as source address) NextEra Energy Resources, LLC				
City Allentown	State PA	ZIP Code 18104	County Lehigh	Country USA
Phone number (484)-294-8253		E-mail address edward.werkheiser@nexteraenergy.com		

Contact 2 Name (optional) Kate Henry		Title Environmental Scientist		
Company Name & Mailing address (<input type="checkbox"/> check if same as source address) Impact Compliance & Testing, Inc. 37660 Hills Tech Drive				
City Farmington Hills	State MI	ZIP Code 48331	County Oakland	Country USA
Phone number (734)-464-4834		E-mail address Kate.Henry@impactcandt.com		

RESPONSIBLE OFFICIAL INFORMATION

Responsible Official 1 Name Justin Brenner		Title Vice President Environmental Trading & Renewable Fuels		
Company Name & Mailing address (<input type="checkbox"/> check if same as source address) Nextera Energy Marketing, LLC – 700 Universe Blvd., Juno Beach Office (Mail Code: EPM/JB)				
City Juno Beach	State FL	ZIP Code 33408	County Palm Beach	Country USA
Phone number (561) 304-6047		E-mail address justin.brenner@nexteraenergy.com		

Responsible Official 2 Name (optional) Segun Ojetayo		Title Senior Director of Operations & Construction		
Company Name & Mailing address (<input type="checkbox"/> check if same as source address) NextEra Energy Pipeline Services, LLC – 700 Universe Blvd., Juno Beach (Mail Code: D4A/JB)				
City Juno Beach	State FL	ZIP Code 33408	County Palm Beach	Country USA
Phone number (561) 691-2777		E-mail address segun.ojetayo@nexteraenergy.com		

<input type="checkbox"/> Check here if an AI-001 Form is attached to provide more information for Part A. Enter AI-001 Form ID:

PART B: APPLICATION SUBMITTAL and CERTIFICATION by Responsible Official

Identify the items that are included as part of your administratively complete application in the checklist below. For your application to be complete, it must include information necessary to evaluate the source and to determine all applicable requirements. Answer the compliance statements as they pertain to all the applicable requirements to which the source is subject. The source's Responsible Official must sign and date this form.

Listing of ROP Application Contents. Check the box for the items included with your application.	
<input checked="" type="checkbox"/> Completed ROP Renewal Application Form (and any AI-001 Forms) (required)	<input type="checkbox"/> Compliance Plan/Schedule of Compliance
<input checked="" type="checkbox"/> Mark-up copy of existing ROP using official version from the AQD website (required)	<input type="checkbox"/> Stack information
<input checked="" type="checkbox"/> Copies of all Permit(s) to Install (PTIs) that have not been incorporated into existing ROP (required)	<input type="checkbox"/> Acid Rain Permit Initial/Renewal Application
<input checked="" type="checkbox"/> Criteria Pollutant/Hazardous Air Pollutant (HAP) Potential to Emit Calculations	<input type="checkbox"/> Cross-State Air Pollution Rule (CSAPR) Information
<input type="checkbox"/> MAERS Forms (to report emissions not previously submitted)	<input type="checkbox"/> Confidential Information
<input type="checkbox"/> Copies of all Consent Order/Consent Judgments that have not been incorporated into existing ROP	<input checked="" type="checkbox"/> Paper copy of all documentation provided (required)
<input type="checkbox"/> Compliance Assurance Monitoring (CAM) Plan	<input checked="" type="checkbox"/> Electronic documents provided (optional)
<input checked="" type="checkbox"/> Other Plans (e.g., Malfunction Abatement, Fugitive Dust, Operation and Maintenance, etc.)	<input checked="" type="checkbox"/> Other, explain: ROP Modification Dated 10.13.22

Compliance Statement

This source is in compliance with **all** of its applicable requirements, including those contained in the existing ROP, Permits to Install that have not yet been incorporated into that ROP, and other applicable requirements not currently contained in the existing ROP. Yes No

This source will continue to be in compliance with all of its applicable requirements, including those contained in the existing ROP, Permits to Install that have not yet been incorporated into that ROP, and other applicable requirements not currently contained in the existing ROP. Yes No

This source will meet in a timely manner applicable requirements that become effective during the permit term. Yes No

The method(s) used to determine compliance for each applicable requirement is/are the method(s) specified in the existing ROP, Permits to Install that have not yet been incorporated into that ROP, and all other applicable requirements not currently contained in the existing ROP.

If any of the above are checked No, identify the emission unit(s) or flexible group(s) affected and the specific condition number(s) or applicable requirement for which the source is or will be out of compliance at the time of issuance of the ROP renewal on an AI-001 Form. Provide a compliance plan and schedule of compliance on an AI-001 Form.

Name and Title of the Responsible Official (Print or Type)

Segun Ojetayo – Senior Director of Operations & Construction

As a Responsible Official, I certify that, based on information and belief formed after reasonable inquiry, the statements and information in this application are true, accurate, and complete.



Signature of Responsible Official



Date

PART C: SOURCE REQUIREMENT INFORMATION

Answer the questions below for specific requirements or programs to which the source may be subject.

C1.	Actual emissions and associated data from all emission units with applicable requirements (including those identified in the existing ROP, Permits to Install and other equipment that have not yet been incorporated into the ROP) are required to be reported in MAERS. Are there any emissions and associated data that have not been reported in MAERS for the most recent emissions reporting year? If Yes , identify the emission unit(s) that was/were not reported in MAERS on an AI-001 Form. Applicable MAERS form(s) for unreported emission units must be included with this application.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
C2.	Is this source subject to the federal regulations on ozone-depleting substances? (40 CFR Part 82)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
C3.	Is this source subject to the federal Chemical Accident Prevention Provisions? (Section 112(r) of the Clean Air Act Amendments, 40 CFR Part 68) If Yes , a Risk Management Plan (RMP) and periodic updates must be submitted to the USEPA. Has an updated RMP been submitted to the USEPA?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No
C4.	Has this stationary source added or modified equipment since the last ROP renewal that changes the potential to emit (PTE) for criteria pollutant (CO, NO _x , PM ₁₀ , PM _{2.5} , SO ₂ , VOC, lead) emissions? If Yes , include potential emission calculations (or the PTI and/or ROP revision application numbers, or other references for the PTE demonstration) for the added or modified equipment on an AI-001 Form. If No , criteria pollutant potential emission calculations do not need to be included.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
C5.	Has this stationary source added or modified equipment since the last ROP renewal that changes the PTE for hazardous air pollutants (HAPs) regulated by Section 112 of the federal Clean Air Act? If Yes , include potential emission calculations (or the PTI and/or ROP revision application numbers or other references for the PTE demonstration) for the added or modified equipment on an AI-001 Form. Fugitive emissions must be included in HAP emission calculations. If No , HAP potential emission calculations do not need to be included.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
C6.	Are any emission units subject to the Cross-State Air Pollution Rule (CSAPR)? If Yes , identify the specific emission unit(s) subject to CSAPR on an AI-001 Form.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
C7.	Are any emission units subject to the federal Acid Rain Program? If Yes , identify the specific emission unit(s) subject to the federal Acid Rain Program on an AI-001 Form. Is an Acid Rain Permit Renewal Application included with this application?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
C8.	Are any emission units identified in the existing ROP subject to compliance assurance monitoring (CAM)? If Yes , identify the specific emission unit(s) subject to CAM on an AI-001 Form. If a CAM plan has not been previously submitted to EGLE, one must be included with the ROP renewal application on an AI-001 Form. If the CAM Plan has been updated, include an updated copy. Is a CAM plan included with this application? If a CAM Plan is included, check the type of proposed monitoring included in the Plan: 1. Monitoring proposed by the source based on performance of the control device, or 2. Presumptively Acceptable Monitoring, if eligible	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> <input type="checkbox"/>
C9.	Does the source have any plans such as a malfunction abatement plan, fugitive dust plan, operation/maintenance plan, or any other monitoring plan that is referenced in an existing ROP, Permit to Install requirement, or any other applicable requirement? If Yes , then a copy must be submitted as part of the ROP renewal application.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
C10.	Are there any specific requirements that the source proposes to be identified in the ROP as non-applicable? If Yes , then a description of the requirement and justification must be submitted as part of the ROP renewal application on an AI-001 Form.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<input type="checkbox"/>	Check here if an AI-001 Form is attached to provide more information for Part C. Enter AI-001 Form ID: AI-	

PART D: PERMIT TO INSTALL (PTI) EXEMPT EMISSION UNIT INFORMATION

Review all emission units at the source and answer the question below.

D1. Does the source have any emission units that do not appear in the existing ROP but are required to be listed in the ROP application under R 336.1212(4) (Rule 212(4)) of the Michigan Air Pollution Control Rules? If Yes, identify the emission units in the table below. Yes No

If No, go to Part E.

Note: Emission units that are subject to process specific emission limitations or standards, even if identified in Rule 212, must be captured in either Part G or H of this application form. Identical emission units may be grouped (e.g. PTI exempt Storage Tanks).

Emission Unit ID	Emission Unit Description	Rule 212(4) Citation [e.g. Rule 212(4)(c)]	Rule 201 Exemption Rule Citation [e.g. Rule 282(2)(b)(i)]

Comments:

Check here if an AI-001 Form is attached to provide more information for Part D. Enter AI-001 Form ID: **AI-**

PART E: EXISTING ROP INFORMATION

Review all emission units and applicable requirements (including any source wide requirements) in the existing ROP and answer the questions below as they pertain to all emission units and all applicable requirements in the existing ROP.

<p>E1. Does the source propose to make any additions, changes or deletions to terms, conditions and underlying applicable requirements as they appear in the existing ROP? If <u>Yes</u>, identify changes and additions on Part F, Part G and/or Part H.</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
<p>E2. For each emission unit(s) identified in the existing ROP, <u>all</u> stacks with applicable requirements are to be reported in MAERS. Are there any stacks with applicable requirements for emission unit(s) identified in the existing ROP that were <u>not</u> reported in the most recent MAERS reporting year? If <u>Yes</u>, identify the stack(s) that was/were not reported on applicable MAERS form(s).</p>	<p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
<p>E3. Have any emission units identified in the existing ROP been modified or reconstructed that required a PTI? If <u>Yes</u>, complete Part F with the appropriate information.</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
<p>E4. Have any emission units identified in the existing ROP been dismantled? If <u>Yes</u>, identify the emission unit(s) and the dismantle date in the comment area below or on an AI-001 Form.</p>	<p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
<p>Comments: An ROP Modification (Rule 216(2)) was submitted on October 13, 2023 and is currently pending with EGLE. Those suggested revisions to the ROP are included in the markup copy of the ROP with this application.</p>	
<p><input type="checkbox"/> Check here if an AI-001 Form is attached to provide more information for Part E. Enter AI-001 Form ID: AI-</p>	

PART F: PERMIT TO INSTALL (PTI) INFORMATION

Review all emission units and applicable requirements at the source and answer the following questions as they pertain to **all** emission units with PTIs. Any PTI(s) identified below must be attached to the application.

F1. Has the source obtained any PTIs where the applicable requirements from the PTI have not been incorporated into the existing ROP? If Yes, complete the following table. Yes No
If No, go to Part G.

Permit to Install Number	Emission Units/Flexible Group ID(s)	Description (Include Process Equipment, Control Devices and Monitoring Devices)	Date Emission Unit was Installed/ Modified/ Reconstructed
68-22	EUENGINE10 FGRICENSPS10 FGRICEMACTNEW	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 gas to produce electricity	TBD

F2. Do any of the PTIs listed above change, add, or delete terms/conditions to **established emission units** in the existing ROP? If Yes, identify the emission unit(s) or flexible group(s) affected in the comments area below or on an AI-001 Form and identify all changes, additions, and deletions in a mark-up of the existing ROP. Yes No

F3. Do any of the PTIs listed above identify **new emission units** that need to be incorporated into the ROP? If Yes, submit the PTIs as part of the ROP renewal application on an AI-001 Form, and include the new emission unit(s) or flexible group(s) in the mark-up of the existing ROP. Yes No

F4. Are there any stacks with applicable requirements for emission unit(s) identified in the PTIs listed above that were not reported in MAERS for the most recent emissions reporting year? If Yes, identify the stack(s) that were not reported on the applicable MAERS form(s). Yes No

F5. Are there any proposed administrative changes to any of the emission unit names, descriptions or control devices in the PTIs listed above for any emission units not already incorporated into the ROP? If Yes, describe the changes on an AI-001 Form. Yes No

Comments:
F.2. Deletion of conditions associated with EU-ICENGINE10 is being requested. Addition of conditions associated with EUENGINE10, FGRICENSPS10 and FGRICEMACTNEW have been proposed to be included in the ROP. Details of the proposed revisions are outlined in the mark-up ROP in Appendix D.

F.3. A copy of PTI 68-22 is included as Appendix E and all conditions of the PTI are outlined in the mark-up ROP in Appendix D.

Check here if an AI-001 Form is attached to provide more information for Part F. Enter AI-001 Form ID: **AI-001**

PART G: EMISSION UNITS MEETING THE CRITERIA OF RULES 281(2)(h), 285(2)(r)(iv), 287(2)(c), OR 290

Review all emission units and applicable requirements at the source and answer the following questions.

G1. Does the source have any new and/or existing emission units which do not already appear in the existing ROP and which meet the criteria of Rules 281(2)(h), 285(2)(r)(iv), 287(2)(c), or 290.

If Yes, identify the emission units in the table below. If No, go to Part H.

Yes No

Note: If several emission units were installed under the same rule above, provide a description of each and an installation/modification/reconstruction date for each.

Origin of Applicable Requirements	Emission Unit Description – <i>Provide Emission Unit ID and a description of Process Equipment, Control Devices and Monitoring Devices</i>	Date Emission Unit was Installed/Modified/Reconstructed
<input type="checkbox"/> Rule 281(2)(h) or 285(2)(r)(iv) cleaning operation		
<input type="checkbox"/> Rule 287(2)(c) surface coating line		
<input type="checkbox"/> Rule 290 process with limited emissions		

Comments:

Check here if an AI-001 Form is attached to provide more information for Part G. Enter AI-001 Form ID: **AI-**

PART H: REQUIREMENTS FOR ADDITION OR CHANGE

Complete this part of the application form for all proposed additions, changes or deletions to the existing ROP. This includes state or federal regulations that the source is subject to and that must be incorporated into the ROP or other proposed changes to the existing ROP. **Do not include additions or changes that have already been identified in Parts F or G of this application form.** If additional space is needed copy and complete an additional Part H.

Complete a separate Part H for each emission unit with proposed additions and/or changes.

H1. Are there changes that need to be incorporated into the ROP that have not been identified in Parts F and G? If <u>Yes</u> , answer the questions below.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
H2. Are there any proposed administrative changes to any of the existing emission unit names, descriptions or control devices in the ROP? If <u>Yes</u> , describe the changes in questions H8 – H16 below and in the affected Emission Unit Table(s) in the mark-up of the ROP.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
H3. Does the source propose to add a new emission unit or flexible group to the ROP not previously identified in Parts F or G? If <u>Yes</u> , identify and describe the emission unit name, process description, control device(s), monitoring device(s) and applicable requirements in questions H8 – H16 below and in a new Emission Unit Table in the mark-up of the ROP. See instructions on how to incorporate a new emission unit/flexible group into the ROP.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
H4. Does the source propose to add new state or federal regulations to the existing ROP? If <u>Yes</u> , on an AI-001 Form, identify each emission unit/flexible group that the new regulation applies to and identify <u>each</u> state or federal regulation that should be added. Also, describe the new requirements in questions H8 – H16 below and add the specific requirements to existing emission units/flexible groups in the mark-up of the ROP, create a new Emission Unit/Flexible Group Table, or add an AQD template table for the specific state or federal requirement.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
H5. Has a Consent Order/Consent Judgment (CO/CJ) been issued where the requirements were not incorporated into the existing ROP? If <u>Yes</u> , list the CO/CJ number(s) below and add or change the conditions and underlying applicable requirements in the appropriate Emission Unit/Flexible Group Tables in the mark-up of the ROP.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
H6. Does the source propose to add, change and/or delete source-wide requirements? If <u>Yes</u> , identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
H7. Are you proposing to streamline any requirements? If <u>Yes</u> , identify the streamlined and subsumed requirements and the EU ID, and provide a justification for streamlining the applicable requirement below.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

PART H: REQUIREMENTS FOR ADDITION OR CHANGE – (continued)

H8. Does the source propose to add, change and/or delete **emission limit** requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below. Yes No

H9. Does the source propose to add, change and/or delete **material limit** requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below. Yes No

H10. Does the source propose to add, change and/or delete **process/operational restriction** requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below. Yes No

H11. Does the source propose to add, change and/or delete **design/equipment parameter** requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below. Yes No

H12. Does the source propose to add, change and/or delete **testing/sampling** requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below. Yes No

Request to remove Condition V.2 from FG-ENGINES, as per a May 2020 email communication from EGLE to Aria Energy, this condition is no longer required.

SEA is requesting EGLE to reduce sulfur sampling to annually. A revised/updated Sulfur Monitoring & Emissions Curtailment Plan with supporting information is attached to this application in Appendix C to support this request. The summary of daily H2S results from 2021-2023 are attached in Appendix G.

H13. Does the source propose to add, change and/or delete **monitoring/recordkeeping** requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below. Yes No

Measurement of the temperature of the air/fuel mixture at the aftercooler is not a good indicator of compliance with the NOx emission limit under Condition VI.4 and VI.5 of FG-ENGINES. Review of more recent air permits issued by EGLE reveals EGLE-AQD is no longer issuing permits that require air/fuel mixture temperature recordkeeping for similar LFG fueled RICE.

Request to remove Conditions VI.2 and VI.3 From FG-ENGINES. As per a May 2020 email communication from EGLE to Aria Energy, these conditions are no longer required.

H14. Does the source propose to add, change and/or delete **reporting** requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below. Yes No

SEA is requesting EGLE to reduce sulfur sampling to annually as allowed by Condition VII.1 of FG-ICENGINE2. A revised Sulfur Monitoring & Emissions Curtailment Plan with supporting documentation is attached to this application in Appendix C.

SRN: N5984	Section Number (if applicable): 2
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PART H: REQUIREMENTS FOR ADDITION OR CHANGE – (continued)

H15. Does the source propose to add, change and/or delete **stack/vent restrictions**? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below. Yes No

H16. Does the source propose to add, change and/or delete any **other** requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below. Yes No

H17. Does the source propose to add terms and conditions for an alternative operating scenario or intra-facility trading of emissions? If Yes, identify the proposed conditions in a mark-up of the corresponding section of the ROP and provide a justification below. Yes No

Check here if an AI-001 Form is attached to provide more information for Part H. Enter AI-001 Form ID: **AI-**



RENEWABLE OPERATING PERMIT APPLICATION AI-001: ADDITIONAL INFORMATION

This information is required by Article II, Chapter 1, part 55 (Air Pollution Control) of P.A. 451 of 1994, as amended, and the Federal Clean Air Act of 1990. Failure to obtain a permit required by Part 55 may result in penalties and/or imprisonment. Please type or print clearly. Refer to instructions for additional information to complete this form.

SRN: N5984

Section Number (if applicable): 2

1. Additional Information ID

AI-001

Additional Information

2. Is This Information Confidential?

Yes No

-Detailed PTE calculations are provided in Appendix B and summarized in Section 6 of the application document.
 -Section F proposes to incorporate all revised PTE calculations associated with PTI 68-22 issued June 6, 2022.
 -Below is a summary of the PTE including Total HAPS and Single HAPs (formaldehyde).

Source	Maximum Potential Emissions (TPY)							
	NO _x	CO	SO ₂	PM ₁₀	VOC	HAP(T)	HAP(S)	CO _{2e}
EU-ENGINE 1-7	154.2	223.80	33.73	9.22	39.58	31.36	26.06	58,392.50
EU-ICENGINE 8-9	26.28	142.79	65.70	10.34	42.22	20.69	18.40	25,318.13
EU-ICENGINE 10	13.14	71.38	20.63	5.19	21.20	10.26	9.11	13,879.96
Total Emissions	193.62	437.97	120.06	24.75	103.00	62.31	53.57	97,590.59

F.2 & F.3:

To incorporate PTI 68-22, emission unit EUENGINE10 and associated Flexible Groups, FGRICENSPS10 and FGRICEMACTNEW along with all associated conditions will need to be included, the ROP markup includes the proposed PTI 68-22 conditions.

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

EFFECTIVE DATE:

ISSUED TO

Pine Tree Acres, Inc. and Sumpter Energy Associates, LLC

State Registration Number (SRN): N5984

LOCATED AT

36600 29 Mile Road and 36450 29 Mile Road, Lenox Township, Michigan 48048

RENEWABLE OPERATING PERMIT

Permit Number: MI-ROP-N5984-

Expiration Date:

Administratively Complete ROP Renewal Application
Due Between

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 Michigan Air Pollution Control Rule 210(1), 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-N5984-

This Permit to Install (PTI) is issued in accordance with and subject to Section 5505(5) of Act 451. Pursuant to Michigan Air Pollution Control Rule 214a, 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

Joyce Zhu, Warren District Supervisor

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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.

Section 1 – Pine Tree Acres, Inc.

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SECTION 1 – PINE TREE ACRES, INC.

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))**

Section 1 – Pine Tree Acres, Inc.

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))**

Section 1 – Pine Tree Acres, Inc.

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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 states 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.

Section 1 – Pine Tree Acres, Inc.

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))**

Section 1 – Pine Tree Acres, Inc.

- 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:
- Operational flexibility changes made pursuant to Rule 215. **(R 336.1215(5))**
 - Administrative Amendments made pursuant to Rule 216(1)(a)(i)-(iv). **(R 336.1216(1)(b)(iii))**
 - 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))**
 - Minor Permit Modifications made pursuant to Rule 216(2). **(R 336.1216(2)(f))**
 - 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:
- 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))**
 - If additional requirements pursuant to Title IV of the CAA become applicable to this stationary source. **(R 336.1217(2)(a)(ii))**
 - 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))**
 - If the department determines that the ROP must be revised to ensure compliance with the applicable requirements. **(R 336.1217(2)(a)(iv))**

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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 reclaiming, 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))**

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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.

SOURCE-WIDE CONDITIONS

POLLUTION CONTROL EQUIPMENT

Sulfur/Total Reduced Sulfur removal system

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))

NA

VI. MONITORING/RECORDKEEPING

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

NA

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))

See Appendix 8-1

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VIII. STACK/VENT RESTRICTION(S)

N/A

IX. OTHER REQUIREMENT(S)

1. The operational restrictions and testing requirements in SC II.1, SC III.3 and SC V.3 under FG-ICENGINES at Pine Trees Acres (section 1) also applies to the landfill gas supplied to FG-ENGINES at the facility operated by Sumpter Energy (section 2).² **(R 336.2803, R 336.2804, 40 CFR 52.21 (c) & (d))**

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).

C. EMISSION UNIT 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
EU-ASBESTOS	Any active or inactive asbestos disposal at the MSW landfill.	01/01/1988	FG-LANDFILL-XXX FG-LANDFILL-WWW
EU-LANDFILL	A municipal solid waste (MSW) landfill that commenced construction, reconstruction, or modification after July 17, 2014. The MSW landfill has a design capacity equal to or greater than 2.5 million megagrams and 2.5 million cubic meters, and NMOC emissions equal to or greater than 34 Mg per year.	06/30/1986	FG-LANDFILL-XXX FG-LANDFILL-WWW
EU-ACTIVECOLLECTION	This emission unit represents the active landfill gas collection system that uses gas mover equipment to draw landfill gas from the wells and moves the gas to the control equipment.	01/01/1993	FG-LANDFILL-XXX FG-LANDFILL-WWW FG-ACTIVECOLLECTION-XXX FG-ACTIVECOLLECTION-WWW
EU-TREATMENTSYSTEM	A treatment system that filters, de-waters, and compresses landfill gas for subsequent sale or beneficial use. The treatment system removes particulate to at least the 10-micron level, compresses the landfill gas, and removes enough moisture to ensure good combustion of gas for subsequent use.	07/24/2001	FG-LANDFILL-XXX FG-LANDFILL-WWW FG-TREATMENTSYS-XXX FG-TREATMENTSYS-WWW
EU-FLARE3	A 3,000 CFM open flare. Open flare is an open combustor without enclosure or shroud.	08/12/2005 / 08/01/2006	FG-LANDFILL-XXX FG-LANDFILL-WWW FG-FLARES FG-OPENFLARES-XXX FG-OPENFLARES-WWW

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Emission Unit ID	Emission Unit Description (Including Process Equipment & Control Device(s))	Installation Date/ Modification Date	Flexible Group ID
EU-FLARE4	A 3,000 CFM enclosed flare with a sulfur removal system for reducing sulfur content of landfill gas prior to combustion. An enclosed flare is an enclosed combustor or firebox which maintains a relatively constant limited peak temperature generally using a limited supply of combustion air.	06/24/2009	FG-LANDFILL-XXX FG-LANDFILL-WWW FG-FLARES FG-ENCLOSEDFLARES-XXX FG-ENCLOSEDFLARES-WWW
EU-FLARE5	A 2,100 CFM portable, back-up only, open flare. Open flare is an open combustor without enclosure or shroud.	03/18/2009	FG-LANDFILL-XXX FG-LANDFILL-WWW FG-FLARES FG-OPENFLARES-XXX FG-OPENFLARES-WWW
EU-FLARE6	A 6,000 CFM enclosed flare with a sulfur removal system for reducing sulfur content of landfill gas prior to combustion. An enclosed flare is an enclosed combustor or firebox which maintains a relatively constant limited peak temperature generally using a limited supply of combustion air.	04/01/2011	FG-LANDFILL-XXX FG-LANDFILL-WWW FG-FLARES FG-ENCLOSEDFLARES-XXX FG-ENCLOSEDFLARES-WWW
EU-COLDCLEANER	This emission unit represents one or more small cold cleaners/degreasers installed after July 1, 1979, which are exempt from permit-to-install requirements.	06/26/2001	FG-COLDCLEANERS
EU-ICENGINE1	Spark ignition, lean burn, reciprocating internal combustion engine (Caterpillar G3520C, 2,233 bhp at 100% load) and associated generator set for combusting treated landfill gas to produce electricity (1.6-megawatt gross electrical output). This emission unit, and any replacement of this unit as applicable under R 336.1285(2)(a)(vi), is for a Caterpillar G3520C internal combustion engine greater than 500hp fueled with treated landfill/digester gas to produce electricity.	02/28/11	FG-ICENGINES FG-RICEMACT FG-RICENSPS

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Emission Unit ID	Emission Unit Description (Including Process Equipment & Control Device(s))	Installation Date/ Modification Date	Flexible Group ID
EU-ICENGINE2	Spark ignition, lean burn, reciprocating internal combustion engine (Caterpillar G3520C, 2,233 bhp at 100% load) and associated generator set for combusting treated landfill gas to produce electricity (1.6-megawatt gross electrical output). This emission unit, and any replacement of this unit as applicable under R 336.1285(2)(a)(vi), is for a Caterpillar G3520C internal combustion engine greater than 500hp fueled with treated landfill/digester gas to produce electricity.	02/28/11	FG-ICENGINES FG-RICEMACT FG-RICENSPS
EU-ICENGINE3	Spark ignition, lean burn, reciprocating internal combustion engine (Caterpillar G3520C, 2,233 bhp at 100% load) and associated generator set for combusting treated landfill gas to produce electricity (1.6-megawatt gross electrical output). This emission unit, and any replacement of this unit as applicable under R 336.1285(2)(a)(vi), is for a Caterpillar G3520C internal combustion engine greater than 500hp fueled with treated landfill/digester gas to produce electricity.	02/28/11	FG-ICENGINES FG-RICEMACT FG-RICENSPS
EU-ICENGINE4	Spark ignition, lean burn, reciprocating internal combustion engine (Caterpillar G3520C, 2,233 bhp at 100% load) and associated generator set for combusting treated landfill gas to produce electricity (1.6-megawatt gross electrical output). This emission unit, and any replacement of this unit as applicable under R 336.1285(2)(a)(vi), is for a Caterpillar G3520C internal combustion engine greater than 500hp fueled with treated landfill/digester gas to produce electricity.	02/28/11	FG-ICENGINES FG-RICEMACT FG-RICENSPS

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Emission Unit ID	Emission Unit Description (Including Process Equipment & Control Device(s))	Installation Date/ Modification Date	Flexible Group ID
EU-ICENGINE5	Spark ignition, lean burn, reciprocating internal combustion engine (Caterpillar G3520C, 2,233 bhp at 100% load) and associated generator set for combusting treated landfill gas to produce electricity (1.6-megawatt gross electrical output). This emission unit, and any replacement of this unit as applicable under R 336.1285(2)(a)(vi), is for a Caterpillar G3520C internal combustion engine greater than 500hp fueled with treated landfill/digester gas to produce electricity.	02/28/11	FG-ICENGINES FG-RICEMACT FG-RICENSPS
EU-ICENGINE6	Spark ignition, lean burn, reciprocating internal combustion engine (Caterpillar G3520C, 2,233 bhp at 100% load) and associated generator set for combusting treated landfill gas to produce electricity (1.6-megawatt gross electrical output). This emission unit, and any replacement of this unit as applicable under R 336.1285(2)(a)(vi), is for a Caterpillar G3520C internal combustion engine greater than 500hp fueled with treated landfill/digester gas to produce electricity.	02/28/11	FG-ICENGINES FG-RICEMACT FG-RICENSPS
EU-ICENGINE7	Spark ignition, lean burn, reciprocating internal combustion engine (Caterpillar G3520C, 2,233 bhp at 100% load) and associated generator set for combusting treated landfill gas to produce electricity (1.6-megawatt gross electrical output). This emission unit, and any replacement of this unit as applicable under R 336.1285(2)(a)(vi), is for a Caterpillar G3520C internal combustion engine greater than 500hp fueled with treated landfill/digester gas to produce electricity.	02/28/11	FG-ICENGINES FG-RICEMACT FG-RICENSPS

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Emission Unit ID	Emission Unit Description (Including Process Equipment & Control Device(s))	Installation Date/ Modification Date	Flexible Group ID
EU-ICENGINE8	Spark ignition, lean burn, reciprocating internal combustion engine (Caterpillar G3520C, 2,233 bhp at 100% load) and associated generator set for combusting treated landfill gas to produce electricity (1.6-megawatt gross electrical output). This emission unit, and any replacement of this unit as applicable under R 336.1285(2)(a)(vi), is for a Caterpillar G3520C internal combustion engine greater than 500hp fueled with treated landfill/digester gas to produce electricity.	02/28/11	FG-ICENGINES FG-RICEMACT FG-RICENSPS

EU-ASBESTOS EMISSION UNIT CONDITIONS

DESCRIPTION

Any active or inactive asbestos disposal at the MSW landfill.

Flexible Group ID: FG-LANDFILL-XXX, FG-LANDFILL-WWW

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

NA

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. If the landfill accepts asbestos-containing waste materials from a source covered under 40 CFR 61.149, 40 CFR 61.150, or 40 CFR 61.155, the permittee shall meet the following operational requirements: **(40 CFR 61.154)**
 - a. Either there must be no visible emissions to the outside air from any active waste disposal site where asbestos-containing waste material has been deposited, or the requirements of 40 CFR 61.154(c) or (d) must be met. **(40 CFR 61.154(a))**
 - b. Unless a natural barrier adequately deters access by the general public, either warning signs and fencing must be installed and maintained as required in 40 CFR 61.154(b), or the requirements of 40 CFR 61.154(c)(1) must be met.
 - i. Warning signs must be displayed at all entrances and at intervals of 100 m (330 ft) or less along the property line of the site or along the perimeter of the sections of the site where asbestos-containing waste material is deposited. The warning signs must:
 1. Be posted in such a manner and location that a person can easily read the legend **(40 CFR 61.154(b)(1)(i))**
 2. Conform to the requirements of 51 cm by 36cm (20 inches by 14 inches) upright format signs specified in 29 CFR 1910.145(d)(4) and 40 CFR 61.154(b)(1). **(40 CFR 61.154(b)(1)(ii))**
 3. The permittee shall display the legend in the lower panel with letter sizes and styles of a visibility at least equal to those specified in 40 CFR 61.154(b)(1). Spacing between any two lines must be at least equal to the height of the upper of the two lines. **(40 CFR 61.154(b)(1)(iii))**
 - ii. The perimeter of the disposal site must be fenced in a manner adequate to deter access by the general public. **(40 CFR 61.154(b)(2))**
 - iii. Upon request and supply of appropriate information, the appropriate AQD District Supervisor will determine whether a fence or a natural barrier adequately deters access by the general public. **(40 CFR 61.154(b)(3))**

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- c. Rather than meet the no visible emission requirement of 40 CFR 61.154(a), at the end of each operating day, or at least once every 24-hour period while the site is in continuous operation, the asbestos-containing waste material that has been deposited at the site during the operating day or previous 24-hour period shall:
 - i. Be covered with at least 15 centimeters (6 inches) of compacted non-asbestos-containing material. **(40 CFR 61.154(c)(1))** or
 - ii. Be covered with a resinous or petroleum-based dust suppression agent that effectively binds dust and controls wind erosion. Such an agent shall be used in the manner and frequency recommended for the particular dust by the dust suppression agent manufacturer to achieve and maintain dust control. Other equally effective dust suppression agents may be used upon prior approval by the appropriate AQD District Supervisor. For purposes of 40 CFR 61.154(c)(2), any used, spent, or other waste oil is not considered a dust suppression agent. **(40 CFR 61.154(c)(2))**
- d. Rather than meet the no visible emission requirement of 40 CFR 61.154(a), use an alternative emissions control method that has received prior written approval by the appropriate AQD District Supervisor according to the procedures described in 40 CFR 61.149(c)(2). **(40 CFR 61.154(d))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

- 1. Any segregated area of asbestos or nondegradable material may be excluded from collection if documented as provided under 40 CFR 60.758(d) or 40 CFR 60.768(d). The documentation shall provide the nature, date of deposition, location and amount of asbestos or nondegradable material deposited in the area and shall be provided to the AQD upon request. **(40 CFR 60.759(a)(3)(i), 40 CFR 60.769(a)(3)(i))**

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. For all asbestos-containing waste material received, the permittee of the active waste disposal site shall:
 - a. Maintain waste shipment records that include the following information: **(40 CFR 61.154(e)(1))**
 - i. The name, address, and telephone number of the waste generator. **(40 CFR 61.154(e)(1)(i))**
 - ii. The name, address, and telephone number of the transporter(s). **(40 CFR 61.154(e)(1)(ii))**
 - iii. The quantity of the asbestos-containing waste material in cubic meters (cubic yards). **(40 CFR 61.154(e)(1)(iii))**
 - iv. The presence of improperly enclosed or uncovered waste, or any asbestos-containing waste material not sealed in leak-tight containers. Report in writing to the local, State, or USEPA Regional office responsible for administering the asbestos NESHAP program for the waste generator (identified in the waste shipment record), and, if different, the local, State, or USEPA Regional office responsible for administering the asbestos NESHAP program for the disposal site, by the following working day, the presence of a significant amount of improperly enclosed or uncovered waste. Submit a copy of the waste shipment record along with the report. **(40 CFR 61.154(e)(1)(iv))**
 - v. The date of the receipt. **(40 CFR 61.154(e)(1)(v))**
 - b. As soon as possible and no longer than 30 days after receipt of the waste, send a copy of the signed waste shipment record to the waste generator. **(40 CFR 61.154(e)(2))**

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- c. Upon discovering a discrepancy between the quantity of waste designated on the waste shipment records and the quantity actually received, attempt to reconcile the discrepancy with the waste generator. If the discrepancy is not resolved within 15 days after receiving the waste, immediately report in writing to the local, State, or USEPA Regional office responsible for administering the asbestos NESHAP program for the waste generator (identified in the waste shipment record). **(40 CFR 61.154(e)(3))**
2. The permittee shall maintain, until closure, records of the location, depth and area, and quantity in cubic meters (cubic yards) of asbestos-containing waste material within the disposal site on a map or diagram of the disposal area storage. **(40 CFR 61.154(f))**
3. The permittee shall keep readily accessible documentation of the nature, date of deposition, amount, and location of asbestos-containing or nondegradable waste excluded from collection as provided in 40 CFR 60.759(a)(3)(i) or 40 CFR 60.769(a)(3)(i). **(40 CFR 60.758(d)(2), 40 CFR 60.768(d)(2))**
4. The permittee shall keep records of one the following regarding any active disposal site where asbestos containing materials have been deposited:
 - a. USEPA Method 22 readings demonstrating no visible emissions from any active disposal site where asbestos containing materials have been deposited. These readings are to be taken for 15 minutes each operating day.
 - b. Records of the date asbestos waste is received, the amount and type of material that has been used to cover the asbestos waste, and documentation that the cover material was applied in the frequency required in SC III.1.c. **(40 CFR 61.154(c))**
 - c. Records pursuant to an alternative emissions control method that has prior written approval of the AQD District Supervisor as noted in SC III.1.d. **(40 CFR 61.154(d))**

The permittee shall keep all records on file in a format acceptable to the AQD District Supervisor and make them available upon request. **(R 336.1213(3), 40 CFR 61.154)**

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. For all asbestos-containing waste material received, the permittee of the active waste disposal site shall:
 - a. Report in writing to the AQD District Supervisor by the following working day, the presence of a significant amount of improperly enclosed or uncovered waste and submit a copy of the waste shipment record along with the report. **(40 CFR 61.154(e)(1)(iv))**
 - b. Upon discovering a discrepancy between the quantity of waste designated on the waste shipment records and the quantity actually received, attempt to reconcile the discrepancy with the waste generator. If the discrepancy is not resolved within 15 days after receiving the waste, immediately report in writing to the AQD Supervisor. Describe the discrepancy and attempts to reconcile it and submit a copy of the waste shipment record along with the report. **(40 CFR 61.154(e)(3))**

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5. The permittee shall notify the AQD Technical Programs Unit and appropriate AQD District Office in writing at least 45 days prior to excavating or otherwise disturbing any asbestos-containing waste material that has been deposited at a waste disposal site and is covered. If the excavation will begin on a date other than the one contained in the original notice, notice of the new start date must be provided to the appropriate AQD District Office at least 10 working days before excavation begins and in no event shall excavation begin earlier than the date specified in the original notification. The notice shall include the following information:
 - a. Scheduled starting and completion dates. **(40 CFR 61.154(j)(1))**
 - b. Reason for disturbing the waste. **(40 CFR 61.154(j)(2))**
 - c. Procedures to be used to control emissions during the excavation, storage, transport, and ultimate disposal of the excavated asbestos-containing waste material. If deemed necessary, the AQD or may require changes in the emission control procedures to be used. **(40 CFR 61.154(j)(3))**
 - d. Location of any temporary storage site and the final disposal site. **(40 CFR 61.154(j)(4))**
6. The permittee shall submit to the appropriate AQD District Supervisor, upon closure of the facility, a copy of records of asbestos waste disposal locations and quantities. **(40 CFR 61.154(h))**

See Appendix 8-1

VIII. STACK/VENT RESTRICTION(S)

NA

IX. OTHER REQUIREMENT(S)

1. The permittee shall 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 WWW. **(40 CFR 60, Subparts A and WWW)**
2. The permittee shall 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 60, Subparts A and XXX)**
3. The permittee shall comply with all applicable provisions of the National Emission Standards for Hazardous Air Pollutants as specified in 40 CFR Part 61 Subparts A and M. **(40 CFR 61, Subparts A and M)**

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).

D. FLEXIBLE GROUP 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
FG-LANDFILL-XXX	This flexible group represents the general MSW landfill with a required collection and control system. This flexible group contains 40 CFR 60, Subpart XXX requirements.	EU-LANDFILL EU-ACTIVECOLLECTION EU-TREATMENTSYSTEM EU-ASBESTOS EU-FLARE3 EU-FLARE4 EU-FLARE5 EU-FLARE6
FG-LANDFILL-WWW	This flexible group represents the general MSW landfill with a required collection and control system. This flexible group contains 40 CFR 60, Subpart WWW requirements.	EU-LANDFILL EU-ACTIVECOLLECTION EU-TREATMENTSYSTEM EU-ASBESTOS EU-FLARE3 EU-FLARE4 EU-FLARE5 EU-FLARE6
FG-ACTIVECOLLECTION-XXX	This flexible group represents the active landfill gas collection system at the landfill that uses gas mover equipment to draw landfill gas from the wells and moves the gas to the control equipment. This flexible group contains 40 CFR 60, Subpart XXX requirements.	EU-ACTIVECOLLECTION
FG-ACTIVECOLLECTION-WWW	This flexible group represents the active landfill gas collection system that uses gas mover equipment to draw landfill gas from the wells and moves the gas to the control equipment. This flexible group contains 40 CFR 60, Subpart WWW requirements.	EU-ACTIVECOLLECTION
FG-TREATMENTSYSTEM-XXX	A treatment system that filters, de-waters, and compresses landfill gas for subsequent sale or beneficial use. The treatment system removes particulate to at least the 10-micron level, compresses the landfill gas, and removes enough moisture to ensure good combustion of gas for subsequent use. This flexible group contains the requirements of 40 CFR Part 60, Subpart XXX.	EU-TREATMENTSYSTEM

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Flexible Group ID	Flexible Group Description	Associated Emission Unit IDs
FG-TREATMENTSYSTEM- WWW	A treatment system that filters, de-waters, and compresses landfill gas for subsequent sale or beneficial use. The treatment system removes particulate to at least the 10-micron level, compresses the landfill gas, and removes enough moisture to ensure good combustion of gas for subsequent use. This flexible group contains the requirements of 40 CFR Part 60, Subpart WWW.	EU-TREATMENTSYSTEM
FG-ENCLOSEDFLARES- XXX	Two enclosed flares with a combined capacity of 9,000 CFM, used in combusting landfill gas. An enclosed flare is an enclosed combustor or firebox which maintains a relatively constant limited peak temperature generally using a limited supply of combustion air. This flexible group contains the requirements of 40 CFR Part 60, Subpart XXX.	EU-FLARE4 EU-FLARE6
FG-ENCLOSEDFLARES- WWW	Two enclosed flares with a combined capacity of 9,000 CFM, used in combusting landfill gas. An enclosed flare is an enclosed combustor or firebox which maintains a relatively constant limited peak temperature generally using a limited supply of combustion air. This flexible group contains the requirements of 40 CFR Part 60 Subpart WWW.	EU-FLARE4 EU-FLARE6
FG-OPENFLARES-XXX	Two open flares with a combined capacity of 5,100 CFM used to control LFG generated by the landfill. An open flare is an open combustor without enclosure or shroud. EUFLARE5 serves as a backup flare and only operates if one or more flares and/or engines are not in operation. This flexible group contains the requirements of 40 CFR Part 60 Subpart XXX.	EU-FLARE3 EU-FLARE5
FG-OPENFLARES-WWW	Two open flares with a combined capacity of 5,100 CFM used to control LFG generated by the landfill. An open flare is an open combustor without enclosure or shroud. EUFLARE5 serves as a backup flare and only operates if one or more flares and/or engines are not in operation. This flexible group contains the requirements of 40 CFR Part 60 Subpart WWW.	EU-FLARE3 EU-FLARE5
FG-FLARES	Four flares (one open, two enclosed, and one stand by portable open flare) with a combined capacity of 14,200 CFM, used in combusting landfill gas.	EU-FLARE3 EU-FLARE4 EU-FLARE5 EU-FLARE6
FG-COLDCLEANERS	This flexible group represents one or more small cold cleaners/degreasers installed after July 1, 1979, which are exempt from permit-to-install requirements.	EU-COLDCLEANERS
FG-ICENGINES	Eight internal combustion engines and associated generator sets for combusting treated landfill gas to produce electricity.	EU-ICENGINE1 EU-ICENGINE2 EU-ICENGINE3 EU-ICENGINE4 EU-ICENGINE5 EU-ICENGINE6 EU-ICENGINE7 EU-ICENGINE8

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Flexible Group ID	Flexible Group Description	Associated Emission Unit IDs
FG-RICEMACT	New and reconstructed non-emergency engines greater than 500 hp firing landfill/digester gas, located at a major source of HAPs. Commenced construction or reconstruction on or after December 19, 2002.	EU-ICENGINE1 EU-ICENGINE2 EU-ICENGINE3 EU-ICENGINE4 EU-ICENGINE5 EU-ICENGINE6 EU-ICENGINE7 EU-ICENGINE8
FG-RICENSPS	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.	EU-ICENGINE1 EU-ICENGINE2 EU-ICENGINE3 EU-ICENGINE4 EU-ICENGINE5 EU-ICENGINE6 EU-ICENGINE7 EU-ICENGINE8

**FG-LANDFILL-XXX
 FLEXIBLE GROUP CONDITIONS**

DESCRIPTION

This flexible group represents the general MSW landfill with a required collection and control system. This flexible group contains 40 CFR 60, Subpart XXX requirements.

Emission Units: EU-LANDFILL, EU-ACTIVECOLLECTION, EU-TREATMENTSYSYSTEM, EU-FLARE3, EU-FLARE4, EU-FLARE5, EU-FLARE6, EU-ASBESTOS

POLLUTION CONTROL EQUIPMENT

Open and enclosed flare, landfill gas treatment system.

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. Methane concentration	Less than 500 ppm above background level	Calendar quarter	Surface of Landfill	SC V.1 SC VI.1	40 CFR 60.763(d)

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTIONS

1. The permittee shall develop a written startup, shutdown, and malfunction (SSM) plan that describes how emissions will be minimized during periods of startup, shutdown, and malfunction; and a program of corrective action for the malfunctioning process, air pollution control, and monitoring equipment used to comply. **(R 336.1213(3), R 336.1911)**
2. During periods of startup, shutdown, and malfunction, you must comply with the work practice specified in 40 CFR 60.763(e) in lieu of the compliance provisions in 40 CFR 60.765. **(40 CFR 60.765(e))**

IV. DESIGN/EQUIPMENT PARAMETERS

1. The permittee shall install a collection and control system that captures the landfill gas generated within the landfill according to the requirements in 40 CFR 60.762(b)(2)(ii) and 40 CFR 60.762(b)(2)(iii). **(40 CFR 60.762(b)(2))**
2. The permittee shall route all the collected landfill gas to at least one of the following:
 - a. An open flare designed in accordance with 40 CFR 60.18 except as noted in 40 CFR 60.764(e). **(40 CFR 60.762(b)(2)(iii)(A))**
 - b. A control system designed and operated to reduce NMOC by 98 weight percent, or, when an enclosed combustion device is used for control, to either reduce NMOC by 98 weight percent or reduce the outlet NMOC concentration to less than 20 ppmv on dry basis, as hexane at 3 percent oxygen. **(40 CFR 60.762(b)(2)(iii)(B))**

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- c. To a treatment system that processes the collected gas for subsequent sale or beneficial use. The treatment system shall be designed so that all emissions from any atmospheric vent(s) shall be subject to 40 CFR 60.762(b)(2)(iii)(A) or (B). **(40 CFR 60.762(b)(2)(iii)(C))**

V. TESTING/SAMPLING

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

1. Quarterly, the permittee shall conduct surface testing around the perimeter of the collection area and along a pattern that traverses the landfill at 30-meter intervals and where visual observations indicate elevated concentrations of landfill gas, such as distressed vegetation and cracks or seeps in the cover and all cover penetrations. A surface monitoring design plan shall be developed that includes a topographical map with the monitoring route, any alternative traversing pattern that ensures equivalent coverage, and the rationale for any site-specific deviations from the 30-meter intervals. **(40 CFR 60.763(d))**
2. The permittee shall use the procedures in 40 CFR 60.765(c) for compliance with the surface methane operational standard in 40 CFR 60.763(d). **(40 CFR 60.765(c))**
3. The permittee shall document any reading of 500 ppm or more above background at any location as a monitored exceedance. As long as the following specified actions are taken, the exceedance is not a violation of the operational requirements of 40 CFR 60.763(d). **(40 CFR 60.765(c)(4))**
 - a. The location of each monitored exceedance shall be marked, and the location and concentration recorded. **(40 CFR 60.765(c)(4)(i))**
 - b. Cover maintenance or adjustments to the vacuum of the adjacent wells to increase the gas collection in the vicinity of each exceedance shall be made and the location shall be re-monitored within 10 calendar days of detecting the exceedance. **(40 CFR 60.765(c)(4)(ii))**
 - c. If the re-monitoring of the location shows a second exceedance, additional corrective action shall be taken, and the location shall be monitored again within 10 days of the second exceedance. If the re-monitoring shows a third exceedance for the same location, the action specified in SC V.3.e shall be taken, and no further monitoring of that location is required until the action specified in SC V.3.e has been taken. **(40 CFR 60.765(c)(4)(iii))**
 - d. Any location that initially showed an exceedance but has a methane concentration less than 500 ppm methane above background at the 10-day re-monitoring specified in 60.765(c)(4)(ii) or (iii) shall be re-monitored 1 month from the initial exceedance. If the 1-month re-monitoring shows a concentration less than 500 ppm above backgrounds, no further monitoring of that location is required until the next quarterly monitoring period. If the 1-month re-monitoring shows an exceedance, the actions specified in SC V.3.c or SC V.3.e shall be taken. **(40 CFR 60.765(c)(4)(iv))**
 - e. For any location where monitored methane concentration equals or exceeds 500 ppm above backgrounds three times within a quarterly period, a new well or other collection device shall be installed within 120 calendar days of the initial exceedance. An alternative remedy to the exceedance, such as upgrading the blower, header pipes or control device, and a corresponding timeline for installation may be submitted to the AQD for approval. **(40 CFR 60.765(c)(4)(v))**
4. The permittee shall comply with instrumentation specifications and procedures in 40 CFR 60.765(d) for surface emission monitoring devices. **(40 CFR 60.765(d))**
 - a. The portable analyzer shall meet the instrument specifications provided in Method 21 of Appendix A of 40 CFR Part 60, except that "methane" shall replace all references to VOC. **(40 CFR 60.755(d)(1))**
 - b. The calibration gas shall be methane, diluted to a nominal concentration of 500 ppm in air. **(40 CFR 60.755(d)(2))**
 - c. To meet the performance evaluation requirements in Method 21 of Appendix A of 40 CFR Part 60, the instrument evaluation procedures of Method 21 of Appendix A of 40 CFR Part 60 shall be used. **(40 CFR 60.755(d)(3))**

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- d. The calibration procedures provided in Method 21 of Appendix A of 40 CFR Part 60 shall be followed immediately before commencing a surface monitoring survey. **(40 CFR 60.755(d)(4))**
5. Any closed landfill that has no monitored exceedances of the operational standard in three consecutive quarterly monitoring periods may skip to annual monitoring. Any methane reading of 500 ppm or more above background detected during the annual monitoring returns the frequency for that landfill to quarterly monitoring. **(40 CFR 60.766(f))**

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 keep monthly records of the surface methane monitoring including the following information at a minimum:
- The route traversed including any areas not monitored because of unsafe conditions (i.e., truck traffic, construction, active face, dangerous areas, etc.) and areas included where visual observations indicate elevated levels of landfill gas.
 - The location(s) and concentrations of the methane readings and noting any reading above 500 ppm above background.
 - The meteorological conditions the day of the testing including wind speed, wind direction, temperature, and cloud cover.

The permittee shall keep all records on file in a format acceptable to the AQD District Supervisor and make them available upon request. **(R 336.1213(3), 40 CFR 60.763(d))**

- The permittee shall implement a program to monitor on a monthly basis for cover integrity and implement cover repairs as necessary. Records of the cover integrity and any cover repairs shall be kept on file in a format acceptable to the AQD District Supervisor and made available upon request. **(40 CFR 60.765(c)(5))**
- The permittee shall keep monthly records of the SSM events including the date of the event, how emissions were minimized during the event, and the corrective action taken for the malfunctioning process, air pollution control, and monitoring equipment. The permittee shall keep all records on file in a format acceptable to the AQD District Supervisor and make them available upon request. **(R 336.1213(3), R 336.1911)**
- The permittee shall 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 four hours. The permittee shall 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))**
- Landfill owners or operators who convert design capacity from volume to mass or mass to volume to demonstrate that landfill design capacity is less than 2.5 million megagrams or 2.5 million cubic meters, as provided in the definition of "design capacity", shall keep readily accessible, on-site records of the annual recalculation of site-specific density, design capacity, and the supporting documentation. Off-site records may be maintained if they are retrievable within four hours. Either paper copy or electronic formats are acceptable. **(40 CFR 60.768(f))**
- If reporting leachate or other liquids addition under 40 CFR 60.767(k), the permittee shall keep records of any engineering calculations or company records used to estimate the quantities of leachate or liquids added, the surface areas for which the leachate or liquids were applied, and the estimates of annual waste acceptance or total waste in place in the areas where leachate or liquids were applied. **(40 CFR 60.768(j))**

VII. REPORTING

- Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**

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2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. 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. 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 reports which shall be postmarked or received by appropriate AQD District Office by March 15 for reporting period January 1 to December 31. The report shall include the location of each exceedance of the 500 ppm methane concentrations as provided in 40 CFR 60.763(d) and the concentration recorded at each location for which an exceedance was recorded in the previous month. The report shall also contain include information on all deviations that occurred during the six-month reporting period. **(40 CFR 60.767(g)(5))**
5. Semiannually, the permittee shall submit a startup, shutdown, and malfunction (SSM) plan report to the appropriate AQD District Office and it shall be delivered or postmarked by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. The report shall include actions taken to minimize emissions consistent with the procedures specified in the (SSM) plan. If actions taken are not consistent with the SSM plan, the permittee shall report actions taken within two working days after commencing such actions followed by a letter seven days after the event. **(R 336.1213(3), R 336.1911)**
6. The permittee shall submit an equipment removal report to the appropriate AQD District Supervisor 30 days prior to removal or cessation of operation of the control equipment. **(40 CFR 60.767(f))**
 - a. The equipment removal report shall contain all of the following items:
 - i. A copy of the closure report submitted in accordance with 40 CFR 60.767(d); **(40 CFR 60.767(f)(1)(i))**
 - ii. A copy of the initial performance test report demonstrating that the 15-year minimum control period has expired. **(40 CFR 60.767(f)(1)(ii))**
 - iii. Dated copies of three successive NMOC emission rate reports demonstrating that the landfill is no longer producing 34 megagrams or greater of NMOC per year; and **(40 CFR 60.767(f)(1)(iii))**
 - b. The AQD may request such additional information as may be necessary to verify that all of the conditions for removal in 40 CFR 60.762(b)(2)(v) have been met. **(40 CFR 60.767(e)(2))**
7. The permittee shall 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))**

See Appendix 8-1

VIII. STACK/VENT RESTRICTION(S)

NA

IX. OTHER REQUIREMENTS

1. The permittee that has already submitted a design plan under 40 CFR 60.767(c) shall submit a revised design plan to the AQD for approval as follows:
 - a. At least 90 days before expanding operations to an area not covered by the previously approved design plan. **(40 CFR 60.767(d)(1))**

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- b. Prior to installing or expanding the gas collection system in a way that is not consistent with the design plan that was submitted plan under 40 CFR 60.767(c). **(40 CFR 60.767(d)(2))**
2. The collection and control system may be capped or removed as provided in 40 CFR 60.762(b)(2)(v) if all the following conditions are met:
 - a. The landfill shall be a closed landfill as defined in 40 CFR 60.761. A closure report shall be submitted to the appropriate AQD District Office as provided in 40 CFR 60.767(e); **(40 CFR 60.762(b)(2)(v)(A))**
 - b. The collection and control system shall have been in operation a minimum of 15 years or the landfill owner or operator demonstrates that the GCCS will be unable to operate for 15 years due to declining gas flow; and **(40 CFR 60.762(b)(2)(v)(B))**
 - c. Following the procedures specified in 40 CFR 60.764(b), the calculated NMOC gas produced by the landfill shall be less than 34 megagrams per year on three successive test dates. The test dates shall be no less than 90 days apart, and no more than 180 days apart. **(40 CFR 60.762(b)(2)(v)(C))**
3. The permittee shall 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 60, Subparts A and XXX)**

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).

**FG-LANDFILL-WWW
 FLEXIBLE GROUP CONDITIONS**

DESCRIPTION

This flexible group represents the general Municipal Solid Waste (MSW) landfill in which the collected landfill gas is sent primarily to a treatment system. This flexible group contains 40 CFR 60, Subpart WWW requirements.

Emission Units: EU-LANDFILL, EU-ACTIVECOLLECTION, EU-TREATMENTSYSYSTEM, EU-FLARE 3, EU-FLARE 4, EU-FLARE 5, EU-FLARE 6, EU-ASBESTOS

POLLUTION CONTROL EQUIPMENT

Open and enclosed flares, landfill gas treatment system.

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. Methane concentration	Less than 500 ppm above background level	Calendar quarter	Surface of Landfill	SC V.1 SC V.2	40 CFR 60.753(d) 40 CFR 60.755(c) 40 CFR 63.1955(a)(1)

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTIONS

1. The permittee shall comply with the requirements in 40 CFR 63.1955(b) and 40 CFR 63.1960 through 40 CFR 63.1980. **(40 CFR 63.1945(d))**

IV. DESIGN/EQUIPMENT PARAMETERS

1. The permittee shall have installed a collection and control system that captures the landfill gas generated within the landfill as required by 40 CFR 60.752(b)(2)(i)(C), 40 CFR 60.752(b)(2)(ii), and 40 CFR 60.752(b)(2)(iii). **(40 CFR 60.752(b)(2)(i)(C), 40 CFR 60.752(b)(2)(ii), 40 CFR 60.752(b)(2)(iii), 40 CFR 63.1955(a)(1))**
2. The permittee shall route all the collected landfill gas to at least one of the following:
 - a. A flare designed in accordance with 40 CFR 60.18 except as noted in 40 CFR 60.754(e). **(40 CFR 60.752(b)(2)(iii)(A), 40 CFR 63.1955(a)(1))**
 - b. A control system designed and operated to reduce NMOC by 98 weight-percent, or, when an enclosed combustion device is used for control, to either reduce NMOC by 98 weight-percent or reduce the outlet NMOC concentration to less than 20 ppm by volume, dry basis as hexane at three percent oxygen. The reduction efficiency or ppm by volume shall be established by an initial performance test to be completed no later than 180 days after the initial startup of the approved control system using the test methods specified in 40 CFR 60.754(d). **(40 CFR 60.752(b)(2)(iii)(B), 40 CFR 63.1955(a)(1))**

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- c. To a treatment system that processes the collected gas for subsequent sale or use. The treatment system shall be designed so that all emissions from any atmospheric vent(s) shall be subject to 40 CFR 60.752(b)(2)(iii)(B) or (C). **(40 CFR 60.752(b)(2)(iii)(C), 40 CFR 63.1955(a)(1))**

V. TESTING/SAMPLING

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

1. To determine if the methane concentration is less than 500 ppm above background at the surface of the landfill is exceeded, the permittee shall conduct surface testing around the perimeter of the collection area and along a pattern that traverses the landfill at 30-meter intervals and where visual observations indicate elevated concentrations of landfill gas, such as distressed vegetation and cracks or seeps in the cover. The permittee may establish an alternative traversing pattern that ensures equivalent coverage. A surface monitoring design plan shall be developed that includes a topographical map with the monitoring route and the rationale for any site-specific deviations from the 30-meter intervals. Areas with steep slopes or other dangerous areas may be excluded from the surface testing. **(40 CFR 60.753(d), 40 CFR 63.1955(a)(1))**
2. The permittee shall use the following procedures for compliance with the surface methane operational standard as provided in 40 CFR 60.753(d).
 - a. The permittee shall monitor surface concentrations of methane along the entire perimeter of the collection area and along a pattern that traverses the landfill at 30-meter intervals (or a site-specific established spacing approved by the AQD) for each collection area on a quarterly basis using an organic vapor analyzer, flame ionization detector, or other portable monitor meeting the specifications provided in 40 CFR 60.755(d). **(40 CFR 60.755(c)(1), 40 CFR 63.1955(a)(1))**
 - b. The background concentration shall be determined by moving the probe inlet upwind and downwind outside the boundary of the landfill at a distance of at least 30 meters from the perimeter wells. **(40 CFR 60.755(c)(2), 40 CFR 63.1955(a)(1))**
 - c. Surface emission monitoring shall be performed in accordance with Section 8.3.1 of Method 21 of Appendix A of 40 CFR Part 60, except that the probe inlet shall be placed within five to 10 centimeters of the ground. Monitoring shall be performed during typical meteorological conditions. **(40 CFR 60.755(c)(3), 40 CFR 63.1955(a)(1))**
 - d. Any reading of 500 ppm or more above background at any location shall be recorded as a monitored exceedance and the actions specified below shall be taken. As long as the specified actions are taken, the exceedance is not a violation of the operational requirements of 40 CFR 60.753(d). **(40 CFR 60.755(c)(4), 40 CFR 63.1955(a)(1))**
 - i. The location of each monitored exceedance shall be marked, and the location recorded. **(40 CFR 60.755(c)(4)(i), 40 CFR 63.1955(a)(1))**
 - ii. Cover maintenance or adjustments to the vacuum of the adjacent wells to increase the gas collection in the vicinity of each exceedance shall be made and the location shall be re-monitored within 10 calendar days of detecting the exceedance. **(40 CFR 60.755(c)(4)(ii), 40 CFR 63.1955(a)(1))**
 - iii. If the re-monitoring of the location shows a second exceedance, additional corrective action shall be taken, and the location shall be monitored again within 10 days of the second exceedance. If the re-monitoring shows a third exceedance for the same location, the action specified in 40 CFR 60.755(c)(4)(v) (below in SC V.2.d.v.) shall be taken, and no further monitoring of that location is required until the action specified in 40 CFR 60.755(c)(4)(v) (below in SC V.2.d.v.) has been taken. **(40 CFR 60.755(c)(4)(iii), 40 CFR 63.1955(a)(1))**

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- iv. Any location that initially showed an exceedance but has a methane concentration less than 500 ppm methane above background at the 10-day re-monitoring specified in 60.755(c)(4) (ii) or (iii) (above in SC V.2.d.ii. or iii.) shall be re-monitored one month from the initial exceedance. If the one-month re-monitoring shows a concentration less than 500 ppm above backgrounds, no further monitoring of that location is required until the next quarterly monitoring period. If the one-month re-monitoring shows an exceedance, the actions specified in 40 CFR 60.755(c)(4)(iii) (above in SC V.2.d.ii. or iii.) or in 40 CFR 60.755(c)(4)(v) (below in SC V.2.d.v.) shall be taken. **(40 CFR 60.755(c)(4)(iv), 40 CFR 63.1955(a)(1))**
 - v. For any location where monitored methane concentration equals or exceeds 500 ppm above backgrounds three times within a quarterly period, a new well or other collection device shall be installed within 120 calendar days of the initial exceedance. An alternative remedy to the exceedance, such as upgrading the blower, header pipes or control device, and a corresponding timeline for installation may be submitted to the AQD for approval. **(40 CFR 60.755(c)(4)(v), 40 CFR 63.1955(a)(1))**
3. The permittee shall comply with the provisions in 40 CFR 60.755(c) with the following instrumentation specifications and procedures for surface emission monitoring devices: **(40 CFR 60.755(d), 40 CFR 63.1955(a)(1))**
- a. The portable analyzer shall meet the instrument specifications provided in Section 6 of Method 21 of Appendix A of 40 CFR Part 60, except that "methane" shall replace all references to VOC. **(40 CFR 60.755(d)(1), 40 CFR 63.1955(a)(1))**
 - b. The calibration gas shall be methane, diluted to a nominal concentration of 500 ppm in air. **(40 CFR 60.755(d)(2), 40 CFR 63.1955(a)(1))**
 - c. To meet the performance evaluation requirements in Section 8.1 of Method 21 of Appendix A of 40 CFR Part 60, the instrument evaluation procedures of Section 8.1 of Method 21 of Appendix A of 40 CFR Part 60 shall be used. **(40 CFR 60.755(d)(3), 40 CFR 63.1955(a)(1))**
 - d. The calibration procedures provided in Sections 8 and 10 of Method 21 of Appendix A of 40 CFR Part 60 shall be followed immediately before commencing a surface monitoring survey. **(40 CFR 60.755(d)(4), 40 CFR 63.1955(a)(1))**
4. The permittee shall monitor surface concentrations of methane according to the instrument specifications and procedures provided in 40 CFR 60.755(d). Any closed landfill that has no monitored exceedances of the operational standard in three consecutive quarterly monitoring periods may skip to annual monitoring. Any methane reading of 500 ppm or more above background detected during the annual monitoring returns the frequency for that landfill to quarterly monitoring. **(40 CFR 60.756(f), 40 CFR 63.1955(a)(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 shall implement a program to monitor on a monthly basis for cover integrity and implement cover repairs as necessary. **(40 CFR 60.755(c)(5), 40 CFR 63.1955(a)(1))**
- 2. The permittee shall keep the following written records pertaining to surface methane monitoring: **(R 336.1213(3))**
 - a. The route traversed including any areas not monitored because of unsafe conditions (i.e., truck traffic, construction, active face, dangerous areas, etc.) and areas included where visual observations indicate elevated levels of landfill gas. **(R 336.1213(3))**
 - b. The location(s) and concentrations of any reading above 500 ppm above background. **(40 CFR 60.755(c)(4)(i), R 336.1213(3))**
 - c. The meteorological conditions the day of the testing including wind speed, wind direction, temperature, and cloud cover). **(R 336.1213(3))**
 - d. Monitoring date. **(R 336.1213(3))**

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3. Except as provided in 40 CFR 60.752(b)(2)(i)(B), the permittee shall maintain up-to-date, readily accessible, on-site records of the design capacity report which triggered 40 CFR 60.752(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 four hours. Either paper copy or electronic formats are acceptable. **(40 CFR 60.758(a), 40 CFR 63.1955(a)(1))**
4. Landfill owners or operators who convert design capacity from volume to mass or mass to volume to demonstrate that landfill design capacity is less than 2.5 million megagrams or 2.5 million cubic meters, as provided in the definition of "design capacity", shall keep readily accessible, on-site records of the annual recalculation of site-specific density, design capacity, and the supporting documentation. Off-site records may be maintained if they are retrievable within four hours. Either paper copy or electronic formats are acceptable. **(40 CFR 60.758(f), 40 CFR 40 CFR 63.1955(a)(1))**
5. The permittee shall calculate and record the NMOC emission rate for purposes of determining when the system can be removed as provided in 40 CFR 60.752(b)(2)(v), using the equation presented in 40 CFR 60.754(b). **(40 CFR 60.754(b))**
6. If the permittee adds any liquids other than leachate in a controlled fashion to the waste mass and does not comply with the bioreactor requirements in 40 CFR 63.1947, 40 CFR 63.1955(c), and 40 CFR 63.1980(c) through (f), the permittee shall keep a record of calculations showing that the percent moisture by weight expected in waste mass to which liquid is added is less than 40 percent. The calculation must consider the waste mass, moisture content of the incoming waste, mass of the water added to the waste including leachate recirculation and other liquids addition, and precipitation, and the mass of water removed through leachate or other water losses. Moisture level sampling or mass balances calculations can be used. The permittee shall document the calculations and the basis of the assumptions. **(40 CFR 63.1980(g))**

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 equipment removal report to the appropriate AQD District Supervisor 30 days prior to removal or cessation of operation of the control equipment. **(40 CFR 60.757(e), 40 CFR 63.1955(a)(1))**
 - a. The equipment removal report shall contain all of the following items:
 - i. A copy of the closure report submitted in accordance with 40 CFR 60.757(d). **(40 CFR 60.757(e)(1)(i), 40 CFR 63.1955(a)(1))**
 - ii. Dated copies of three successive NMOC emission rate reports demonstrating that the landfill is no longer producing 50 megagrams or greater of NMOC per year. **(40 CFR 60.757(e)(1)(iii), 40 CFR 63.1955(a)(1))**
 - iii. A copy of the initial performance test report demonstrating that the 15-year minimum control period has expired. **(40 CFR 60.757(e)(1)(ii), 40 CFR 63.1955(a)(1))**
 - b. The AQD may request such additional information as may be necessary to verify that all of the conditions for removal in 40 CFR 60.752(b)(2)(v) have been met. **(40 CFR 60.757(e)(2), 40 CFR 63.1955(a)(1))**

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5. The permittee shall 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 60.757(d), 40 CFR 63.1955(a)(1))**
6. The permittee shall submit reports which shall be postmarked or received by 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. The report shall include the location of each exceedance of the 500 ppm methane concentrations as provided in 40 CFR 60.753(d) and the concentration recorded at each location for which an exceedance was recorded in the previous month. The report shall also contain information on all deviations that occurred during the 6-month reporting period. **(40 CFR 60.757(f)(5), 40 CFR 63.1955(a)(1), 40 CFR 63.1955(c), 40 CFR 63.1980(a))**
7. The permittee shall submit the startup, shutdown, and malfunction (SSM) report to the appropriate AQD District Office and it shall be delivered or postmarked by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(40 CFR 63.10(a)(5), 40 CFR 63.10(d)(5))**

See Appendix 8-1

VIII. STACK/VENT RESTRICTION(S)

NA

IX. OTHER REQUIREMENTS

1. The collection and control system may be capped or removed provided that all the following conditions are met:
 - a. The landfill shall be a closed landfill as defined in 40 CFR 60.751. A closure report shall be submitted to the appropriate AQD District Office as provided in 40 CFR 60.757(d). **(40 CFR 60.752(b)(2)(v)(A), 40 CFR 63.1955(a)(1))**
 - b. The collection and control system shall have been in operation a minimum of 15 years. **(40 CFR 60.752(b)(2)(v)(B), 40 CFR 63.1955(a)(1))**
 - c. Following the procedures specified in 40 CFR 60.754(b), the calculated NMOC gas produced by the landfill shall be less than 50 megagrams per year on three successive test dates. The test dates shall be no less than 90 days apart, and no more than 180 days apart. **(40 CFR 60.752(b)(2)(v)(C), 40 CFR 63.1955(a)(1))**
2. If monitoring demonstrates that the operational requirements above in 40 CFR 60.753(b), (c), or (d) are not met, corrective action shall be taken as specified in 40 CFR 60.755(a)(3) through (5) or 40 CFR 60.755(c). If corrective actions are taken as specified in 40 CFR 60.755, the monitored exceedance is not a violation of the operational requirements in this section. **(40 CFR 60.753(g), 40 CFR 63.1955(a)(1))**
3. For the approval of collection and control systems that includes any alternatives to the operational standards, test methods, procedures, compliance measures, monitoring, recordkeeping or reporting provisions, the permittee shall follow the procedures in 40 CFR 60.752(b)(2). **(40 CFR 63.1955(c))**
4. The permittee shall comply with the requirements of 40 CFR Part 60, Subpart WWW. **(40 CFR 63.1955(a)(1))**
5. The permittee shall comply with the requirements of 40 CFR Part 63, Subpart AAAA, including the general provisions specified in Table 1 and the SSM requirements in 40 CFR 63.6. **(40 CFR 63.1955, 40 CFR 63.6)**

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6. The permittee is no longer required to comply with the requirements of 40 CFR Part 63, Subpart AAAA when it is no longer required to apply controls as specified in 40 CFR 60.752(b)(2)(v) of Subpart WWW. **(40 CFR 63.1950)**

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).

**FG-ACTIVECOLLECTION-XXX
FLEXIBLE GROUP CONDITIONS**

DESCRIPTION

This emission unit represents the active landfill gas collection system that uses gas mover equipment to draw landfill gas from the wells and moves the gas to the control equipment.

Emission Unit: EU-ACTIVECOLLECTION

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

NA

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTIONS

1. The permittee shall operate the collection system such that gas is collected from each area, cell, or group of cells in the MSW landfill in which solid waste has been in place for:
 - a. Five years or more if active; or **(40 CFR 60.763(a)(1))**
 - b. Two years or more if closed or at final grade. **(40 CFR 60.763(a)(2))**
2. The permittee shall operate the collection system with negative pressure at each wellhead except under the following conditions:
 - a. A fire or increased well temperature. The owner or operator must record instances when positive pressure occurs in efforts to avoid a fire. These records must be submitted with the annual reports as provided in §60.767(g)(1). **(40 CFR 60.763(b)(1))**
 - b. Use of a geo-membrane or synthetic cover. **(40 CFR 60.763(b)(2))**
 - c. A decommissioned well. A well may experience a static positive pressure after shutdown to accommodate for declining flows. All design changes must be approved by the AQD as specified in 40 CFR 60.767(c). **(40 CFR 60.763(b)(3))**
3. The permittee shall operate each interior wellhead in the collection system with a landfill gas temperature less than 55°C (131°F). The permittee may establish a higher operating temperature at a particular well. A higher operating value demonstration shall be submitted to the AQD for approval and it shall include supporting data that the elevated parameter does not cause fires or significantly inhibit anaerobic decomposition by killing methanogens. **(40 CFR 60.763(c), 40 CFR 60.766(e))**
4. During periods of startup, shutdown, and malfunction, the permittee shall comply with the work practice specified in 40 CFR 60.763(e) in lieu of the compliance provisions in 40 CFR 60.765 as follows:
 - a. Operate the system such that all collected gases are vented to a control system designed and operated in compliance with 40 CFR 60.762(b)(2)(iii). **(R 336.1911, 40 CFR 60.765(e))**

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- b. In the event the collection or control system is not operating, the gas mover system shall be shut down and all valves in the collection and control system contributing to venting of the gas to the atmosphere shall be closed within one hour of the collection or control system not operating. **(R 336.1911, 40 CFR 60.765(e))**

IV. DESIGN/EQUIPMENT PARAMETERS

1. The permittee shall install an active collection system that meets the following requirements:
 - a. Designed to handle the maximum expected gas flow rate from the entire area of the landfill that warrants control over the intended use period of the gas control or system equipment. **(40 CFR 60.762(b)(2)(ii)(C)(1))**
 - b. Each well shall be installed no later than 60 days after the date on which the initial solid waste has been in place for a period of 5 years or more if active; or 2 years or more if closed at final grade. **(40 CFR 60.765(b), 40 CFR 60.762(b)(2)(ii)(C)(2))**
 - c. Collects gas at a sufficient extraction rate. **(40 CFR 60.762(b)(2)(ii)(C)(3))**
 - d. Designed to minimize off-site migration of subsurface gas. **(40 CFR 60.762(b)(2)(ii)(C)(4))**
2. The permittee shall operate the collection system so that all collected gases are vented to a control system designed and operated in compliance with 40 CFR 60.762(b)(2)(iii). **(40 CFR 60.763(e))**
3. The permittee shall install a sampling port and a thermometer, other temperature measuring device, or an access port for temperature measurements at each wellhead. **(40 CFR 60.766(a))**
4. The permittee shall site active gas collection devices as required in 40 CFR 60.769 and shall control all gas producing areas, except as provided below.
 - a. Any segregated area of asbestos or non-degradable material may be excluded from collection if documented as provided under 40 CFR 60.768(d). **(40 CFR 60.769(a)(3)(i))**
 - b. Any nonproductive area of the landfill may be excluded from control, provided that the total of all excluded areas can be shown to contribute less than 1 percent of the total amount of NMOC emissions from the landfill. The amount, location, and age of the material shall be documented and provided to the AQD upon request. A separate NMOC emissions estimate shall be made for each section proposed for exclusion, and the sum of all such sections shall be compared to the NMOC emissions estimate for the entire landfill. Emissions from each section shall be computed using the equation in Appendix 7-1. **(40 CFR 60.769(a)(3)(ii))**

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. For the purpose of demonstrating whether the gas collection system flow rate is sufficient to determine compliance with 40 CFR 60.762(b)(2)(ii)(C)(3), the permittee shall measure, on a monthly basis, the gauge pressure in the gas collection header at each individual well as provided in 40 CFR 60.765(a)(3) and 40 CFR 60.766(a)(1). If a positive pressure exists, the following corrective actions shall be taken:
 - a. Action shall be initiated to correct the exceedance within five calendar days, except for the three conditions allowed under 40 CFR 60.763(b). Any attempted corrective measure shall not cause exceedances of other operational or performance standards. **(40 CFR 60.765(a)(3))**
 - b. If negative pressure cannot be achieved without excess air infiltration within 15 calendar days of the first measurement of positive pressure, the permittee must conduct a root cause analysis and correct the exceedance as soon as practicable, but no later than 60 days after positive pressure was first measured. **(40 CFR 60.765(a)(3)(i))**

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- c. If corrective actions cannot be fully implemented within 60 days following the positive pressure measurement for which the root cause analysis was required, the permittee must also conduct a corrective action analysis and develop an implementation schedule to complete the corrective action(s) as soon as practicable, but no more than 120 days following the positive pressure measurement. **(40 CFR 60.765(a)(3)(ii))**
 - d. If corrective action is expected to take longer than 120 days to complete after the initial exceedance, the permittee must submit the root cause analysis, corrective action analysis, and corresponding implementation timeline to the AQD, according to 40 CFR 60.767(g)(7) and 40 CFR 60.767(j). **(40 CFR 60.753(g), 40 CFR 60.765(a)(3)(iii))**
2. The permittee shall monitor each well monthly for temperature as provided in 40 CFR 60.763(c) and 40 CFR 60.766(a)(3). If a well exceeds the operating parameter for temperature, the following corrective actions shall be taken:
- a. Action shall be initiated to correct the exceedance within five calendar days. Any attempted corrective measure shall not cause exceedances of other operational or performance standards. **(40 CFR 60.765(a)(5))**
 - b. If a landfill gas temperature less than 55°C (131°F) cannot be achieved within 15 calendar days of the first measurement of landfill gas temperature greater than 55°C (131°F), the permittee shall conduct a root cause analysis and correct the exceedance as soon as practicable, but no later than 60 days after a landfill gas temperature greater than 55°C (131°F) was first measured. **(40 CFR 60.765(a)(5)(i))**
 - c. If corrective actions cannot be fully implemented within 60 days following the positive pressure measurement for which the root cause analysis was required, the permittee shall also conduct a corrective action analysis and develop an implementation schedule to complete the corrective action(s) as soon as practicable, but no more than 120 days following the measurement of landfill gas temperature greater than 55°C (131°F). **(40 CFR 60.765(a)(5)(ii))**
 - d. If corrective action is expected to take longer than 120 days to complete after the initial exceedance, the permittee shall submit the root cause analysis, corrective action analysis, and corresponding implementation timeline to the AQD, according to §60.767(g)(7) and §60.767(j). **(40 CFR 60.765(a)(5)(iii))**
3. The permittee shall monitor, on a monthly basis, the nitrogen or oxygen concentration in the landfill gas using the procedures in 40 CFR 60.766(a)(2)(i) or (ii). **(40 CFR 60.766(2))**
4. The permittee shall keep, on a monthly basis, readily accessible records of the following:
- a. All collection and control system exceedances of the operational standards in 40 CFR 60.763, the reading in the subsequent month whether or not the second reading is an exceedance, and the location of each exceedance. **(40 CFR 60.768(e)(1))**
 - b. Each wellhead temperature monitoring value of 55°C (131°F) or above, each wellhead nitrogen level at or above 20 percent, and each wellhead oxygen level at or above 5 percent. **(40 CFR 60.768(e)(2))**
 - c. For any root cause analysis for which corrective actions are required in 40 CFR 60.765(a)(3)(i) or (a)(5)(i), keep a record of the root cause analysis conducted, including a description of the recommended corrective action(s) taken, and the date(s) the corrective action(s) were completed. **(40 CFR 60.768(e)(3))**
 - d. For any root cause analysis for which corrective actions are required in 40 CFR 60.765(a)(3)(ii) or (a)(5)(ii), keep a record of the root cause analysis conducted, the corrective action analysis, the date for corrective action(s) already completed following the positive pressure reading or high temperature reading, and, for action(s) not already completed, a schedule for implementation, including proposed commencement and completion dates. **(40 CFR 60.768(e)(4))**
 - e. For any root cause analysis for which corrective actions are required in 40 CFR 60.765(a)(3)(iii) or (a)(5)(iii), keep a record of the root cause analysis conducted, the corrective action analysis, the date for corrective action(s) already completed following the positive pressure reading or high temperature reading, for action(s) not already completed, a schedule for implementation, including proposed commencement and completion dates, and a copy of any comments or final approval on the corrective action analysis or schedule from the AQD. **(40 CFR 60.768(e)(5))**

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5. The permittee shall keep up-to-date, readily accessible records for the life of the control equipment of the data listed as follows:
 - a. The maximum expected gas generation flow rate as calculated in 40 CFR 60.765(a)(1). The permittee may use another method to determine the maximum gas generation flow rate, if the method has been approved by the appropriate AQD District Office. **(40 CFR 60.768(b)(1)(i))**
 - b. The density of wells, horizontal collectors, surface collectors, or other gas extraction devices determined using the procedures specified in 40 CFR 60.769(a)(1). **(40 CFR 60.768(b)(1)(ii))**
6. The permittee shall keep for the life of the collection system an up-to-date, readily accessible plot map showing each existing and planned collector in the system and providing a unique identification location label for each collector; and the installation date and location of all newly installed collectors as specified under 40 CFR 60.765(b). **(40 CFR 60.768(d), 40 CFR 60.768(d)(1))**
7. The permittee shall maintain the following information:
 - a. A diagram of the collection system showing collection system positioning including all wells, horizontal collectors, surface collectors, or other gas extraction devices, including the locations of any areas excluded from collection and the proposed sites for the future collection system expansion. **(40 CFR 60.767(h)(1))**
 - b. The documentation of the presence of asbestos or non-degradable material for each area from which collection wells have been excluded based on the presence of asbestos or non-degradable material. **(40 CFR 60.767(h)(3))**
 - c. The sum of the gas generation flow rates for all areas from which collection wells have been excluded based on non-productivity and the calculations of gas generation flow rate for each excluded area. **(40 CFR 60.757(h)(4))**
 - d. The provisions for increasing gas mover equipment capacity with increased gas generation flow rate, if the present gas mover equipment is inadequate to move the maximum flow rate expected over the life of the landfill. **(40 CFR 60.767(h)(5))**
 - e. The provisions for the control of off-site migration. **(40 CFR 60.767(h)(6))**
 - f. The permittee shall maintain the dates of the landfill gas well installations, the age of the waste in which the landfill gas wells were installed, and the age of the in-place waste for each portion of the landfill. **(R 336.1213(3), 40 CFR 60.769(a)(3)(ii))**
 - g. The permittee shall maintain the current amount of solid waste in-place, and the year-by-year waste acceptance rate. **(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. Report shall be postmarked or received by 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. Report shall be postmarked or received by appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**
4. The permittee shall submit to the appropriate AQD District Office annual reports for the gas collection system. Reports shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period January 1 to December 31. The report for the gas collection system shall include the following information:

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- a. Value and length of time for exceedance of applicable parameters monitored under 40 CFR 60.766(a). **(40 CFR 60.767(g)(1))**
 - b. All periods when the collection system was not operating and length of time not operating. **(40 CFR 60.767(g)(4))**
 - c. The date of installation and the location of each well or collection system expansion added pursuant to 40 CFR 60.765(a)(3), 40 CFR 60.765(a)(5), 40 CFR 60.765(b), and 40 CFR 60.765(c)(4). **(40 CFR 60.767(g)(6))**
 - d. The permittee shall record instances when a positive pressure occurs in efforts to avoid fire. **(40 CFR 60.763(b)(1))**
5. Annually, the permittee shall submit to the appropriate AQD District Office reports for any corrective action analysis for which corrective actions are required in 40 CFR 60.765(a)(3) or (5) and that take more than 60 days to correct the exceedance. The report shall include the following information:
- a. The root cause analysis conducted, including a description of the recommended corrective action(s), the date for corrective action(s) already completed following the positive pressure reading. **(40 CFR 60.767(g)(7))**
 - b. For action(s) not already completed, a schedule for implementation, including proposed commencement and completion dates. **(40 CFR 60.767(g)(7))**
6. The permittee shall submit to the appropriate AQD District Office reports for any corrective action and the corresponding timeline as follows:
- a. For corrective action that is required according to 40 CFR 60.765(a)(3)(iii) or (a)(5)(iii) and is expected to take longer than 120 days after the initial exceedance to complete, submit the root cause analysis, corrective action analysis, and corresponding implementation timeline as soon as practicable but no later than 75 days after the first measurement of positive pressure or temperature monitoring value of 55°C (131°F). The AQD must approve the plan for corrective action and the corresponding timeline. **(40 CFR 60.767(j)(1))**
 - b. For corrective action that is required according to 40 CFR 60.765(a)(3)(iii) or (a)(5)(iii) and is not completed within 60 days after the initial exceedance, submit a notification as soon as practicable but no later than 75 days after the first measurement of positive pressure or temperature exceedance. **(40 CFR 60.767(j)(2))**

See Appendix 8-1

VIII. STACK/VENT RESTRICTION(S)

NA

IX. OTHER REQUIREMENTS

1. Each permittee seeking to demonstrate compliance with 40 CFR 60.762(b)(2)(ii)(C)(4) through the use of a collection system not conforming to the specifications provided in 40 CFR 60.769 shall provide information satisfactory to the AQD as specified in 40 CFR 60.767(c)(3) demonstrating that off-site migration is being controlled. **(40 CFR 60.765(a)(6))**
2. Each permittee seeking to install a collection system that does not meet the specifications in 40 CFR 60.759 or is seeking to monitor alternative parameters to those required by 40 CFR 60.763 through 40 CFR 60.766 shall provide information satisfactory to the appropriate AQD District Office as required in 40 CFR 60.767(c)(2) and (3) describing the design and operation of the collection system, the operating parameters that would indicate proper performance, and appropriate monitoring procedures. The AQD may specify additional appropriate monitoring procedures. **(40 CFR 60.766(e))**

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3. The permittee shall 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 60, Subparts A and XXX)**

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).

FG-ACTIVECOLLECTION-WWW FLEXIBLE GROUP CONDITIONS
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DESCRIPTION

This flexible group represents the active landfill gas collection system that uses gas mover equipment to draw landfill gas from the wells and moves the gas to the control equipment. This flexible group contains 40 CFR 60, Subpart WWW requirements.

Emission Unit: EU-ACTIVECOLLECTION

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

NA

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTIONS

1. In the event the collection or control system is inoperable, the gas mover system shall be shut down and all valves in the collection and control system contributing to venting of the gas to the atmosphere shall be closed within one hour. **(40 CFR 60.753(e), 40 CFR 63.1955(a))**
2. The permittee shall operate the collection system such that gas is collected from each area, cell, or group of cells in the MSW landfill in which solid waste has been in place for:
 - a. Five years or more if active; or **(40 CFR 60.753(a)(1), 40 CFR 63.1955(a))**
 - b. Two years or more if closed or at final grade. **(40 CFR 60.753(a)(2), 40 CFR 63.1955(a))**
3. The permittee shall operate the collection system with negative pressure at each wellhead except under the following conditions: **(40 CFR 60.753(b), 40 CFR 63.1955(a))**
 - a. A fire or increased well temperature. The owner or operator shall record instances when positive pressure occurs in efforts to avoid a fire. These records shall be submitted with the semiannual reports as provided in 40 CFR 60.757(f)(1). **(40 CFR 60.753(b)(1), 40 CFR 63.1955(a))**
 - b. Use of a geo-membrane or synthetic cover. The owner or operator shall develop acceptable pressure limits in the design plan **(40 CFR 60.753(b)(2), 40 CFR 63.1955(a))**
 - c. A decommissioned well. A well may experience a static positive pressure after shutdown to accommodate for declining flows. All design changes shall be approved by the AQD. **(40 CFR 60.753(b)(3), 40 CFR 63.1955(a))**
4. The permittee shall operate each interior wellhead in the collection system with a landfill gas temperature less than 55°C and with an oxygen level less than five percent. The owner or operator may establish a higher operating temperature or oxygen value at a particular well. A higher operating value demonstration shall be submitted to the appropriate AQD District Office for approval and it shall include supporting data that the elevated parameter does not cause fires or significantly inhibit anaerobic decomposition by killing methanogens. **(40 CFR 60.753(c), 40 CFR 60.756(e), 40 CFR 63.1955(a))**

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5. The permittee shall operate the installed collection system in accordance with the provisions of 40 CFR 60.753, 40 CFR 60.755, and 40 CFR 60.756. **(40 CFR 60.752(b)(2)(iv), 40 CFR 63.1955(a))**

IV. DESIGN/EQUIPMENT PARAMETERS

1. An active collection system:
 - a. Shall be designed to handle the maximum expected gas flow rate from the entire area of the landfill that warrants control over the intended use period of the gas control or treatment system equipment. **(40 CFR 60.752(b)(2)(ii)(A)(1), 40 CFR 63.1955(a))**
 - b. The permittee shall place each well or design component in the collection system as specified in the approved design plan as provided in 40 CFR 60.752(b)(2)(i). Each well shall be installed no later than 60 days after the date on which the initial solid waste has been in place for a period of five years or more if active; or two years or more if closed at final grade. **(40 CFR 60.755(b), 40 CFR 60.752(b)(2)(ii)(A)(2), 40 CFR 63.1955(a))**
 - c. Collect gas at a sufficient extraction rate. **(40 CFR 60.752(b)(2)(ii)(A)(3), 40 CFR 63.1955(a))**
 - d. Shall be designed to minimize off-site migration of subsurface gas. **(40 CFR 60.752(b)(2)(ii)(A)(4), 40 CFR 63.1955(a))**
2. The permittee shall design the collection system so that all collected gases are vented to a control system designed and operated in compliance with 40 CFR 60.752(b)(2)(iii). **(40 CFR 60.753(e), 40 CFR 63.1955(a))**
3. When adding gas collectors to the active gas collection system, a sufficient density of gas collectors shall be installed in compliance with 40 CFR 60.752(b)(2)(ii)(A)(2) (as specified above in SC IV.1.). The permittee shall design a system of vertical wells, horizontal collectors, or other collection devices, satisfactory to the appropriate AQD District Office, capable of controlling and extracting gas from all portions of the landfill sufficient to meet all operational and performance standards in NSPS WWW. **(40 CFR 60.755(a)(2), 40 CFR 63.1955(a))**
 - a. If the permittee is seeking to demonstrate compliance through the use of a collection system not conforming to the specifications provided in 40 CFR 60.759, then the permittee shall provide information that satisfies the AQD District Supervisor as specified in 40 CFR 60.752(b)(2)(i)(C), demonstrating that off-site migration is being controlled. **(40 CFR 60.755(a)(6), 40 CFR 63.1955(a))**
4. The permittee shall install a sampling port and a thermometer, other temperature measuring device, or an access port for temperature measurements at each wellhead. **(40 CFR 60.756(a), 40 CFR 63.1955(a))**
5. The permittee shall site active collection wells, horizontal collectors, surface collectors, or other extraction devices at a sufficient density throughout all gas producing areas using the following procedures unless alternative procedures have been approved by the appropriate AQD District Supervisor as provided in 40 CFR 60.752(b)(2)(i)(C) and (D):
 - a. The collection devices within the interior and along the perimeter areas shall be certified, by a professional engineer, to achieve comprehensive control of surface gas emissions. The following issues shall be addressed in the design: depths of refuse, refuse gas generation rates and flow characteristics, cover properties, gas system expandability, leachate and condensate management, accessibility, compatibility with filling operations, integration with closure end use, air intrusion control, corrosion resistance, fill settlement, and resistance to the refuse decomposition heat. **(40 CFR 60.759(a)(1), 40 CFR 63.1955(a))**
 - b. The sufficient density of gas collection devices determined in 40 CFR 60.759(a)(1) (above in SC IV.5.a.) shall address landfill gas migration issues and augmentation of the collection system through the use of active or passive systems at the landfill perimeter or exterior. **(40 CFR 60.759(a)(2), 40 CFR 63.1955(a))**
 - c. The placement of gas collection devices determined in 40 CFR 60.759(a)(1) (above in SC IV.5.a.) shall control all gas producing areas, except as provided in 40 CFR 60.759(a)(3) (i) and (ii) (below in SC IV.5.c.i. and ii.). **(40 CFR 60.759(a)(3), 40 CFR 63.1955(a))**

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- i. Any segregated area of asbestos or non-degradable material may be excluded from collection if documented as provided under 40 CFR 60.758(d). The documentation shall provide the nature, date of deposition, location and amount of asbestos or non-degradable material deposited in the area and shall be provided to the District Supervisor upon request. **(40 CFR 60.759(a)(3)(i), 40 CFR 63.1955(a))**
 - ii. Any nonproductive area of the landfill may be excluded from control, provided that the total of all excluded areas can be shown to contribute less than one percent of the total amount of NMOC emissions from the landfill. The amount, location, and age of the material shall be documented and provided to the AQD District Supervisor upon request. A separate NMOC emissions estimate shall be made for each section proposed for exclusion, and the sum of all such sections shall be compared to the NMOC emissions estimate for the entire landfill. Emissions from each section shall be computed using the equation in Appendix 7-1. **(40 CFR 60.759(a)(3)(ii), 40 CFR 63.1955(a))**
6. The permittee shall construct the gas collection devices using the following equipment or procedures:
- a. The landfill gas extraction components shall be constructed of polyvinyl chloride (PVC), high density polyethylene (HDPE) pipe, fiberglass, stainless steel, or other nonporous corrosion resistant material of suitable dimensions to convey projected amounts of gases; withstand installation, static, and settlement forces; and withstand planned overburden or traffic loads. The collection system shall extend as necessary to comply with emission and migration standards. Collection devices such as wells and horizontal collectors shall be perforated to allow gas entry without head loss sufficient to impair performance across the intended extent of control. Perforations shall be situated with regard to the need to prevent excessive air infiltration. **(40 CFR 60.759(b)(1), 40 CFR 63.1955(a))**
 - b. Vertical wells shall be placed so as not to endanger underlying liners and shall address the occurrence of water within the landfill. Holes and trenches constructed for piped wells and horizontal collectors shall be of sufficient cross-section so as to allow for their proper construction and completion including, for example, centering of pipes and placement of gravel backfill. Collection devices shall be designed so as not to allow indirect short circuiting of air into the cover or refuse into the collection system or gas into the air. Any gravel used around pipe perforations should be of a dimension so as not to penetrate or block perforations. **(40 CFR 60.759(b)(2), 40 CFR 63.1955(a))**
 - c. Collection devices may be connected to the collection header pipes below or above the landfill surface. The connector assembly shall include a positive closing throttle valve, any necessary seals and couplings, access couplings and at least one sampling port. The collection devices shall be constructed of PVC, HDPE, fiberglass, stainless steel, or other nonporous material of suitable thickness. **(40 CFR 60.759(b)(3), 40 CFR 63.1955(a))**
7. The active gas collection system shall be designed so as to convey the landfill gas to a control system in compliance with 40 CFR 60.752(b)(2)(iii) through the collection header pipe(s). The gas mover equipment shall be sized to handle the maximum gas generation flow rate expected over the intended use period of the gas moving equipment using the following procedures: **(40 CFR 60.759(c), 40 CFR 63.1955(a))**
- a. For existing collection systems, the flow data shall be used to project the maximum flow rate. If no flow data exists, the procedures in 40 CFR 60.759(c)(2) shall be used. **(40 CFR 60.759(c)(1), 40 CFR 63.1955(a))**
 - b. For new collection systems, the maximum flow rate shall be in accordance with 40 CFR 60.755(a)(1). **(40 CFR 60.759(c)(2), 40 CFR 63.1955(a))**

V. TESTING/SAMPLING

NA

VI. MONITORING/RECORDKEEPING

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

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1. For the purpose of demonstrating whether the gas collection system flow rate is sufficient to determine compliance with 40 CFR 60.752(b)(2)(ii)(A)(3), the permittee shall measure gauge pressure in the gas collection header at each individual well, monthly. If a positive pressure exists, action shall be initiated to correct the exceedance within five calendar days, except for the three conditions allowed under 40 CFR 60.753(b) (above in SC III.3.a-c). If negative pressure cannot be achieved without excess air infiltration within 15 calendar days of the first measurement, the gas collection system shall be expanded to correct the exceedance within 120 days of the initial measurement of positive pressure. Any attempted corrective measure shall not cause exceedances of other operational or performance standards. An alternative timeline for correcting the exceedance may be submitted to the AQD for approval. **(40 CFR 60.755(a)(3), 40 CFR 60.756(a)(1), 40 CFR 63.1955(a))**
 - a. If monitoring demonstrates that the negative pressure is not being met, then corrective action shall be taken as noted in 40 CFR 60.755(a)(3) (above in SC VI.1.). If corrective actions are taken as specified in 40 CFR 60.755, the monitored exceedance is not a violation of the operational requirements. **(40 CFR 60.753(g), 40 CFR 63.1955(a))**
2. The permittee is not required to expand the gas collection system as required in 40 CFR 60.755(a)(3) (above in SC VI.1.) during the first 180 days after gas collection system startup. **(40 CFR 60.755(a)(4), 40 CFR 63.1955(a))**
3. For the purpose of identifying whether excess air infiltration into the landfill is occurring, the permittee shall monitor each well monthly for temperature and oxygen as provided in 40 CFR 60.753(c). If a well exceeds one of these operating parameters, action shall be initiated to correct the exceedance within five calendar days. If correction of the exceedance cannot be achieved within 15 calendar days of the first measurement, the gas collection system shall be expanded to correct the exceedance within 120 days of the initial exceedance. Any attempted corrective measure shall not cause exceedances of other operational or performance standards. An alternative timeline for correcting the exceedance may be submitted to the AQD for approval. **(40 CFR 60.755(a)(5), 40 CFR 60.756(a)(2), 40 CFR 60.756(a)(3), 40 CFR 63.1955(a))**
 - a. If monitoring demonstrates that the temperature and oxygen levels are not being met, then corrective action shall be taken as noted above and specified in 40 CFR 60.755(a)(5). If corrective actions are taken as specified in 40 CFR 60.755, the monitored exceedance is not a violation of the operational requirements. **(40 CFR 60.753(g), 40 CFR 63.1955(a))**
 - b. Unless an alternative test method is established as allowed by 40 CFR 60.752(b)(2)(i), the oxygen shall be determined by an oxygen meter using Method 3A or 3C except that:
 - i. The span shall be set so that the regulatory limit is between 20 and 50 percent of the span. **(40 CFR 60.753(c)(i), 40 CFR 63.1955(a))**
 - ii. A data recorder is not required. **(40 CFR 60.753(c)(ii), 40 CFR 63.1955(a))**
 - iii. Only two calibration gases are required, a zero and span, and ambient air may be used as the span. **(40 CFR 60.753(c)(iii), 40 CFR 63.1955(a))**
 - iv. A calibration error check is not required. **(40 CFR 60.753(c)(iv), 40 CFR 63.1955(a))**
 - v. The allowable sample bias, zero drift, and calibration drift are ± 10 percent. **(40 CFR 60.753(c)(v), 40 CFR 63.1955(a))**
4. Except as provided in 40 CFR 60.752(b)(2)(i)(B), the permittee shall keep up-to-date, readily accessible records for the life of the control equipment of the data listed in 40 CFR 60.758(b)(1) (below in SC VI.4.a-b) as measured during the compliance determination. Records of the control device vendor specifications shall be maintained until removal. **(40 CFR 60.758(b), 40 CFR 63.1955(a))**
 - a. The maximum expected gas generation flow rate as calculated in 40 CFR 60.755(a)(1). The permittee may use another method to determine the maximum gas generation flow rate, if the method has been approved by the appropriate AQD District Office. **(40 CFR 60.758(b)(1)(i), 40 CFR 63.1955(a))**

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- b. The density of wells, horizontal collectors, surface collectors, or other gas extraction devices determined using the procedures specified in 40 CFR 60.759(a)(1). **(40 CFR 60.758(b)(1)(ii), 40 CFR 63.1955(a))**
- 5. Except as provided in 40 CFR 60.752(b)(2)(i)(B), the permittee shall keep for the life of the collection system an up-to-date, readily accessible plot map showing each existing and planned collector in the system and providing a unique identification location label for each collector; and the installation date and location of all newly installed collectors as specified under 40 CFR 60.755(b) (above in SC IV.1.b.). **(40 CFR 60.758(d), 40 CFR 60.758(d)(1), 40 CFR 63.1955(a))**
- 6. The permittee shall keep readily accessible records of all collection and control system exceedances of the operational standards in 40 CFR 60.753, the reading in the subsequent month whether or not the second reading is an exceedance, and the location of each exceedance. **(40 CFR 60.758(e), 40 CFR 63.1955(a))**
- 7. The permittee shall maintain the following information:
 - a. A diagram of the collection system showing collection system positioning including all wells, horizontal collectors, surface collectors, or other gas extraction devices, including the locations of any areas excluded from collection and the proposed sites for the future collection system expansion. **(40 CFR 60.757(g)(1), 40 CFR 63.1955(a))**
 - b. The data upon which the sufficient density of wells, horizontal collectors, surface collectors, or other gas extraction devices and the gas mover equipment sizing are based. **(40 CFR 60.757(g)(2), 40 CFR 63.1955(a))**
 - c. The documentation of the presence of asbestos or non-degradable material for each area from which collection wells have been excluded based on the presence of asbestos or non-degradable material. **(40 CFR 60.757(g)(3), 40 CFR 63.1955(a))**
 - d. The sum of the gas generation flow rates for all areas from which collection wells have been excluded based on non-productivity and the calculations of gas generation flow rate for each excluded area. **(40 CFR 60.757(g)(4), 40 CFR 63.1955(a))**
 - e. The provisions for increasing gas mover equipment capacity with increased gas generation flow rate, if the present gas mover equipment is inadequate to move the maximum flow rate expected over the life of the landfill. **(40 CFR 60.757(g)(5), 40 CFR 63.1955(a))**
 - f. The provisions for the control of off-site migration. **(40 CFR 60.757(g)(6), 40 CFR 63.1955(a))**
 - g. The permittee shall maintain the dates of the landfill gas well installations, the age of the waste in which the landfill gas wells were installed, and the age of the in-place waste for each portion of the landfill. **(R 336.1213(3))**

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))**

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4. The permittee shall submit to the appropriate AQD District Office semiannual reports for the gas collection system. The reports 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. For enclosed combustion devices and flares, reportable exceedances are defined under 40 CFR 60.758(c). The semiannual reports for the gas collection system shall include the following information: **(40 CFR 60.757(f), 40 CFR 63.1980(a), 40 CFR 63.1955(a), 40 CFR 63.1965)**
 - a. Value and length of time for exceedance of applicable parameters monitored under 40 CFR 60.756(a), (above in SC VI.1. and VI.3.). **(40 CFR 60.757(f)(1))**
 - b. All periods when the collection system was not operating in excess of five days. **(40 CFR 60.757(f)(4))**
 - c. The date of installation and the location of each well or collection system expansion added pursuant to 40 CFR 60.755(a)(3), 40 CFR 60.755(b), and 40 CFR 60.755(c)(4) (above in SC IV.1.b., VI.1. and VI.3.). **(40 CFR 60.757(f)(6))**
 - d. Any deviations as listed in 40 CFR 63.1965. **(40 CFR 63.1965)**
 - e. The permittee shall record instances when a positive pressure occurs in efforts to avoid fire. **(40 CFR 60.753(b)(1))**
5. The permittee shall submit the startup, shutdown, and malfunction (SSM) report to the appropriate AQD District Office and it shall be delivered or postmarked by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(40 CFR 63.10(a)(5), 40 CFR 63.10(d)(5))**

See Appendix 8-1

VIII. STACK/VENT RESTRICTION(S)

N/A

IX. OTHER REQUIREMENTS

1. If monitoring demonstrates that the operational requirements in 40 CFR 60.753(b), (c), or (d) (above in SC III.3. and III.4.) are not met, corrective action shall be taken as specified above in 40 CFR 60.755(a)(3) through (5) or 40 CFR 60.755(c) (SC VI.1. and VI.3.). If corrective actions are taken as specified in 40 CFR 60.755 755 (above in SC VI.1. and VI.3.), the monitored exceedance is not a violation of the operational requirements in 40 CFR 60.753 (SC III.3. and III.4.). **(40 CFR 60.753(g), 40 CFR 63.1955(a))**
2. The provisions of 40 CFR Part 60, Subpart WWW, apply at all times, except during periods of start-up, shutdown, or malfunction, provided that the duration of start-up, shutdown, or malfunction shall not exceed five days for collection systems and shall exceed one hour for treatment and control devices. **(40 CFR 60.755(e), 40 CFR 63.1955(a))**
3. If the permittee is seeking to install a collection system that does not meet the specifications in 40 CFR 60.759 (above in SC IV.5, IV.6 and IV.7.) or is seeking to monitor alternative parameters to those required by 40 CFR 60.753 through 40 CFR 60.756, they shall provide information satisfactory to the appropriate AQD District Office as provided in 40 CFR 60.752(b)(2)(i)(B) and (C) describing the design and operation of the collection system, the operating parameters that would indicate proper performance, and appropriate monitoring procedures. The AQD may specify additional appropriate monitoring procedures. **(40 CFR 60.756(e), 40 CFR 63.1955(a))**
4. The permittee shall have developed and implemented a written SSM plan according to the provision in 40 CFR 63.6(e)(3) for EU-ACTIVECOLLECTION. A copy of the SSM plan shall be maintained on site. **(40 CFR 63.1960)**

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).

FG-TREATMENTSYSYSTEM-XXX FLEXIBLE GROUP CONDITIONS

DESCRIPTION

Processing equipment that treats landfill gas before it is used for subsequent use or sale. The treatment system removes particulate to at least the 10-micron level, compresses the landfill gas, and removes enough moisture to ensure good combustion of gas for subsequent use. This flexible group contains the requirements of 40 CFR Part 60, Subpart XXX.

Emission Unit: EU-TREATMENTSYSYSTEM

POLLUTION CONTROL EQUIPMENT

Any emissions from any atmospheric vents or stacks associated with the treatment system shall be subject to 40 CFR 60.762(b)(2)(iii)(A) or (B).

I. EMISSION LIMIT(S)

NA

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall operate the treatment system at all times when the collected gas is routed to the treatment system. **(40 CFR 60.763(f))**
2. The permittee shall operate the treatment system so that any emissions from any atmospheric vents or stacks associated with the treatment system shall be subject to 40 CFR 60.762(b)(2)(iii)(A) or (B). **(40 CFR 60.762(b)(2)(iii)(C) and (D))**
3. The permittee shall develop a site-specific treatment system monitoring plan as required in 40 CFR 60.768(b)(5)(ii). The plan shall at a minimum contain the following: **(40 CFR 60.766(g))**
 - a. Monitoring of filtration, de-watering, and compression parameters that ensure the treatment system is operating properly for each intended end use of the treated landfill gas. **(40 CFR 60.768(b)(5)(ii)(A))**
 - b. Monitoring methods, frequencies, and operating ranges for each monitored operating parameter based on manufacturer's recommendations or engineering analysis for each intended end use of the treated landfill gas. **(40 CFR 60.768(b)(5)(ii)(B))**
 - c. Documentation of the monitoring methods and ranges, along with justification for their use. **(40 CFR 60.768(b)(5)(ii)(C))**
 - d. Identify who is responsible (by job title) for data collection. **(40 CFR 60.768(b)(5)(ii)(D))**
 - e. Processes and methods used to collect the necessary data. **(40 CFR 60.768(b)(5)(ii)(E))**
 - f. Description of the procedures and methods that are used for quality assurance, maintenance, and repair of all continuous monitoring systems. **(40 CFR 60.768(b)(5)(ii)(F))**

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4. The monitoring requirements apply at all times the treatment system is operating except for periods of monitoring system malfunctions, repairs associated with monitoring system malfunctions, and required monitoring system quality assurance or quality control activities. The permittee shall complete monitoring system repairs in response to monitoring system malfunctions and to return the monitoring system to operation as expeditiously as practicable. **(R 336.1911, 40 CFR 60.766(h))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall install and properly operate a treatment system in accordance with 40 CFR 60.767(c)(2). **(40 CFR 60.766(d))**
2. The permittee shall install, calibrate, maintain, and operate according to the manufacturer's specifications, a device that records flow to the treatment system and bypass of the treatment system (if applicable). **(40 CFR 60.766(g))**

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. The permittee shall keep monthly records of all treatment system operating parameters specified to be monitored according to 40 CFR 60.766(g). The records shall include:
 - a. Continuous records of the indication of flow and gas flow rate to the treatment system. **(40 CFR 60.768(c)(2))**
 - b. The indication of bypass flow or records of monthly inspections of car-seals or lock-and-key configurations used to seal bypass lines. **(40 CFR 60.768(c)(2))**
 - c. Maintenance and repair of the monitoring system. **(40 CFR 60.766(h))**

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. Report shall be postmarked or received by 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. Report shall be postmarked or received by appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**
4. The permittee shall submit to the appropriate AQD District Office annual reports for the landfill gas treatment system. The report shall be received by appropriate AQD District Office by March 15 for reporting period January 1 to December 31. The report shall include the following:
 - a. Value and length of time for exceedance of applicable parameters monitored under 40 CFR 60.766(g). **(40 CFR 60.767(g)(1))**
 - b. Description and duration of all periods when the gas stream is diverted from the treatment system through a bypass line or the indication of bypass flow. **(40 CFR 60.767(g)(2))**
 - c. Description and duration of all periods when the treatment system was not operating and length of time the control device was not operating. **(40 CFR 60.767(g)(3))**

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VIII. STACK/VENT RESTRICTION(S)

NA

IX. OTHER REQUIREMENT(S)

1. The permittee shall 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 60, Subparts A and XXX)**

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).

FG-TREATMENTSYSYSTEM-WWW FLEXIBLE GROUP CONDITIONS

DESCRIPTION

A treatment system that filters, de-waters, and compresses landfill gas for subsequent sale or beneficial use. The treatment system removes particulate to at least the 10-micron level, compresses the landfill gas, and removes enough moisture to ensure good combustion of gas for subsequent use. This flexible group contains the requirements of 40 CFR Part 60, Subpart WWW.

Emission Unit: EU-TREATMENTSYSYSTEM

POLLUTION CONTROL EQUIPMENT

Any emissions from any atmospheric vents or stacks associated with the treatment system shall be subject to 40 CFR 60.752(b)(2)(iii)(A) or (B).

I. EMISSION LIMIT(S)

NA

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall operate the treatment system at all times when the collected gas is routed to the treatment system. **(40 CFR 60.753(f))**
2. The permittee shall operate the treatment system so that any emissions from any atmospheric vents or stacks associated with the treatment system shall be subject to 40 CFR 60.752(b)(2)(iii)(A) or (B). **(40 CFR 60.752(b)(2)(iii)(C), 40 CFR 63.1955(c))**
3. The permittee shall operate the treatment system to comply with the provisions of 40 CFR 60.753(e) and (f), and 40 CFR 60.756(d). **(40 CFR 60.752(b)(2)(iv), 40 CFR 63.1955(c))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The treatment system shall be designed as approved by AQD. **(40 CFR 60.752(b)(2)(iii)(C), 40 CFR 60.752(b)(2)(i)(D), 40 CFR 63.1955(c))**

V. TESTING/SAMPLING

NA

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 keep up-to-date; readily accessible records of all control or treatment system exceedances of the operational standards in 40 CFR 60.753(e) and (f). **(40 CFR 60.758(e), 40 CFR 63.1955(a))**
2. The permittee shall keep records of all preventative maintenance performed in accordance with the preventative maintenance plan (PMP) prepared pursuant to SC IX.3 of this permit. **(40 CFR 60.756(d), R 336.1213(3))**

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3. The permittee shall provide information to the AQD as provided in 40 CFR 60.752(b)(2)(i)(B) describing the operation of the control device, the operating parameters that would indicate proper performance, and appropriate monitoring procedures. The AQD shall review the information and either approve it, or request that additional information be submitted. The AQD may specify additional appropriate monitoring procedures. **(40 CFR 60.756(d))**.

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. Report shall be postmarked or received by 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. Report shall be postmarked or received by appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**
4. The permittee shall submit to the appropriate AQD District Office semiannual reports for the landfill gas treatment system. The report shall be received by 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. **(40 CFR 60.757(f), 40 CFR 63.1980(a), 40 CFR 63.1955(a))**

The report shall include:

- a. Value and length of time for exceedance of applicable parameters monitored under 40 CFR 60.756(d). **(R 336.1213(3), 40 CFR 60.757(f)(1), 40 CFR 63.1980(a), 40 CFR 63.1955(c))**
 - b. Description and duration of all periods when the gas stream is diverted from the treatment system through a bypass line or the indication of bypass flow. **(R 336.1213(3))**
 - c. Description and duration of all periods when the treatment system was not operating for a period exceeding one hour and length of time the control device was not operating. **(40 CFR 60.757(f)(3), 40 CFR 63.1980(a), 40 CFR 63.1955(c))**
 - d. Description and duration of all periods when the treatment system was not operated in accordance with the operating parameters and monitoring procedures that were part of the plan in SC VII.4. **(R 336.1213(3))**
5. The permittee shall submit the startup, shutdown, and malfunction (SSM) report to the appropriate AQD District Office and it shall be delivered or postmarked by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(40 CFR 63.10(a)(5), 40 CFR 63.10(d)(5))**

See Appendix 8-1

VIII. STACK/VENT RESTRICTION(S)

NA

IX. OTHER REQUIREMENT(S)

1. The provisions of 40 CFR Part 60, Subpart WWW, apply at all times, except during periods of start-up, shutdown, or malfunction, provided that the duration of start-up, shutdown, or malfunction shall not exceed one hour for the treatment system. **(40 CFR 60.755(e), 40 CFR 63.1955(c))**
2. The permittee shall have developed and implemented a written SSM plan according to the provision in 40 CFR 63.6(e)(3) for EUTREATMNTSYSTEM. A copy of the SSM plan shall be maintained on-site. **(40 CFR 63.1960, (40 CFR 63.1965(c))**

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3. The permittee shall have implemented a written preventative maintenance plan (PMP) for EUTREATMNTSYSTEM. At a minimum, the plan shall include a schedule of maintenance activities consistent with manufacturer's recommendations, and the operating variables that will be monitored to detect a malfunction or failure. A copy of the PMP shall be maintained on site and available upon request. **(40 CFR 60.756(d), R 336.1213(3), R 336.1911)**

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).

**FG-ENCLOSEDFLARE-XXX
 FLEXIBLE GROUP CONDITIONS**

DESCRIPTION

Two enclosed flares with a combined capacity of 9,000 CFM, used in combusting landfill gas. An enclosed flare is an enclosed combustor or firebox which maintains a relatively constant limited peak temperature generally using a limited supply of combustion air. This flexible group contains the requirements of 40 CFR Part 60, Subpart XXX.

Emission Unit: EU-FLARE4, EU-FLARE6

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMITS

NA

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. NMOC	20 ppmv dry as hexane at 3% oxygen -OR- 98% weight reduction or more	Hourly	Enclosed Flares	SC V.1 SC V.2	40 CFR 60.762(b)(2)(iii)(B)

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTIONS

1. The permittee shall operate the enclosed flare at all times when the collected gas is routed to it. **(40 CFR 60.763(f))**
2. The permittee shall operate control system such that all collected gases are vented to a control system designed and operated in accordance 60.762(b)(2)(iii). **(40 CFR 60.762(b)(2)(iii)(B))**
3. The enclosed flare shall be operated within the parameter ranges established during the most recent performance test in compliance with 40 CFR 60.764(d). **(40 CFR 60.762(b)(2)(iii)(B)(2))**
4. In the event the control system is inoperable, the gas mover system shall be shut down and all valves in the collection and control system contributing to venting of the gas to the atmosphere shall be closed within one hour. **(R 336.1911, 40 CFR 60.763(e))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall install, calibrate, maintain, and operate according to the manufacturer's specifications, the following equipment:

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- a. A temperature monitoring device equipped with a continuous recorder and having a minimum accuracy of ± 1 percent of the temperature being measured expressed in degrees Celsius or ± 0.5 degrees Celsius, whichever is greater. **(40 CFR 60.766(b)(1))**
- b. A device that records flow to the control device and bypass of the control device (if applicable). **(40 CFR 60.766(b)(2))**

V. TESTING/SAMPLING

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

1. Within 180 days of permit issuance or five years from the last test date, whichever is later, the permittee shall verify the NMOC reduction efficiency or ppmv from EU-FLARE4 and EU-FLARE6, by testing at owner's expense, in accordance with Department requirements. Testing shall be performed using an approved EPA method listed in 40 CFR 60, Appendix A. An alternate 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. The permittee must submit 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 336.2001, R 336.2003, R 336.2004, 40 CFR 60.762(b)(2)(iii)(B), 40 CFR 60.764(d))**
2. The permittee shall verify the NMOC reduction efficiency or ppmv from EU-FLARE4 and EU-FLARE6 every five years from the date of the last test. **(R 336.1213(3), R 336.2001, R 336.2003, R 336.2004, 40 CFR 60.762(b)(2)(iii)(B), 40 CFR 60.764(d))**

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 keep monthly records of the operating parameters specified to be monitored in 40 CFR 60.766(b). The records shall include:
 - a. Continuous records of the indication of flow and gas flow rate to the control device. **(40 CFR 60.766(b)(2)(i))**
 - b. The indication of bypass flow or records of monthly inspections of car-seals or lock-and-key configurations used to seal bypass lines. **(40 CFR 60.766(b)(2)(ii))**
2. The permittee shall keep monthly, readily accessible records for periods of operation during which the parameter boundaries established during the most recent performance test are exceeded.
 - a. The average combustion temperature measured at least every 15 minutes and averaged over the same time period of the performance test. **(40 CFR 60.768(b)(2)(i))**
 - b. All three-hour periods of operation during which the average combustion temperature was more than 28°C (82°F) below the average combustion temperature during the most recent performance test at which compliance with 40 CFR 60.762(b)(2)(iii) was determined. **(40 CFR 60.768(c)(1)(i))**

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. Report shall be postmarked or received by 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. Report shall be postmarked or received by appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**

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4. The permittee shall submit to the appropriate AQD District Office annual reports for the control system. Reports shall be received by appropriate AQD District Office by March 15 for reporting period January 1 to December 31. For enclosed combustion devices, reportable exceedances are defined under 40 CFR 60.768(c). The report shall include the following:
 - a. Value and length of time for exceedance of applicable parameters monitored under 40 CFR 60.766(b). **(40 CFR 60.767(g)(1))**
 - b. Description and duration of all periods when the gas stream is diverted from the control device through a bypass line or the indication of bypass flow as specified under 40 CFR 60.766. **(40 CFR 60.767(g)(2))**
 - c. Description and duration of all periods when the control device was not operating and length of time the control device was not operating. **(40 CFR 60.767(g)(3))**
5. 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 336.2001(5))**
6. 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 EPA's Electronic Reporting Tool (ERT) as listed on the EPA's ERT Web site (https://www3.epa.gov/ttn/chief/ert/ert_info.html) at the time of the test. The permittee shall submit the results of the performance test to the EPA via the Compliance and Emissions Data Reporting Interface (CEDRI). CEDRI can be accessed through the EPA'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 REQUIREMENTS

1. The permittee shall 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 60, Subparts A and XXX)**

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).

**FG-ENCLOSEDFLARE-WWW
 FLEXIBLE GROUP CONDITIONS**

DESCRIPTION

Two enclosed flares with a combined capacity of 9,000 CFM, used in combusting landfill gas. An enclosed flare is an enclosed combustor or firebox which maintains a relatively constant limited peak temperature generally using a limited supply of combustion air. This flexible group contains the requirements of 40 CFR Part 60 Subpart WWW.

Emission Unit ID: EU-FLARE4, EU-FLARE6

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. NMOC	20 ppmv dry as hexane at 3% oxygen -OR- 98% reduction or more	Hourly	Enclosed Flare	SC V.1 SC V.2	40 CFR 60.762(b)(2)(iii)(B)

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall only burn landfill gas in EU-FLARE4 and EU-FLARE6. **(R 336.1213(3)(a)(iii))**
2. The permittee shall operate the enclosed flare at all times when the collected gas is routed to the enclosed flare. **(40 CFR 60.753(f), 40 CFR 63.1955(a))**
3. The permittee shall operate a control system such that all collected gases are vented to a control system designed and operated in accordance with 60.752(b)(2)(iii). In the event that the collection or control system is inoperable, the gas mover system shall be shut down and all valves in the collection and control system contributing to venting of the gas to the atmosphere shall be closed within one hour. **(40 CFR 60.753(e), 40 CFR 63.1955(a))**
4. The permittee shall route all collected untreated gas to the enclosed flares, or another control system designed and operated to reduce NMOC by 98 weight-percent or reduce the outlet NMOC concentration to less than 20 parts per million by volume, dry basis as hexane at 3% percent oxygen. **(40 CFR 60.752(b)(2)(iii)(B), 40 CFR 63.1955(a))**
 - a. The enclosed flare shall be operated within the parameter ranges established during the most recent performance test in compliance with 40 CFR 60.754(d). The operating parameters to be monitored are specified in 40 CFR 60.756 (below in condition VI.5.). **(40 CFR 60.752(b)(2)(iii)(B)(2), 40 CFR 63.1955(a))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

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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. The permittee shall calibrate, maintain, and operate the enclosed flare according to the manufacturer's specifications, including the following:
 - a. A temperature monitoring device equipped with a continuous recorder and having a minimum accuracy of plus or minus one percent of the temperature being measured expressed in degrees centigrade or plus or minus 0.5 degrees centigrade, whichever is greater. **(40 CFR 60.756(b)(1), 40 CFR 63.1955(a))**
 - b. A device that records flow to or bypass of the control device. The permittee shall either:
 - i. Install, calibrate, and maintain a gas flow rate measuring device that shall record the flow to the control device at least every 15 minutes; **(40 CFR 60.756(b)(2)(i), 40 CFR 63.1955(a)) or**
 - ii. Secure the bypass line valve in the closed position with a car-seal or a lock-and-key type configuration. A visual inspection of the seal or closure mechanism shall be performed at least once every month to ensure that the valve is maintained in the closed position and that the gas flow is not diverted through the bypass line. **(40 CFR 60.756(b)(2)(ii), 40 CFR 63.1955(a))**
2. Except as provided in 40 CFR 60.752(b)(2)(i)(B), the permittee shall keep readily accessible continuous records of the equipment operating parameters specified to be monitored in 40 CFR 60.756 (above in condition VI.5.), as well as up-to-date, readily accessible records for periods of operation during which the parameter boundaries established during the most recent performance test are exceeded. **(40 CFR 60.758(c))**
 - a. The following constitute exceedances that shall be recorded and reported under 40 CFR 60.757(f) (above in condition III.2.)
 - i. All three-hour periods of operation during which the average combustion temperature was more than 28 °C (82° F) below the average combustion temperature during the most recent performance test at which compliance with 40 CFR 60.752(b)(2)(iii) (above in condition III.4.) was determined. **(40 CFR 60.758(c)(1)(i))**
 - A. Three-hour block averages are calculated in the same way as they are calculated in 40 CFR Part 60, Subpart WWW, except that the data collected during the events listed below are not to be included in any average computed for 40 CFR Part 63, Subpart AAAA. **(40 CFR 63.1975)**
 - (a) Monitoring system breakdowns, repairs, calibration checks, and zero (low-level) and high-level adjustments. **(40 CFR 63.1975(a))**
 - (b) Startups. **(40 CFR 63.1975(b))**
 - (c) Shutdowns. **(40 CFR 63.1975(c))**
 - (d) Malfunctions. **(40 CFR 63.1975(d))**
3. The permittee shall keep up-to-date, readily accessible continuous records of the indication of flow to the control device or the indication of bypass flow or records of monthly inspections of car-seals or lock-and-key configurations used to seal bypass lines, specified in 40 CFR 60.756 (above in condition VI.5.). **(40 CFR 60.758(c)(2))**
4. The following information shall be recorded:

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- a. The average combustion temperature measured at least every 15 minutes and averaged over the same time period of the performance test. **(40 CFR 60.758(b)(2)(i))**
 - b. The percent reduction of NMOC determined as specified in 40 CFR 60.752(b)(2)(iii)(B) achieved by the control device. **(40 CFR 60.758(b)(2)(ii))**
5. The permittee shall keep up-to-date, readily accessible records of all control system exceedances of the operational standards in 40 CFR 60.753 (above in conditions III.2. and III.3.). **(40 CFR 60.758(e))**

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 to the appropriate AQD District Office semi-annual reports for the gas collection system. Reports shall be received by 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. For enclosed combustion devices and flares, reportable exceedances are defined under 40 CFR 60.758(c). **(40 CFR 60.757(f), 40 CFR 63.1980(a), 40 CFR 63.1955(a))**. The semi-annual report shall contain:
 - a. Value and length of time for exceedance of applicable parameters monitored in 40 CFR 60.756(b) (above in condition VI.5.). **(40 CFR 60.757(f)(1), 40 CFR 63.1980(a), 40 CFR 63.1955(a))**
 - b. Description and duration of all periods when the gas stream is diverted from the control device through a bypass line or the indication of bypass flow as specified in 40 CFR 60.756 (above in condition VI.5.b.). **(40 CFR 60.757(f)(2), 40 CFR 63.1980(a), 40 CFR 63.1955(a))**
 - c. Description and duration of all periods when the control device was not operating for a period exceeding one hour and length of time the control device was not operating. **(40 CFR 60.757(f)(3), 40 CFR 63.1980(a), 40 CFR 63.1955(a))**
5. The permittee shall submit an equipment removal report to the AQD 30 days prior to removal or cessation of operation of the enclosed flare. **(40 CFR 60.757(e))**
 - a. The equipment removal report shall contain all of the following items:
 - i. A copy of the closure report submitted in accordance with 40 CFR 60.757(d). **(40 CFR 60.757(e)(1)(i), 40 CFR 63.1955(a))**
 - ii. A copy of the initial performance test report demonstrating that the 15-year minimum control period has expired. **(40 CFR 60.757(e)(1)(ii), 40 CFR 63.1955(a))**
 - iii. Dated copies of three successive NMOC emission rate reports demonstrating that the landfill is no longer producing 50 megagrams or greater of NMOC per year. **(40 CFR 60.757(e)(1)(iii), 40 CFR 63.1955(a))**
 - b. Additional information may be requested as may be necessary to verify that all of the conditions for removal in 40 CFR 60.752(b)(2)(v) have been met. **(40 CFR 60.757(e)(2), 40 CFR 63.1955(a))**

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6. The permittee shall submit the startup, shutdown, and malfunction (SSM) report to the appropriate AQD district office and it shall be delivered or postmarked by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(40 CFR 63.10(a)(5), 40 CFR 63.10(d)(5))**

See Appendix 8-1

VIII. STACK/VENT RESTRICTION(S)

NA

IX. OTHER REQUIREMENT(S)

1. The provisions of 40 CFR Part 60, Subpart WWW apply at all times, except during periods of start-up, shutdown, or malfunction, provided that the duration of start-up, shutdown, or malfunction shall not exceed 1 hour for control devices. **(40 CFR 60.755(e), 40 CFR 63.1955(a))**
2. Compliance is determined in the same way it is determined for 40 CFR Part 60, Subpart WWW, including performance testing, monitoring of the collection system, continuous parameter monitoring, and other credible evidence. In addition, continuous parameter monitoring data collected under 40 CFR 60.756(b)(1) (above in SC VI.1) are used to demonstrate compliance with the operating conditions for the enclosed flare. The permittee shall have developed and implemented a written SSM plan according to the provision in 40 CFR 63.6(e)(3) for the enclosed flares. A copy of the SSM plan shall be maintained on site. **(40 CFR 63.1960)**
3. The permittee shall comply with all applicable provisions of 40 CFR Part 60, Subparts A and WWW “Standard of Performance for Municipal Solid Waste Landfills as they apply to EU-FLARE4, EU-FLARE6.² **(40 CFR Part 60, Subparts A and WWW)**
4. The permittee shall comply with all applicable provisions of 40 CFR Part 63, Subparts A and AAAA “National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills as they apply to EU-FLARE 4, EU-FLARE 6.² **(40 CFR Part 60 Subparts A and AAAA)**

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).

**FG-OPENFLARE-XXX
FLEXIBLE GROUP CONDITIONS**

DESCRIPTION

Open flare is an open combustor without enclosure or shroud. Two open flares with a combined capacity of 5,100 CFM used to control LFG generated by the landfill. EU-FLARE5 serves as a backup flare and only operates if one or more flares and/or engines are not in operation. This flexible group contains the requirements of 40 CFR Part 60 Subpart XXX.

Emission Unit: EU-FLARE3, EU-FLARE5

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

- 1. There shall be no visible emissions from EU-FLARE3 and EU-FLARE5 except for periods not to exceed a total of five minutes during any two consecutive hours. **(R 336.1301(1)(c), 40 CFR 60.18(c)(1))**

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

- 1. The permittee shall operate the flare in accordance with the parameters established in 40 CFR 60.18. **(40 CFR 60.762(b)(2)(iii)(A))**
- 2. The permittee shall operate the flare at all times when the collected gas is routed to it. **(40 CFR 60.763(f))**
- 3. The flare shall be operated with a flame present at all times. **(40 CFR 60.18(c)(2))**
- 4. In the event the control system is inoperable, the gas mover system shall be shut down and all valves in the collection and control system contributing to venting of the gas to the atmosphere shall be closed within one hour. **(R 336.1911, 40 CFR 60.763(e))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

- 1. The permittee shall install, calibrate, maintain, and operate according to the manufacturer's specifications, a heat sensing device, such as an ultraviolet beam sensor or thermocouple, at the pilot light or the flame itself to indicate the continuous presence of a flame. **(40 CFR 60.18(f)(2), 40 CFR 60.766(c)(1))**
- 2. The permittee shall install, calibrate, maintain, and operate according to the manufacturer's specifications, a device that records flow to or bypass of the flare (if applicable). **(40 CFR 60.766(c)(2))**

V. TESTING/SAMPLING

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

- 1. Within 180 days of permit issuance or five years from the last test date, whichever is later, the permittee shall verify visible emissions from EU-FLARE3 and EU-FLARE5, by testing at owner's expense, in accordance with Department requirements. Testing shall be performed using an approved EPA method listed in 40 CFR 60, Appendix A. An alternate 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

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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 District Office within 60 days following the last date of the test. **(R 336.213(3), R 336.2001, R 336.2003, R 336.2004, 40 CFR 60.18(f))**

2. The permittee shall verify visible emissions from EU-FLARE3 and EU-FLARE5 every five years from the date of the last test. **(R 336.1213(3), R 336.2001, R 336.2003, R 336.2004, 40 CFR 60.18(f))**

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 maintain records regarding the flare type (i.e., steam-assisted, air-assisted, or non-assisted), all visible emission readings, heat content determination, flow rate or bypass flow rate measurements, and exit velocity determinations made during the performance test as specified in 40 CFR 60.18. **(40 CFR 60.768(b)(4))**
2. The permittee shall keep monthly records of the operating parameters specified to be monitored in 40 CFR 60.766(c). The records shall include:
 - a. Continuous records of the indication of flow and gas flow rate to the control device. **(40 CFR 60.768(b)(4))**
 - b. The indication of bypass flow or records of monthly inspections of car-seals or lock-and-key configurations used to seal bypass lines. **(40 CFR 60.766(c)(2)(ii))**
 - c. Continuous records of the open flare pilot flame or open flare flame monitoring, and records of all periods of operations during which the pilot flame of the flare flame is absent. **(40 CFR 60.768(b)(4))**
3. The following records for the flare shall be maintained onsite:
 - a. The net heating value of the gas being combusted in the flare shall be calculated and recorded using the equation provided in Appendix 7-1. **(40 CFR 60.18(f)(3))**
 - b. The exit velocity for steam-assisted, air-assisted, or non-assisted flares as determined by the methods specified in 40 CFR 60.18(f)(4) provided in Appendix 7-1. **(40 CFR 60.18(f)(4))**

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. Report shall be postmarked or received by 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. Report shall be postmarked or received by appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**
4. The permittee shall submit to the appropriate AQD District Office annual reports for the gas collection system. Reports shall be received by appropriate AQD District Office by March 15 for reporting period January 1 to December 31. For enclosed combustion devices and flares, reportable exceedances are defined under 40 CFR 60.768(c). The report shall include the following:
 - a. Value and length of time for exceedance of applicable parameters monitored under 40 CFR 60.766(c). **(40 CFR 60.767(g)(1))**
 - b. Description and duration of all periods when the gas stream is diverted from the control device through a bypass line or the indication of bypass flow as specified under 40 CFR 60.766. **(40 CFR 60.767(g)(2))**

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- c. Description and duration of all periods when the control device or treatment system was not operating and length of time the control device or treatment system was not operating. **(40 CFR 60.767(g)(3))**
- 5. 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 336.2001(5))**
- 6. 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 EPA's Electronic Reporting Tool (ERT) as listed on the EPA's ERT Web site (https://www3.epa.gov/ttn/chief/ert/ert_info.html) at the time of the test. The permittee shall submit the results of the performance test to the EPA via the Compliance and Emissions Data Reporting Interface (CEDRI). CEDRI can be accessed through the EPA's Central Data Exchange (CDX). **(40 CFR 60.767(i))**

See Appendix 8-1

VIII. STACK/VENT RESTRICTION(S)

NA

IX. OTHER REQUIREMENT(S)

- 1. The permittee shall 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 60, Subparts A and XXX)**

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).

FG-OPENFLARE-WWW
FLEXIBLE GROUP CONDITIONS

DESCRIPTION

Open flare is an open combustor without enclosure or shroud. Two open flares with a combined capacity of 5,100 CFM used to control LFG generated by the landfill. EU-FLARE5 serves as a backup flare and only operates if one or more flares and/or engines are not in operation. This flexible group contains the requirements of 40 CFR Part 60 Subpart WWW.

Emission Unit ID: EU-FLARE3, EU-FLARE5

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

1. There shall be no visible emissions from EU-FLARE3 and EU-FLARE5 except for periods not to exceed a total of five minutes during any 2 consecutive hours. **(R 336.1301(1)(c), 40 CFR 60.18(c)(1))**

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall operate the flare in accordance with 40 CFR 60.18 except as noted in 40 CFR 60.754(e). **(40 CFR 60.752(b)(2)(iii)(A), 40 CFR 63.1955(a))**
2. The permittee shall operate the flare at all times when the collected gas is routed to it. **(40 CFR 60.753(f), 40 CFR 63.1955(a))**
3. The flare shall be operated with no visible emissions, as determined by the methods specified in 40 CFR 60.18(f), except for periods not to exceed a total of 5 minutes during any 2 consecutive hours. **(40 CFR 60.18(c)(1))**
4. The flare shall be operated with a flame present at all times, as determined by the methods specified in 40 CFR 60.18(f). **(40 CFR 60.18(c)(2))**
5. The flare shall be used only with the net heating value of the gas being combusted of 11.2 MJ/scm (300 Btu/scf) or greater if the flare is steam-assisted or air-assisted; or with the net heating value of the gas being combusted of 7.45 MJ/scm (200 Btu/scf) or greater if the flare is non-assisted. The net heating value of the gas being combusted shall be determined by the methods specified in 40 CFR 60.18(f). **(40 CFR 60.18(c)(3))**
6. Non-assisted flares shall be designed for and operated with an exit velocity, as determined by the methods specified in 40 CFR 60.18(f)(4), less than 18.3 m/sec (60 ft/sec), except as provided in 40 CFR 60.18(c)(4)(ii) and (iii). **(40 CFR 60.18(c)(4)(i))**
 - a. Non-assisted flares designed for and operated with an exit velocity, equal to or greater than 18.3 m/sec (60 ft/sec) but less than 122 m/sec (400 ft/sec) are allowed if the net heating value of the gas being combusted is greater than 37.3 MJ/scm (1,000 Btu/scf). **(40 CFR 60.18(c)(4)(ii))**
 - b. Non-assisted flares designed for and operated with an exit velocity, as determined by the methods specified in 40 CFR 60.18(f)(4) less than the velocity, V_{max} , as determined by the method specified in 40 CFR 60.18(f)(5), and less than 122 m/sec (400 ft/sec) are allowed. **(40 CFR 60.18(c)(4)(iii))**

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7. Flares used to comply with provisions of 40 CFR Part 60, Subpart A shall be operated at all times when emissions may be vented to them. **(40 CFR 60.18(e))**
8. The permittee shall operate control system such that all collected gases are vented to a control system designed and operated in accordance with 40 CFR 60.752(b)(2)(iii). In the event the collection or control system is inoperable, the gas mover system shall be shut down and all valves in the collection and control system shall contributing to venting of the gas to the atmosphere shall be closed within one hour. **(40 CFR 60.753(e), 40 CFR 63.1955(a))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

V. TESTING/SAMPLINGRecords shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))****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 install, calibrate, maintain, and operate according to the manufacturer's specifications the following equipment:
 - a. A heat sensing device, such as an ultraviolet beam sensor or thermocouple, at the pilot light or the flame itself to indicate the continuous presence of a flame. **(40 CFR 60.756(c)(1), 40 CFR 63.1955(a))**
 - b. A device that records flow to or bypass of the flare. **(40 CFR 60.756(c)(2), 40 CFR 63.1955(a))**
The owner or operator shall either:
 - i. Install, calibrate, and maintain a gas flow rate measuring device that shall record the flow to the control device at least every 15 minutes; or **(40 CFR 60.756(c)(2)(i), 40 CFR 63.1955(a))**
 - ii. Secure the bypass line valve in the closed position with a car-seal or a lock-and-key type configuration. A visual inspection of the seal or closure mechanism shall be performed at least once every month to ensure that the valve is maintained in the closed position and that the gas flow is not diverted through the bypass line. **(40 CFR 60.756(c)(2)(ii), 40 CFR 63.1955(a))**
2. Except as provided in 40 CFR 60.752(b)(2)(i)(B), the permittee shall keep up-to-date, readily accessible records for the life of the open flare of the data listed in 40 CFR 60.758(b)(4) (below in SC VI.3.) as measured during the initial performance test or compliance determination. Records of subsequent tests or monitoring shall be maintained for a minimum of five years. Records of the open flare vendor specifications shall be maintained until removal. **(40 CFR 60.758(b), 40 CFR 63.1955(a))**
3. The permittee shall maintain records regarding the flare type (i.e., steam-assisted, air-assisted, or non-assisted), all visible emission readings, heat content determination, flow rate or bypass flow rate measurements, and exit velocity determinations made during the performance test as specified in 40 CFR 60.18; continuous records of the open flare pilot flame or open flare flame monitoring and records of all periods of operations during which the pilot flame of the flare flame is absent. **(40 CFR 60.758(b)(4), 40 CFR 63.1955(a))**
4. Except as provided in 40 CFR 60.752(b)(2)(i)(B), the permittee shall keep readily accessible continuous records of the equipment operating parameters specified to be monitored in 40 CFR 60.756 (above in SC VI.1.), as well as up-to-date, readily accessible records for periods of operation during which the parameter boundaries established during the most recent performance test are exceeded. **(40 CFR 60.758(c))**
 - a. The permittee shall keep up-to-date, readily accessible continuous records of the indication of flow to the control device or the indication of bypass flow or records of monthly inspections of car-seals or lock-and-key configurations used to seal bypass lines, specified under 40 CFR 60.756. **(40 CFR 60.758(c)(2), 40 CFR 63.1955(a))**

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- b. The permittee shall keep up-to-date, readily accessible continuous records of the flame or flare pilot flame monitoring specified under 40 CFR 60.756(c) (above in SC VI.1.a.), and up-to-date, readily accessible records of all periods of operation in which the flame or flare pilot flame is absent. **(40 CFR 60.758(c)(4), 40 CFR 63.1955(c))**
5. The following records for the flare shall be maintained onsite:
- Records indicating presence of flare pilot flame. **(40 CFR 60.18(f)(2))**
 - The net heating value of the gas being combusted in the flare shall be calculated and recorded using the equation provided in Appendix 7-1. **(40 CFR 60.18(f)(3))**
 - The actual exit velocity of the flare shall be calculated and recorded by dividing the volumetric flow rate (in units of standard temperature and pressure), as determined by Federal Reference Test Methods 2, 2A, 2C, or 2D as appropriate, by the unobstructed (free) cross sectional area of the flare tip. **(40 CFR 60.18(f)(4))**
 - The maximum permitted velocity, V_{max} , for flares complying with 40 CFR 60.18(c)(4)(iii) shall be calculated and recorded using the equation provided in Appendix 7-1. **(40 CFR 60.18(f)(5))**
 - The maximum permitted velocity, V_{max} , for air-assisted flares shall be calculated and recorded using the equation provided in Appendix 7-1. **(40 CFR 60.18(f)(6))**
6. 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 336.2001(5))**

See Appendix 7-1

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. Report shall be postmarked or received by 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. Report shall be postmarked or received by appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**
- The permittee shall submit to the appropriate AQD District Office semiannual reports for the gas collection system. Reports shall be received by 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. For enclosed combustion devices and flares, reportable exceedances are defined under 40 CFR 60.758(c). **(40 CFR 60.757(f), 40 CFR 63.1980(a), 40 CFR 63.1955(a))**

The semiannual report shall contain:

- Value and length of time for exceedance of applicable parameters monitored under 40 CFR 60.756(b). **(40 CFR 60.757(f)(1), 40 CFR 63.1980(a), 40 CFR 63.1955(a))**
- Description and duration of all periods when the gas stream is diverted from the control device through a bypass line or the indication of bypass flow as specified under 40 CFR 60.756. **(40 CFR 60.757(f)(2), 40 CFR 63.1980(a), 40 CFR 63.1955(a))**

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- c. Description and duration of all periods when the control device was not operating for a period exceeding one hour and length of time the control device was not operating. **(40 CFR 60.757(f)(3), 40 CFR 63.1980(a), 40 CFR 63.1955(a))**
5. The permittee shall submit an equipment removal report to the AQD 30 days prior to removal or cessation of operation of the open flare. **(40 CFR 60.757(e))**
- a. The equipment removal report shall contain all of the following items:
- i. A copy of the closure report submitted in accordance with 40 CFR 60.757. **(40 CFR 60.757(e)(1)(i), 40 CFR 63.1955(a))**
 - ii. A copy of the initial performance test report demonstrating that the 15-year minimum control period has expired. **(40 CFR 60.757(e)(1)(ii), 40 CFR 63.1955(a))**
 - iii. Dated copies of three successive NMOC emission rate reports demonstrating that the landfill is no longer producing 50 megagrams or greater of NMOC per year. **(40 CFR 60.757(e)(1)(iii), 40 CFR 63.1955(a))**
 - iv. Additional information may be requested as may be necessary to verify that all of the conditions for removal in 40 CFR 60.752(b)(2)(v) have been met. **(40 CFR 60.757(e)(2), 40 CFR 63.1955(a))**
6. The permittee shall submit the startup, shutdown, and malfunction (SSM) report to the appropriate AQD District Office and it shall be delivered or postmarked by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(40 CFR 63.10(a)(5), 40 CFR 63.10(d)(5))**
7. 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 336.2001(5))**

See Appendix 8-1

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:

NA

IX. OTHER REQUIREMENT(S)

1. The provisions of 40 CFR Part 60, Subpart WWW apply at all times, except during periods of start-up, shutdown, or malfunction, provided that the duration of start-up, shutdown, or malfunction shall not exceed 1 hour for control devices. **(40 CFR 60.755(e), 40 CFR 63.1955(a))**
2. Compliance of 40 CFR Part 63, Subpart AAAA is determined in the same way it is determined for 40 CFR Part 60, Subpart WWW, including performance testing, monitoring of the collection system, continuous parameter monitoring, and other credible evidence. In addition, continuous parameter monitoring data collected in 40 CFR 60.756(c)(1) (above in SC VI.1.) are used to demonstrate compliance with the operating conditions for the open flare. The permittee shall have developed and implemented a written SSM for FG-OPENFLARE. A copy of the SSM plan shall be maintained on site. **(40 CFR 63.1960)**

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).

**FG-FLARES
 FLEXIBLE GROUP CONDITIONS**

DESCRIPTION

Four flares, (one open, two enclosed, and one stand-by portable open flare) with a combined capacity of 14,100 CFM, used for combusting landfill gas.

Emission Units: EU-FLARE3, EU-FLARE4, EU-FLARE5, EU-FLARE6

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. SO ₂	8.1 lb/hr ²	Hour	EU-FLARE4	SC V.1 SC V.2	R 336.2803 R 336.2804 40 CFR 52.21(c) & (d)
2. SO ₂	16.1 lb/hr ²	Hour	EU-FLARE6	SC V.1 SC V.2	R 336.2803 R 336.2804 40 CFR 52.21(c) & (d)
3. NO _x	0.06 lb/MMBtu ²	Hour	EU-FLARE4 and EU-FLARE6	SC V.2	R 336.2803 R 336.2804 R 336.2810 40 CFR 52.21(c) (d) & (j)
4. CO	0.2 lb/MMBtu ²	Hour	EU-FLARE4 and EU-FLARE6	SC V.2	R 336.2804 R 336.2810 40 CFR 52.21(d) & (j)
5. PM	1.4 lb/hr ²	Hour	EU-FLARE4	SC III.4 SC V.3	R 336.2803 R 336.2804 R 336.2810 40 CFR 52.21(c) (d) & (j)
6. PM	2.9 lb/hr ²	Hour	EU-FLARE6	SC III.4 SC V.3	R 336.2803 R 336.2804 R 336.2810 40 CFR 52.21(c) (d) & (j)
7. PM ₁₀	1.4 lb/hr ²	Hour	EU-FLARE4	SC III.4 SC V.3	R 336.2803 R 336.2804 R 336.2810 40 CFR 52.21(c) (d) & (j)

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Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
8. PM ₁₀	2.9 lb/hr ²	Hour	EU-FLARE6	SC III.4 SC V.3	R 336.2803 R 336.2804 R 336.2810 40 CFR 52.21(c) (d) & (j)
9. Visible Emissions	20% Opacity ²	6-minute average	EU-FLARE4 and EU-FLARE6	SC III.4 SC V.2	R 336.1301(1)(c) R 336.2810 40 CFR 52.21(j)
10. SO ₂	18 lb/hr	Hour	EU-FLARE4	SC V.1 SC V.2	R 336.2810
11. SO ₂	35.9 lb/hr	Hour	EU-FLARE6	SC V.1 SC V.2	R 336.2810

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall only operate the back-up flare, EU-FLARE5, if one or more of the other flares (EU-FLARE3, EU-FLARE4, and EU-FLARE6) or engines are not in operation.² **(R 336.1205)**
2. The permittee shall only burn landfill gas in EU-FLARE4 and EU-FLARE6 that has been treated according to SC III.3 and by the sulfur removal system except as provided in the approved malfunction abatement/operation and maintenance plan, required under Special Condition IV.1. **(R 336.1213(2))**
3. The permittee shall manage all landfill gas in FG-FLARES in compliance with 40 CFR 60.752(b)(2)(iii)². **(R 336.1225, 40 CFR 60.752(b)(2)(iii))**
4. The permittee shall not operate EU-FLARE4 and EU-FLARE6 unless a malfunction abatement plan (MAP) as described in Rule 911(2), for EU-FLARE4 and EU-FLARE6, has been submitted within 60 days after permit issuance, and is implemented and maintained. If at any time the MAP fails to address or inadequately addresses an event that meets the characteristics of a malfunction, the permittee shall amend the MAP within 45 days after such an event occurs. The permittee shall also amend the MAP within 45 days if new equipment is installed or upon request from the District Supervisor. The permittee shall submit the MAP and any amendments to the MAP to the AQD District Supervisor for review and approval. If the AQD does not notify the permittee within 90 days of submittal, the MAP or amended MAP shall be considered approved. Until an amended plan is approved, the permittee shall implement corrective procedures or operational changes to achieve compliance with all applicable emission limits.² **(R 336.1225, R 336.1331, R 336.1702(b), R 336.1910, R 336.1911, R 336.2803, R 336.2804, R 336.2810, 40 CFR 52.21(c), (d) and (j))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall not operate EU-FLARE4 and EU-FLARE6 unless the sulfur removal system is installed, maintained, and operated in a satisfactory manner. Proper operation shall include but is not limited to submitting an approvable malfunction abatement/operation and maintenance plan (MAP/O&M plan) for the sulfur removal system and EU-FLARE4 and EU-FLARE6 to the District Supervisor, Air Quality Division within 30 days prior to start-up of the sulfur removal system. The MAP/O&M plan shall include as a minimum the manufacturer operation and maintenance specifications for the sulfur removal system. **(R 336.1213(3), R 336.1910))**

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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 verify the hydrogen sulfide or total reduced sulfur content of the landfill gas burned in EU-FLARE4 and EU-FLARE6 on a daily basis by gas sampling. Daily gas sampling excludes holidays and weekends unless requested by the District Supervisor, Air Quality Division. If, after a year, each of the daily concentrations of the hydrogen sulfide or total reduced sulfur concentration of the landfill gas are below 269 ppm (TRS equivalent), the permittee may petition the District Supervisor, Air Quality Division to reduce the frequency of gas sampling and recording the hydrogen sulfide / total reduced sulfur concentration of the treated landfill gas to weekly. If at any time the concentration readings exceed 269 ppm (TRS equivalent), the permittee shall resume sampling and recording on a daily basis 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 concentration determined from the daily readings are maintained below 269 ppm of hydrogen sulfide/total reduced sulfur concentration in the landfill gas for one year after an exceedance, the permittee may resume weekly monitoring and recordkeeping. The permittee shall keep all records on file at the facility and make them available to the Department upon request.² **(R 336.1205(1), R 336.2803, R 336.2804, R 336.2810, 40 CFR 52.21(c), (d) and (j))**
2. Within 180 days of permit issuance or five years from the last test date, whichever is later, and then every five years thereafter, the permittee shall verify Visible Emissions (per a USEPA Method 9 certified visible emissions observation shall be conducted for a minimum of 15 minutes to determine the actual opacity from that emission point), NO_x, SO₂, and CO emission rates from EU-FLARE4 and EU-FLARE6, by testing at owner's expense, in accordance with Department requirements. 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. The permittee must submit 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 336.2001, R 336.2803, R 336.2804, R 336.2003, R 336.2004, 40 CFR 52.21(c) and (d))**
3. Within 180 days of permit issuance or five years from the last test date, whichever is later, and then every five years thereafter, the permittee shall verify PM and PM10 emission rates from EU-FLARE4 and EU-FLARE6 by testing at the owner's expense, in accordance with the Department requirements. 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. The permittee must submit 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)**
4. Testing shall be performed using an approved EPA Method listed in:

Pollutant	Test Method Reference
PM	40 CFR Part 60, Appendix A; Part 10 of the Michigan Air Pollution Control Rules
PM ₁₀	40 CFR Part 51, Appendix M
NO _x	40 CFR Part 60, Appendix A
SO ₂	40 CFR Part 60, Appendix A
CO	40 CFR Part 60, Appendix A
Visible Emissions	40 CFR Part 51, Appendix M; 40 CFR Part 60, Appendix A and B

5. The permittee shall notify the AQD Technical Programs Unit Supervisor and the District Supervisor not less than 30 days of the time and place before performance tests are 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 install, calibrate, and maintain a gas flow measuring device that shall continuously record the total actual flow of landfill gas to FG-FLARES.² **(40 CFR 60.756(c)(2)(i), 40 CFR 63.1955(a))**

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2. The permittee shall keep records of the landfill gas consumed in FGFLARES on a monthly basis and 12-month rolling time period basis, as determined at the end of each calendar month. All records shall be made available to the Department upon request.² **(R 336.1205)**
3. The permittee shall keep records of the date, time and reason why EU-FLARE5 is operated.² **(R 336.1205)**
4. The permittee shall keep, in a satisfactory manner, monthly SO₂ mass emission calculation records for EU-FLARE4 and EU-FLARE6. The permittee shall keep all records on file for a period of at least five years and make them available to the Department upon request. **(R336.1213(3))**
5. The permittee shall maintain a log of all maintenance activities conducted according to the malfunction abatement/preventative maintenance plan (pursuant to SC III.4). The permittee shall keep this log on file at the facility and make it available to the Department upon request. **(R 336.1213(3), R 336.1911)**

VII. REPORTING

1. The permittee shall notify the AQD district office within one week of when the frequency of the gas sampling changes for any reason. **(R 336.1201(3))**
2. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**
3. 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))**
4. 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))**
5. 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 8-1

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 Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SV-FLARE4	144 ²	50 ²	R 336.1225 R 336.2803 R 336.2804 40 CFR 52.21 (c) & (d)
2. SV-FLARE6	156 ²	60 ²	R 336.1225 R 336.2803 R 336.2804 40 CFR 52.21 (c) & (d)

IX. OTHER REQUIREMENT(S)

1. The permittee shall comply with all applicable provisions of 40 CFR Part 60 Subpart A and WWW, “Standards of Performance for Municipal Solid Waste Landfills”, as they apply to FG-FLARES.² **(40 CFR Part 60 Subpart A and WWW)**

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2. The permittee shall comply with all applicable provisions of 40 CFR Part 60 Subpart A and XXX, “Standards of Performance for Municipal Solid Waste Landfills” that Commenced Construction, Reconstruction, or Modification After July 17, 2014 as they apply to FG-FLARES. **(40 CFR Part 60 Subpart A and XXX)**

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).

**FG-COLDCLEANERS
FLEXIBLE GROUP CONDITIONS**

DESCRIPTION

Any cold cleaner that is grandfathered or exempt from Rule 201 pursuant to Rule 281(h) or Rule 285(r)(iv). Existing cold cleaners were placed into operation prior to July 1, 1979. New cold cleaners were placed into operation on or after July 1, 1979.

Emission Unit: EU-COLDCLEANER

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

NA

II. MATERIAL LIMIT(S)

1. The permittee shall not use cleaning solvents containing more than five percent by weight of the following halogenated compounds: methylene chloride, perchloroethylene, trichloroethylene, 1,1,1-trichloroethane, carbon tetrachloride, chloroform, or any combination thereof. **(R 336.1213(2))**

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. Cleaned parts shall be drained for no less than 15 seconds or until dripping ceases. **(R 336.1611(2)(b), R 336.1707(3)(b))**
2. The permittee shall perform routine maintenance on each cold cleaner as recommended by the manufacturer. **(R 336.1213(3))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The cold cleaner must meet one of the following design requirements:
 - a. The air/vapor interface of the cold cleaner is no more than 10 square feet. **(R 336.1281(h))**
 - b. The cold cleaner is used for cleaning metal parts and the emissions are released to the general in-plant environment. **(R 336.1285(r)(iv))**
2. The cold cleaner shall be equipped with a device for draining cleaned parts. **(R 336.1611(2)(b), R 336.1707(3)(b))**
3. All new and existing cold cleaners shall be equipped with a cover and the cover shall be closed whenever parts are not being handled in the cold cleaner. **(R 336.1611(2)(a), R 336.1707(3)(a))**
4. The cover of a new cold cleaner shall be mechanically assisted if the Reid vapor pressure of the solvent is more than 0.3 psia or if the solvent is agitated or heated. **(R 336.1707(3)(a))**
5. If the Reid vapor pressure of any solvent used in a new cold cleaner is greater than 0.6 psia; or, if any solvent used in a new cold cleaner is heated above 120 degrees Fahrenheit, then the cold cleaner must comply with at least one of the following provisions:

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- a. The cold cleaner must be designed such that the ratio of the freeboard height to the width of the cleaner is equal to or greater than 0.7. **(R 336.1707(2)(a))**
- b. The solvent bath must be covered with water if the solvent is insoluble and has a specific gravity of more than 1.0. **(R 336.1707(2)(b))**
- c. The cold cleaner must be controlled by a carbon adsorption system, condensation system, or other method of equivalent control approved by the AQD. **(R 336.1707(2)(c))**

V. TESTING/SAMPLING

NA

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

1. For each new cold cleaner in which the solvent is heated, the solvent temperature shall be monitored and recorded at least once each calendar week during routine operating conditions. **(R 336.1213(3))**
2. The permittee shall maintain the following information on file for each cold cleaner: **(R 336.1213(3))**
 - a. A serial number, model number, or other unique identifier for each cold cleaner.
 - b. The date the unit was installed, manufactured or that it commenced operation.
 - c. The air/vapor interface area for any unit claimed to be exempt under Rule 281(h).
 - d. The applicable Rule 201 exemption.
 - e. The Reid vapor pressure of each solvent used.
 - f. If applicable, the option chosen to comply with Rule 707(2).
3. The permittee shall maintain written operating procedures for each cold cleaner. These written procedures shall be posted in an accessible, conspicuous location near each cold cleaner. **(R 336.1611(3), R 336.1707(4))**
4. As noted in Rule 611(2)(c) and Rule 707(3)(c), if applicable, an initial demonstration that the waste solvent is a safety hazard shall be made prior to storage in non-closed containers. If the waste solvent is a safety hazard and is stored in non-closed containers, verification that the waste solvent is disposed of so that not more than 20%, by weight, is allowed to evaporate into the atmosphere shall be made on a monthly basis. **(R 336.1213(3), R 336.1611(2)(c), R 336.1707(3)(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))**

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VIII. STACK/VENT RESTRICTION(S)

NA

IX. OTHER REQUIREMENT(S)

NA

**FG-ICENGINES
 FLEXIBLE GROUP CONDITIONS**

DESCRIPTION

Eight reciprocating internal combustion engines (RICE) that will only combust treated landfill gas for fuel. Each engine drives an associated generator set for producing electricity.

Emission Units: EU-ICENGINE1, EU-ICENGINE2, EU-ICENGINE3, EU-ICENGINE4, EU-ICENGINE5, EU-ICENGINE6, EU-ICENGINE7, EU-ICENGINE8

POLLUTION CONTROL EQUIPMENT

Sulfur removal system for reducing sulfur content of landfill gas prior to combustion only when the sulfur content of the landfill gas exceeds 269 ppm. 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	3.3 g/bhp-hr ²	Hour	Each engine in FG-ICENGINES	SC V.1	R 336.2804 R 336.2810 40 CFR 52.21(d) & (j)
2. CO	16.3 lbs/hr ²	Hour	Each engine in FG-ICENGINES	SC V.1	R 336.2804 40 CFR 52.21(d)
3. NO _x	0.6 g/bhp-hr ²	Hour	Each engine in FG-ICENGINES	SC V.1	R 336.2803 R 336.2804 R 336.2810 40 CFR 52.21(c),(d) & (j)
4. NO _x	3.0 lbs/hr ²	Hour	Each engine in FG-ICENGINES	SC V.1	R 336.2803 R 336.2804 R 336.2810 40 CFR 52.21(c) and (d)
5. SO ₂	1.57 lbs/hr ²	Hour	Each engine in FG-ICENGINES	SC V.1 SC V.3	R 336.2803 R 336.2804 40 CFR 52.21(c) and (d)
6. PM	0.24 g/bhp-hr ²	Hour	Each engine in FG-ICENGINES	SC V.1	R 336.2803 R 336.2804 R 336.2810 40 CFR 52.21(c) (d) & (j)
7. PM	1.2 lb/hr ²	Hour	Each engine in FG-ICENGINES	SC V.1	R 336.2803 R 336.2804 R 336.2810 40 CFR 52.21(c) (d) & (j)

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Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
8. PM ₁₀	0.24 g/bhp-hr ²	Hour	Each engine in FG-ICENGINES	SC V.1	R 336.2803 R 336.2804 R 336.2810 40 CFR 52.21(c)(d) & (j)
9. PM ₁₀	1.2 lb/hr ²	Hour	Each engine in FG-ICENGINES	SC V.1	R 336.2803 R 336.2804 R 336.2810 40 CFR 52.21(c)(d) & (j)
10. VOC	1.0 lb/hr ²	Hour	Each engine in FG-ICENGINES	SC V.1	R 336.1702(a)
11. Visible Emissions	10% Opacity ²	6-minute average	Each Engine in FG-ICENGINES	SC V.1	R 336.1301(1)(c) R 336.2810 40 CFR 52.21 (j)
12. Formaldehyde	2.07 lb/hr ¹	Hour	Each Engine in FG-ICENGINES	SC V.2	R 336.1225
13. SO ₂	3.51 lbs/hr ²	Hour	Each Engine in FG-ICENGINES	SC V.1 SC V.3	R 336.2810

II. MATERIAL LIMIT(S)

1. The total reduced sulfur (TRS)/hydrogen sulfide concentration of the landfill gas combusted in FGICENGINES shall not exceed 269 ppm.² (R 336.1205, R 336.2803, R 336.2804, 40 CFR 52.21 (c) and (d))

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall only burn landfill gas in FG-ICENGINES that has been treated in a system which complies with 40 CFR 60.752(b)(2)(iii)(C).² (R 336.1225, 40 CFR 63.6625(c))
2. At least 60 days prior to start-up of any engine in FGICENGINES, the permittee shall submit to the AQD District Supervisor, for review and approval, a malfunction abatement/preventative maintenance plan for FG-ICENGINES. After approval of the malfunction abatement/preventative maintenance plan by the AQD District Supervisor, the permittee shall not operate FG-ICENGINES unless the malfunction abatement/preventative maintenance plan, or an alternate 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

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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, R 336.2810, 40 CFR 52.21(c), (d) and (j))**

3. The permittee shall not operate any engine in FG-ICENGINES unless the sulfur removal system is installed, maintained, and operated in a satisfactory manner, except as provided in the approved malfunction abatement/operation and maintenance plan. Proper operation shall include but is not limited to submitting an approvable malfunction abatement/operation and maintenance plan (MAP/O&M plan) for the sulfur removal system to the District Supervisor, Air Quality Division. The MAP/O&M plan shall include the manufacturer operation and maintenance specifications.² **(R 336.1205, R 336.1225, R 336.1901, R 336.1910, R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall not operate any engine in FG-ICENGINES unless the engines air/fuel ratio controller is installed, maintained and operated in a satisfactory manner.² **(R 336.1702, R 336.1910, R 336.2810(j), 40 CFR 52.21(j))**
2. The permittee shall equip FG-ICENGINES with a device to monitor and record the total daily fuel usage of the engines.² **(R 336.1201(3), R 336.1225)**
3. The design capacity of each engine of FG-ICENGINES shall not exceed 2,233 hp, as specified by the equipment manufacturer.² **(R 336.1205(1)(a), R 336.1225, R 336.1702, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d))**

V. TESTING/SAMPLING

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

1. Within 180 days of permit issuance or five years from the last test date, whichever occurs later, and then every five years thereafter, the permittee shall verify Visible Emissions (per a USEPA Method 9 certified visible emissions observation shall be conducted for a minimum of 15 minutes to determine the actual opacity from that emission point), NO_x, PM, PM-10, VOC, SO₂ and CO emission rates from each engine in FG-ICENGINES at maximum routine operating conditions, by testing at owner's expense, in accordance with Department requirements. 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 within 60 days following the last date of the test as required by SC VII.4.² **(R 336.2001, R 336.2803, R 336.2804, R 336.2003, R 336.2004, 40 CFR 52.21(c) and (d))**
2. Within 180 days of permit issuance or five years from the last test date, whichever occurs later, and then every five years thereafter, the permittee shall verify formaldehyde emission rates from each engine in FG-ICENGINES at maximum routine operating conditions, by testing at owner's expense, in accordance with Department requirements. 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 final plan must be approved by the AQD 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, as required by SC VII.4.² **(R 336.1225, R 336.2001, R 336.2003, R 336.2004)**
3. The permittee shall verify the hydrogen sulfide or total reduced sulfur content of the landfill gas burned in FG-ICENGINES on a daily basis by gas sampling as described in the plan required by SC III.3. Daily gas sampling excludes holidays and weekends unless requested by the District Supervisor, Air Quality Division. If, after a year, each of the daily concentrations of the hydrogen sulfide or total reduced sulfur concentration of the landfill gas are below 269 ppm (TRS equivalent), the permittee may petition the District Supervisor, Air Quality Division to reduce the frequency of gas sampling and recording the hydrogen sulfide / total reduced sulfur concentration of the treated landfill gas to weekly. If at any time the concentration readings exceed 269 ppm (TRS equivalent), the permittee shall resume sampling and recording on a daily basis and shall review all operating and

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maintenance activities for the landfill gas collection and treatment system along with keeping records of corrective actions taken. Once the concentration determined from the daily readings are maintained below 269 ppm of hydrogen sulfide/total reduced sulfur concentration in the landfill gas for one year after an exceedance, the permittee may resume weekly monitoring and recordkeeping. The permittee shall keep all records on file at the facility and make them available to the Department upon request.² **(R 336.1205(1), R 336.2803, R 336.2804, R 336.2810, 40 CFR 52.21 (c), (d) and (j))**

- Testing shall be performed using an approved EPA Method listed in:

Pollutant	Test Method Reference
PM	40 CFR Part 60, Appendix A; Part 10 of the Michigan Air Pollution Control Rules
PM ₁₀	40 CFR Part 51, Appendix M
NO _x	40 CFR Part 60, Appendix A
SO ₂	40 CFR Part 60, Appendix A
CO	40 CFR Part 60, Appendix A
VOC	40 CFR Part 60, Appendix A
Visible Emissions	40 CFR Part 51, Appendix M; 40 CFR Part 60, Appendix A and B
HAPs	40 CFR Part 63, Appendix A

An alternate method, or a modification to the approved EPA Method, may be specified in an AQD-approved Test Protocol. **(R 336.1213(3), R 336.2003)**

- The permittee shall notify the AQD Technical Programs Unit Supervisor and the District Supervisor not less than 30 days of the time and place before performance tests are conducted. **(R 336.1213(3))**
- The permittee shall notify the AQD district office within one week of when the frequency of the gas sampling changes for any reason. **(R 336.1201(3))**

VI. MONITORING/RECORDKEEPING

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

- The permittee shall continuously monitor, in a satisfactory manner, the total landfill gas fuel usage of the FG-ICENGINES.² **(R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d))**
- The permittee shall maintain a log of all maintenance activities conducted according to the malfunction abatement/preventative maintenance plan (pursuant to SC III.2). The permittee shall keep this log on file at the facility and make it available to the Department upon request.² **(R 336.1702(a), R 336.1911, R 336.1912, R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d))**
- The permittee shall keep, in a satisfactory manner, records of the landfill gas usage for FG-ICENGINES on a daily basis. The permittee shall keep all records on file at the facility and make them available to the Department upon request.² **(R 336.1225, R 336.1702, R 336.1910, R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d))**
- The permittee shall keep, in a satisfactory manner, monthly SO₂ mass emission calculation records for each engine in FG-ICENGINES. The permittee shall keep all records on file for a period of at least five years and make them available to the Department upon request.² **(R 336.1213(3), R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d)).**
- The permittee shall keep, in a satisfactory manner, records of the hours of operation for each engine included in FG-ICENGINES on a daily basis. The permittee shall keep all records on file at the and make them available to the Department upon request.² **(R 336.1225, R 336.1702, R 336.1910, R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d))**
- The permittee shall maintain the following record for each engine in FG-ICENGINES. The following information shall be recorded and kept on file at the facility:

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- 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; and
- 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, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d))**

7. The permittee shall maintain records of all information necessary for all notifications and reports for each engine in FG-ICENGINES, as specified in these special conditions as well as that information necessary to demonstrate compliance with the emission limits of this permit. An example of the information that may be needed includes but is not 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 and landfill gas usage;
 - c. Calculated amount of landfill gas combusted in each engine on a monthly and 12-month rolling basis, as required by SC VI.3;
 - d. Hours of operation on a monthly and 12-month rolling basis, as required by SC VI.4;
 - e. Manufacturer's data, specifications, and operating and maintenance procedures;
 - f. Maintenance activities conducted according to the PM/MAP, as required by SC VI.2;
 - g. 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, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d))**

8. 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, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d))**

VII. REPORTING

1. The permittee shall notify the AQD district office within one week of when the frequency of the gas sampling changes for any reason. **(R 336.1201(3))**
2. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**
3. 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))**
4. 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))**

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- The permittee shall submit a complete report of the stack test results to the AQD District Supervisor in an acceptable format within 60 days after the performance test has been completed. (R 336.1205, R336.1224, R 336.1225, R 336.1702, R 336.2001, R 336.2003, R 336.2004, R 336.2803, R 336.2804, R 336.2810(2), 40 CFR 52.21(j), 40 CFR 52.21(c) and (d))

See Appendix 8-1

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 Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SV-ICENG1	14 ²	60 ²	R 336.1225 R 336.2803 R 336.2804 40 CFR 52.21 (c) & (d)
2. SV-ICENG2	14 ²	60 ²	R 336.1225 R 336.2803 R 336.2804 40 CFR 52.21 (c) & (d)
3. SV-ICENG3	14 ²	60 ²	R 336.1225 R 336.2803 R 336.2804 40 CFR 52.21 (c) & (d)
4. SV-ICENG4	14 ²	60 ²	R 336.1225 R 336.2803 R 336.2804 40 CFR 52.21 (c) & (d)
5. SV-ICENG5	14 ²	60 ²	R 336.1225 R 336.2803 R 336.2804 40 CFR 52.21 (c) & (d)
6. SV-ICENG6	14 ²	60 ²	R 336.1225 R 336.2803 R 336.2804 40 CFR 52.21 (c) & (d)
7. SV-ICENG7	14 ²	60 ²	R 336.1225 R 336.2803 R 336.2804 40 CFR 52.21 (c) & (d)
8. SV-ICENG8	14 ²	60 ²	R 336.1225 R 336.2803 R 336.2804 40 CFR 52.21 (c) & (d)

IX. OTHER REQUIREMENT(S)

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

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2. 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 Subpart ZZZZ, as they apply to each engine. **(40 CFR Part 63, Subparts A and ZZZZ)**

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).

**FG-RICEMACT
FLEXIBLE GROUP CONDITIONS**

DESCRIPTION

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.

Emission Unit: EU-ICENGINE1, EU-ICENGINE2, EU-ICENGINE3, EU-ICENGINE4, EU-ICENGINE5, EU-ICENGINE6, EU-ICENGINE7, EU-ICENGINE8

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

NA

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. Each engine in FG-RICEMACT shall operate in a manner which reasonably minimizes HAP emissions. **(40 CFR 63.6625(c))**
2. Each engine in FG-RICEMACT 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. **(40 CFR 63.6625(h))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The engines in FG-RICEMACT shall equip and maintain separate individual fuel meters to monitor and record the daily fuel usage and volumetric flow rate of each fuel used. **(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), 40 CFR 63.6660)**

1. The engines in FG-RICEMACT, which fire 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. **(40 CFR 63.6625(c))**

VII. REPORTING

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**

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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 reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. The following information shall be included in this annual report: **(40 CFR 63.6650(g), 40 CFR 63.6650(b)(5))**
 - 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. **(40 CFR 63.6650(g)(1))**
 - b. The operating limits provided in the permittee's federally enforceable permit, and any deviations from these limits. **(40 CFR 63.6650(g)(2))**
 - c. Any problems or errors suspected from the fuel flow rate meters. **(40 CFR 63.6650(g)(3))**

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 Subpart ZZZZ, as they apply to each engine in FG-RICEMACT. (40 CFR Part 63, Subparts A and ZZZZ)

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).

**FG-RICENSPS
 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: EU-ICENGINE1, EU-ICENGINE2, EU-ICENGINE3, EU-ICENGINE4, EU-ICENGINE5, EU-ICENGINE6, EU-ICENGINE7, EU-ICENGINE8

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. NO _x	2.0 g/hp-hr ²	Hour	Each engine in FG-RICENSPS	SC V.1	40 CFR 60.4233(e)
2. CO	5.0 g/hp-hr ²	Hour	Each engine in FG-RICENSPS	SC V.1	40 CFR 60.4233(e)
3. VOC	1.0 g/hp-hr ²	Hour	Each engine in FG-RICENSPS	SC V.1	40 CFR 60.4233(e)

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

- The permittee shall operate and maintain each engine in FG-RICENSPS 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))**
- 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 FG-RICENSPS 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)

- The permittee shall equip and maintain FGRICENSPS with non-resettable hours meters to track the operating hours. **(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))**

- Except as provided in 40 CFR 60.4243(b), the permittee shall conduct an initial performance test for each engine in FG-RICENSPS within one year after startup of the engine and 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), unless the engine(s) have been certified by the manufacturer in accordance with 40 CFR Part 60 Subpart JJJJ and the permittee maintains the engine as required by 40 CFR

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60.4243(a)(1). If a performance test is required, the performance tests shall be conducted according to 40 CFR 60.4244. No less than 30 days prior to any 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.² **(40 CFR 60.4243, 40 CFR 60.4244, 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 of the time and place before performance tests are 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 FG-RICENSPS 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 monitor emissions and operating information, including monitoring and recording the hours of operation of each engine in FG-RICENSPS, in accordance with the federal Standards of Performance for New Stationary Sources as specified in 40 CFR Part 60 Subparts A and JJJJ. The permittee shall keep records of all source emissions data and operating information for each engine in FG-RICENSPS on file at the facility and make the records available upon request.² **(40 CFR 60.4245, 40 CFR Subparts A & JJJJ)**

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 initial notification as required by 40 CFR 60.7(a)(1) for each engine in FG-RICENSPS if the engine(s) installed is/are not certified by an engine manufacturer to meet the emission standards in 40 CFR 60.4231. The notification shall include the information below, as specified in 40 CFR 60.4245 (c)(1) through (5):²
 - a. Name and address of the owner or operator; **(40 CFR 60.4245(c)(1))**
 - b. The address of the affected source; **(40 CFR 60.4245(c)(2))**
 - c. Engine information including make, model, engine family, serial number, model year, maximum engine power, and engine displacement; **(40 CFR 60.4245(c)(3))**
 - d. Emission control equipment; and **(40 CFR 60.4245(c)(4))**
 - e. Fuel used. **(40 CFR 60.4245(c)(5))**
 - f. The permittee shall submit the initial notification to the AQD District Supervisor in an acceptable format within 30 days of commencing construction of any engine in FGRICENSPS. **(40 CFR Part 60 Subpart JJJJ)**
5. The permittee shall submit two complete test protocols to the AQD, one to the Technical Programs Unit Supervisor and one to the District Supervisor for approval at least 30 days prior to the anticipated test date. The protocol shall describe the test method(s) and the maximum routine operating conditions, including targets for

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key operational parameters associated with air pollution control equipment to be monitored and recorded during testing.² (R 336.1205, R 336.2001(3))

See Appendix 8-1

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, Subpart A and Subpart JJJJ, as they apply to each engine in FG-RICENSPS.² **(40 CFR Part 60 Subparts A and JJJJ)**

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).

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. 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
SNCR	Selective Non-Catalytic Reduction	TAC	Toxic Air Contaminant
SRN	State Registration Number	Temp	Temperature
TEQ	Toxicity Equivalence Quotient	THC	Total Hydrocarbons
USEPA/EPA	United States Environmental Protection Agency	tpy	Tons per year
VE	Visible Emissions	µg	Microgram
		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.

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Appendix 2-1. Schedule of Compliance

The permittee certified in this ROP application that this stationary source, Pine Tree Acres Landfill, is in compliance with all applicable requirements of this ROP.

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

Specific testing requirement plans, procedures, and averaging times are detailed in the appropriate Source-Wide, Emission Unit and/or Flexible Group Special Conditions. Therefore, this appendix is not applicable.

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-N5984-2013. 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-N5984-2013a is being reissued as Source-Wide PTI No. MI-PTI-N5984-2019.

Permit to Install Number	ROP Revision Application Number	Description of Equipment or Change	Corresponding Emission Unit(s) or Flexible Group(s)
160-14	201600056	Conditions of PTI 160-14 were incorporated into MI-ROP-N5984-2013a. These are the conditions for the reciprocating internal combustion engines (1-8), flare 3 (open flare), flares 4 and 6 (enclosed flares), and flare 5 (back-up only, open flare).	FG-ICENGINES FG-RICEMACT FG-RICENSPS FG-FLARES

Appendix 7-1. 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 FG-ACTIVECOLLECTION and FG-OPENFLARES.

Calculation used to determine NMOC emissions from any nonproductive area

The following shall be used to determine if any nonproductive area of the landfill may be excluded from control, provided that the total of all excluded areas can be shown to contribute less than one percent of the total amount of NMOC emissions from the landfill. The amount, location, and age of the material shall be documented and provided to the District Supervisor upon request.

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A separate NMOC emissions estimate shall be made for each section proposed for exclusion, and the sum of all such sections shall be compared to the NMOC emissions estimate for the entire landfill. Emissions from each section shall be computed using the following equation: **(40 CFR 60.759(a)(3)(ii), 40 CFR 60.769(a)(3)(iii), 40 CFR 63.1955(a))**

$$Q_i = 2 k L_o M_i (e^{-kt_i}) (C_{NMOC}) (3.6 \times 10^{-9}) \text{ where,}$$

Q_i = NMOC emission rate from the i th section, megagrams per year

k = methane generation rate constant, year⁻¹

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

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

t_i = age of the solid waste in the i th section, years

C_{NMOC} = concentration of non-methane organic compounds, parts per million by volume

3.6×10^{-9} = conversion factor

The values for k and C_{NMOC} determined in field testing shall be used if field testing has been performed in determining the NMOC emission rate or the radii of influence (this distance from the well center to a point in the landfill where the pressure gradient applied by the blower or compressor approaches zero). If field testing has not been performed, the default values for k , L_o and C_{NMOC} provided in 40 CFR 60.754(a)(1) and 40 CFR 60.764(a)(1) or the alternative values from 40 CFR 60.754(a)(5) and 40 CFR 60.764(a)(5) shall be used. The mass of nondegradable solid waste contained within the given section may be subtracted from the total mass of the section when estimating emissions provided the nature, location, age, and amount of the nondegradable material is documented as provided in 40 CFR 60.759(a)(3)(i) and 40 CFR 60.769(a)(3)(i). **(40 CFR 60.759(a)(3)(iii), 40 CFR 60.769(a)(3)(iii), 40 CFR 63.1955(a))**

Net Heating Value of the gas being combusted in the flare:

The net heating value of the gas being combusted in the flare shall be calculated and recorded using the equation provided in 40 CFR 60.18(f)(3). **(40 CFR 60.18(f)(3))**

$$H_T = K \sum_{i=1}^n C_i H_i$$

WHERE:

HT=Net heating value of the sample,

MJ/scm; where the net enthalpy per mole of offgas is based on combustion at 25 °C and 760 mm Hg, but the standard temperature for determining the volume corresponding to one mole is 20 °C;

$$K = \text{Constant} \cdot 1.740 \times 10^{-7} \left(\frac{1}{\text{ppm}} \right) \left(\frac{\text{g mole}}{\text{scm}} \right) \left(\frac{\text{MJ}}{\text{kcal}} \right)$$

where the standard temperature for $\left(\frac{\text{g mole}}{\text{scm}} \right)$ is 20°C;

C_i = Concentration of sample component i in ppm on a wet basis, as measured for organics by Reference Method 18 and measured for hydrogen and carbon monoxide by ASTM D1946–77 or 90 (Reapproved 1994) (Incorporated by reference as specified in 40 CFR 60.17); and

H_i = Net heat of combustion of sample component i , kcal/g mole at 25 °C and 760 mm Hg. The heats of combustion may be determined using ASTM D2382–76 or 88 or D4809–95 (incorporated by reference as specified in 40 CFR 60.17) if published values are not available or cannot be calculated.

Section 1 – Pine Tree Acres, Inc.

Calculation for V_{max} steam-assisted and non-assisted flares

The maximum permitted velocity, V_{max} , for flares complying with 40 CFR 60.18(c)(4)(iii) shall be calculated and recorded using the equation provided in 40 CFR 60.18(f)(5). **(40 CFR 60.18(f)(5))**

$$\text{Log}_{10} (V_{max}) = (H_T + 28.8) / 31.7$$

V_{max} = Maximum permitted velocity, M/sec

28.8 = Constant

31.7 = Constant

H_T = The net heating value as determined in 60.18(f)(3).

Calculation for V_{max} for air-assisted flares

The maximum permitted velocity, V_{max} , for air-assisted flares shall be calculated and recorded using the equation provided in 40 CFR 60.18(f)(6). **(40 CFR 60.18(f)(6))**

$$V_{max} = 8.706 + 0.7084 (H_T)$$

V_{max} = Maximum permitted velocity, m/sec

8.706 = Constant

0.7084 = Constant

H_T = The net heating value as determined in 60.18(f)(3).

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 – SUMPTER ENERGY ASSOCIATES, 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

4. 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))**
5. 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))**
6. 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))**
9. 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.
10. 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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11. 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))**
12. The permittee shall pay fees consistent with the fee schedule and requirements pursuant to Section 5522 of Act 451. **(R 336.1213(1)(g))**
13. This ROP does not convey any property rights or any exclusive privilege. **(R 336.1213(1)(h))**

Equipment & Design

10. 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)**
11. 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

13. 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.

14. 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

16. 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)**
17. 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))**
18. 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))**

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Monitoring/Recordkeeping

18. 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.
19. 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

22. 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 states 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))**
23. 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))**
24. 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))**
25. 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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26. 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.
27. 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))**
28. 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))**
29. 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

27. 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.
28. 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))**

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- e. The ability of the USEPA to obtain information from a source pursuant to Section 114 of the CAA. **(R 336.1213(6)(b)(iv))**
- 29. The permit shield shall not apply to provisions incorporated into this ROP through procedures for any of the following:
 - f. Operational flexibility changes made pursuant to Rule 215. **(R 336.1215(5))**
 - g. Administrative Amendments made pursuant to Rule 216(1)(a)(i)-(iv). **(R 336.1216(1)(b)(iii))**
 - h. 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))**
 - i. Minor Permit Modifications made pursuant to Rule 216(2). **(R 336.1216(2)(f))**
 - j. State-Only Modifications made pursuant to Rule 216(4) until the changes have been approved by the department. **(R 336.1216(4)(e))**
- 34. 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

- 35. 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)**
- 36. 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))**
- 37. 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))**
- 38. 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

- 35. 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))**

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Renewals

38. 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

39. 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 reclaiming, 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.
40. 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

42. 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).
43. 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.
44. 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.
45. 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

47. 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))**

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Permit to Install (PTI)

48. 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))**
49. 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)**
50. 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)**
51. 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).

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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.

SOURCE-WIDE CONDITIONS

POLLUTION CONTROL EQUIPMENT

Sulfur/Total Reduced Sulfur removal system

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))

NA

VI. MONITORING/RECORDKEEPING

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

NA

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))

See Appendix 8-2

VIII. STACK/VENT RESTRICTION(S)

NA

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IX. OTHER REQUIREMENT(S)

1. The operational restrictions and testing requirements in SC II.1, SC III.3 and SC V.3 under FG-ICENGINES at Pine Trees Acres (section 1) also applies to the landfill gas supplied to FG-ENGINES at the facility operated by Sumpter Energy (section 2). **(R 336.1213(3), R 336.2803, R 336.2804, 40 CFR 52.21 (c) & (d))**

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).

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C. EMISSION UNIT 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
EU-ENGINE1	Reciprocating internal combustion engine. Landfill gas fired internal combustion engines (ICE) manufactured by Caterpillar Inc. (Model No. 3516) and rated at 1138 HP and 8.6 MMBtu/hr	07/24/01	FG-ENGINES FG-RICEMACT
EU-ENGINE2	Reciprocating internal combustion engine. Landfill gas fired internal combustion engines (ICE) manufactured by Caterpillar Inc. (Model No. 3516) and rated at 1138 HP and 8.6 MMBtu/hr	07/24/01	FG-ENGINES FG-RICEMACT
EU-ENGINE3	Reciprocating internal combustion engine. Landfill gas fired internal combustion engines (ICE) manufactured by Caterpillar Inc. (Model No. 3516) and rated at 1138 HP and 8.6 MMBtu/hr	07/24/01	FG-ENGINES FG-RICEMACT
EU-ENGINE4	Reciprocating internal combustion engine. Landfill gas fired internal combustion engines (ICE) manufactured by Caterpillar Inc. (Model No. 3516) and rated at 1138 HP and 8.6 MMBtu/hr	07/24/01	FG-ENGINES FG-RICEMACT
EU-ENGINE5	Reciprocating internal combustion engine. Landfill gas fired internal combustion engines (ICE) manufactured by Caterpillar Inc. (Model No. 3516) and rated at 1138 HP and 8.6 MMBtu/hr	07/24/01	FG-ENGINES FG-RICEMACT
EU-ENGINE6	Reciprocating internal combustion engine. Landfill gas fired internal combustion engines (ICE) manufactured by Caterpillar Inc. (Model No. 3516) and rated at 1138 HP and 8.6 MMBtu/hr	07/24/01	FG-ENGINES FG-RICEMACT
EU-ENGINE7	Reciprocating internal combustion engine. Landfill gas fired internal combustion engines (ICE) manufactured by Caterpillar Inc. (Model No. 3516) and rated at 1138 HP and 8.6 MMBtu/hr	07/24/01	FG-ENGINES FG-RICEMACT

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Emission Unit ID	Emission Unit Description (Including Process Equipment & Control Device(s))	Installation Date/ Modification Date	Flexible Group ID
EU-ICENGINE8	Spark ignition, lean burn, reciprocating internal combustion engine (Caterpillar G3520C, 2,233 bhp at 100% load) for combusting treated landfill gas to produce electricity (1.6-megawatt gross electrical output). The engine will drive an associated generator set to produce the electricity.	03/02/10	FG-ICENGINE2 FG-RICEMACT
EU-ICENGINE9	Spark ignition, lean burn, reciprocating internal combustion engine (Caterpillar G3520C, 2,233 bhp at 100% load) for combusting treated landfill gas to produce electricity (1.6-megawatt gross electrical output). The engine will drive an associated generator set to produce the electricity.	03/02/10	FG-ICENGINE2 FG-RICEMACT
EUENGINE10	This emission unit, and any replacement of this unit as applicable under R 336.1285(a)(vi), is for a Caterpillar G3520C reciprocating internal combustion engine rated at 2,242 bhp fueled with treated landfill gas to produce electricity.	TBD	FGRICENSPS10 FGRICEMACTNEW

**EUENGINE10
EMISSION UNIT CONDITIONS**

DESCRIPTION

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 gas to produce electricity.

Flexible Group ID: FGRICEMACTNEW, FGRICENSPS10

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. NO _x	3.00 lb/hr ²	Hourly	EUENGINE10	SC V.1, SC VI.5	R 336.1205(1)(a) & (3), R336.2803, R336.2804
3. CO	16.3 lb/hr ²	Hourly	EUENGINE10	SC V.1, SC VI.5	R 336.1205(1)(a) & (3), R336.2804
5. VOC	4.84 lb/hr ²	Hourly	EUENGINE10	SC V.1 SC VI.5	R.336.1205(1)(a) & (3), R 336.1702(a)
7. Formaldehyde	2.08 lb/hr ¹	Hourly	EUENGINE10	SC V.2 SC VI.5	R 336.1225(1) ¹
8. SO ₂	4.71 lb/hr ²	Hourly	EUENGINE10	SC V.1 SC VI.3 SC VI.5	R 336.1205(1)(a) & (3) R 336.2803 R 336.2804

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall only burn landfill gas in EUENGINE10. (R 336.1225, R 336.1331, R 336.1702)
2. No later than 60 days prior to startup, the permittee shall submit to the AQD District Supervisor, for review and approval, a malfunction abatement/preventative maintenance plan for EUENGINE10. After approval of the malfunction abatement/preventative maintenance plan by the AQD District Supervisor, the permittee shall not operate EUENGINE10 unless the malfunction abatement/preventative maintenance plan, or an alternate plan approved by the AQD District Supervisor, is implemented and maintained. The plan shall incorporate procedures

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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. **(R 336.1910, R 336.1911)**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall not operate EUENGINE10 unless an air-to-fuel ratio controller is installed, maintained and operated in a satisfactory manner. **(R 336.1702, R 336.1910)**
2. The design capacity of EUENGINE10 shall not exceed 2,242 hp, as specified by the equipment manufacturer. **(R 336.1205(1)(a), R 336.1225, R 336.1702, R 336.2803, R 336.2804)**
3. The permittee shall equip and maintain EUENGINE10 with a device to monitor and record the daily fuel usage. **(R 336.1205, R 336.1225, R 336.1702)**
4. The permittee shall equip and maintain EUENGINE10 with non-resettable hours meters to track the operating hours. **(R 336.1205(1)(a) & (3))**

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. Within 180 days after initial startup of each engine and within every five years from the date of completion of the most recent stack test, thereafter, the permittee shall verify NO_x, CO, SO₂, and VOC emission rates, from EUENGINE10, 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
NO _x	40 CFR Part 60, Appendix A
CO	40 CFR Part 60, Appendix A
VOC (Includes formaldehyde)	40 CFR Part 60, Appendix A; or Method 320 of Appendix A of 40 CFR Part 63
SO ₂	40 CFR Part 60, Appendix A

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An alternate 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 any 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 336.1205, R 336.1702, R 336.2001, R 336.2003, R 336.2004, R 336.2803 R 336.3804)**

2. Within 180 days after initial startup of each engine in EUENGINE10 and within every five years from the date of completion of the most recent stack test, thereafter, the permittee shall verify formaldehyde emission rates from each engine in EUENGINE10, 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 alternate 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 final plan must be approved by the AQD 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 336.1225, 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 treated landfill gas burned in EU-ICENGINE10 on a monthly basis by gas testing at owner's expense, in accordance with Department requirements. No less than 60 days prior to the initial test, the permittee shall submit a complete test plan to the AQD District Office. The AQD must approve the final plan prior to the first test. Thereafter, the permittee shall submit a test plan upon the request of the AQD District Supervisor. If at any time the H₂S (TRS equivalent) concentration readings exceed 770 ppm, the permittee shall conduct sampling and recording on a weekly basis 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 concentration determined from the weekly readings are maintained below 770 ppm of H₂S/TRS concentration in the landfill gas for one month after an exceedance, the permittee may resume monthly monitoring and recordkeeping. 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), 40 CFR 52.21 (c) & (d))**

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

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. **(R 336.1205, R 336.1225, R 336.1702, R 336.2803, R 336.2804)**
2. The permittee shall continuously monitor, in a satisfactory manner, the total landfill gas fuel usage for EUENGINE10, on a daily basis. **(R 336.1205, R 336.1225)**
3. The permittee shall calculate and record the SO₂ emission rates from EUENGINE10 using the equation in Appendix A. The calculations shall utilize, at a minimum, weekly gas sampling data collected SC V.3, , the actual monthly gas usage, hours of operation, and the average ratio of total sulfur to sulfur as H₂S from the most recent laboratory test. All records shall be kept on file at the facility and make them available to the Department upon request. **(R 336.1205(3)), R 336.2803, R 336.2804)**

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4. The permittee shall maintain the following record for EUENGINE10. 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 and model year;
 - d. Maximum engine power;
 - e. Engine serial number;
 - f. Engine specification sheet;
 - g. Date of initial startup of the engine; and
 - 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. **(R 336.1205, R 336.1225, R 336.1301, R 336.1331, R 336.1702, R 336.1910, R 336.1911)**

5. The permittee shall maintain records of all information necessary for all notifications and reports for EU-ICENGINE10, 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 and landfill gas usage;
 - c. Calculated amount of landfill gas combusted in the engine on a monthly and 12-month rolling basis;
 - d. Hours of operation on a monthly and 12-month rolling basis;
 - e. Monthly average Btu 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 kept on file and stored in a format acceptable to the AQD District Supervisor. **(R 336.1205, R 336.1225, R 336.1301, R 336.1331, R 336.1702(a), R 336.1910, R 336.1911)**

VII. REPORTING

1. **Within 30 days after completion of the installation, construction, reconstruction, relocation, or modification authorized by this Permit to Install, the permittee or the authorized agent pursuant to Rule 204, shall notify the AQD District Supervisor, in writing, of the completion of the activity. Completion of the installation, construction, reconstruction, relocation, or modification is considered to occur not later than commencement of trial operation of EUENGINE10. (R 336.1201(7)(a))**
2. . The permittee shall notify the AQD district office within one week of when the frequency of the gas sampling changes for any reason. **(R 336.1201(3))**
3. The permittee shall notify 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. **(R 336.1205, R336.1702(a), R 336.1911)**

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:

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Stack & Vent ID	Maximum Exhaust Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SVENGINE10	16.0	80.0	R 336.1225 R 336.2803, R 336.2804

IX. OTHER REQUIREMENT(S)

NA

Footnotes:

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

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D. FLEXIBLE GROUP 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
FG-ENGINES	Seven reciprocating internal combustion engines (RICE) that will only combust treated landfill gas for fuel. Each engine drives an associated generator set for producing electricity.	EU-ENGINE1 EU-ENGINE2 EU-ENGINE3 EU-ENGINE4 EU-ENGINE5 EU-ENGINE6 EU-ENGINE7
FG-ICENGINE2	Two reciprocating internal combustion engines (RICE) that will only combust treated landfill gas for fuel. Each engine drives an associated generator set for producing electricity.	EU-ICENGINE8 EU-ICENGINE9
FG-RICEMACT	All existing, new and reconstructed engines located at a Major Source of HAPS, > 500 HP, non-emergency, firing Landfill/Digester Gas. New and reconstructed engines commenced construction or reconstruction on or after December 19, 2002, and the compliance date for these engines is upon start-up.	EU-ENGINE1 EU-ENGINE2 EU-ENGINE3 EU-ENGINE4 EU-ENGINE5 EU-ENGINE6 EU-ENGINE7 EU-ICENGINE8 EU-ICENGINE9
FGRICENSPS10	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.	EUENGINE10
FGRICEMACTNEW	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.	EUENGINE10

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**FG-ENGINES
FLEXIBLE GROUP CONDITIONS**

DESCRIPTION

Seven reciprocating internal combustion engines (RICE) that will only combust treated landfill gas for fuel. Each engine drives an associated generator set for producing electricity.

Emission Units: EU-ENGINE1, EU-ENGINE2, EU-ENGINE3, EU-ENGINE4, EU-ENGINE5, EU-ENGINE6, EU-ENGINE7

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. NO _x	35.2 lbs/hr ²	Hour	FG-ENGINES	SC V.1	R 336.1201(3)
2. NO _x	154.2 tpy ²	12-month rolling time period as determined at the end of each calendar month	FG-ENGINES	SC V.1	R 336.1201(3)
3. CO	51.1 lbs/hr ²	Hour	FG-ENGINES	SC V.1	R 336.1201(3)
4. CO	223.8 tpy ²	12-month rolling time period as determined at the end of each calendar month	FG-ENGINES	SC V.1	R 336.1201(3)
5. HCl	0.7 lbs/hr ¹	Hour	FG-ENGINES	SC V.1	R 336.1224(1) R 336.1225
6. HCl	3.0 tpy ¹	12-month rolling time period as determined at the end of each calendar month	FG-ENGINES	SC V.1	R 336.1224(1) R 336.1225
7. NMOC	8.8 lbs/hr ²	Hour	FG-ENGINES	SC V.1	R 336.1702(a)
8. NMOC	38.5 tpy ²	12-month rolling time period as determined at the end of each calendar month	FG-ENGINES	SC V.1	R 336.1702(a)

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall only burn landfill gas in FG-ENGINES that has been treated in a system which complies with 40 CFR 60.752(b)(2)(iii)(C). **(R 336.1213(2))**

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2. Within 60 days of permit issuance, the permittee shall not operate FG-ENGINES unless the preventative maintenance/malfunction abatement plan (PM/MAP) or an alternate 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 PM/MAP to be inadequate, the AQD District Supervisor may request modification of the plan to address those inadequacies. **(R 336.1213(2), R 336.1911)**

3. Based on each engine's kilowatt output, the permittee shall adjust the engine's air/fuel ratio, as needed, to ensure that the engine operates at its maximum design output based on the fuel available to burn. **(R 336.1213(2))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall not operate any engine in FG-ENGINES unless that engine's air/fuel ratio controller is installed, maintained and operated in a satisfactory manner. **(R 336.1213(2))**
2. The permittee shall equip each engine in FG-ENGINES with a device to monitor and record the hours of operation for each engine. **(R 336.1213(2))**
3. The permittee shall equip FG-ENGINES with a device to monitor and record the total daily fuel usage of the engines. **(R 336.1213(2))**

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 verify NO_x, CO, HCl and NMOC emission rates from each engine in FG-ENGINES by testing at owner's expense, in accordance with the Department requirements. Testing shall be performed using an approved EPA Method listed in:

Pollutant	Test Method Reference
NO _x	40 CFR Part 60, Appendix A
CO	40 CFR Part 60, Appendix A
HCl	40 CFR Part 60, Appendix A
NMOC	40 CFR Part 60, Appendix A

An alternate 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

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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.

The permittee must submit 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)**

- 2.
3. Within 180 days of permit issuance or five years from the last test date, whichever is later, and then every five years thereafter, the permittee shall verify the NO_x, CO, HCl and NMOC emission rates from each engine in FG-ENGINES. **(R 336.1213(3), R 336.2001, R 336.2003, R 336.2004)**
4. The permittee shall notify the AQD Technical Programs Unit Supervisor and the District Supervisor not less than 30 days of the time and place before performance tests are conducted. **(R 336.1213(3))**

See Appendix 7-2

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 continuously monitor and record the following parameters:
 - a. Electrical output (KW) of each generator driven by each internal combustion engine.
 - b. Hours of operation of each generator driven by each internal combustion engine.²
 - c. Total flow of landfill gas to FG-ENGINES (HCl compliance).

The permittee shall use the equations and emission factors as specified in Appendix 7-2 to calculate the emissions of CO, NO_x, HCl, and NMOC for each engine. Records of the monitored parameters and calculations shall be kept on file and made available to the Department upon request.² **(R 336.1224, R 336.1225, R 336.1702(a), 40 CFR 52.21(c) & (d))**

- 4
- 5.
6. The permittee shall maintain a monthly log of all maintenance activities conducted on each engine in FG-ENGINES, including but not limited to the following: daily maintenance activities, top-end repairs, major overhauls, and engine replacements. **(R 336.1213(3))**
7. The permittee shall maintain the following record for FG-ENGINES. 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 and model year;
 - d. Maximum engine power;
 - e. Engine serial number;
 - f. Engine specification sheet;
 - g. Date of initial startup of the engine; and
 - 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. **(R 336.1213(3), R 336.1911)**

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8. The permittee shall maintain records of all information necessary for all notifications and reports for FGEngines, 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/sampling required under the special conditions of this permit;
 - b. Monitoring data for the hours of operation and landfill gas usage;
 - c. Calculated amount of landfill gas combusted in the engines on a monthly and 12-month rolling basis;
 - d. Hours of operation on a monthly and 12-month rolling basis;
 - e. Manufacturer’s data, specifications, and operating and maintenance procedures;
 - f. Maintenance activities conducted according to the PM/MAP;
 - g. All calculations necessary to show compliance with the limits contained in this permit.

All of the above information shall be kept on file and stored in a format acceptable to the AQD District Supervisor. **(R 336.1213(3))**

See Appendix 7-2

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))**

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 Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SV-ICE1	12 ²	23 ²	R 336.1225, 40 CFR 52.21(c) & (d)
2. SV-ICE2	12 ²	23 ²	R 336.1225, 40 CFR 52.21(c) & (d)
3. SV-ICE3	12 ²	23 ²	R 336.1225, 40 CFR 52.21(c) & (d)
4. SV-ICE4	12 ²	23 ²	R 336.1225, 40 CFR 52.21(c) & (d)
5. SV-ICE5	12 ²	23 ²	R 336.1225, 40 CFR 52.21(c) & (d)
6. SV-ICE6	12 ²	23 ²	R 336.1225, 40 CFR 52.21(c) & (d)
7. SV-ICE7	12 ²	23 ²	R 336.1225, 40 CFR 52.21(c) & (d)

IX. OTHER REQUIREMENT(S)

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

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).

**FG-ICENGINE2
FLEXIBLE GROUP CONDITIONS**

DESCRIPTION

Two reciprocating internal combustion engines (RICE) that will only combust treated landfill gas for fuel. Each engine drives an associated generator set for producing electricity.

Emission Unit: EU-ICENGINE8, EU-ICENGINE9

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. CO	3.3 g/bhp-hr ²	Hour	Each engine in FG-ICENGINE2	SC V.1 SC V.2	R 336.2804 R 336.2810 40 CFR 52.21(d) & (j) 40 CFR Part 60 Subpart JJJJ
2. CO	16.3 lbs/hr ²	Hour	Each engine in FG-ICENGINE2	SC V.1	R 336.2804 40 CFR 52.21(d) & (j)
3. NO _x	0.6 g/bhp-hr ²	Hour	Each engine in FG-ICENGINE2	SC V.1 SC V.2	40 CFR Part 60 Subpart JJJJ
4. NO _x	3.0 lbs/hr ²	Hour	Each engine in FG-ICENGINE2	SC V.1	R 336.2803 R 336.2804 40 CFR 52.21(c) & (d)
5. SO ₂	7.5 lbs/hr ²	Hour	FG-ICENGINE2	SC V.1 SC V.3	R 336.1205(3) R 336.2803 R 336.2804 40 CFR 52.21(c) & (d)
6. VOC	1.0 g/bhp-hr ²	Hour	Each engine in FG-ICENGINE2	SC V.2	40 CFR Part 60 Subpart JJJJ R 336.1702(b)

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall only burn landfill gas in FG-ICENGINE2 that has been treated in a system which complies with 40 CFR 60.752(b)(2)(iii)(C).² (R 336.1225, R 336.1331, R 336.1702(b), 40 CFR 63.6625(c))

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2. The permittee shall not operate FG-ICENGINE2 unless the malfunction abatement/preventative maintenance plan, or an alternate 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, R 336.1910, R 336.1911, R 336.1912, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d))**

3. The permittee shall operate each of the stationary reciprocating internal combustion engines (RICE) in a manner which reasonably minimizes HAP emissions.² **(40 CFR 63.6625(c))**
4. Based on each engine's kilowatt output, the permittee shall adjust the engine's air/fuel ratio, as needed, to ensure that the engine operates at its maximum design output based on the fuel available to burn.² **(R 336.1702, R 336.1910, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d))**
5. The permittee shall not operate FG-ICENGINE2 unless the sulfur monitoring and emission curtailment plan on file, or an alternate plan approved by the AQD District Supervisor, is implemented and maintained. **(R 336.1213(3))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall not operate any engine in FG-ICENGINE2 unless that engine's air/fuel ratio controller is installed, maintained and operated in a satisfactory manner.² **(R 336.1702, R 336.1910)**
2. The permittee shall equip each engine in FG-ICENGINE2 with a device to monitor and record the hours of operation for each engine.² **(40 CFR Part 60, Subpart JJJJ)**
3. The permittee shall equip FG-ICENGINE2 with a device to monitor and record the total daily fuel usage of the engines.² **(R 336.1201(3), R 336.1225, 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))**

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1. Except as provided in 40 CFR 60.4243(b), the permittee shall conduct an initial performance test for each engine in FG-ICENGINE2 within one year after startup of the engine and 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), unless the engines have been certified by the manufacturer as required by 40 CFR Part 60, Subpart JJJJ and the permittee maintains the engine as required by 40 CFR 60.4243(a)(1). If a performance test is required, the performance test(s) shall be conducted according to 40 CFR 60.4244. No less than 30 days prior to testing, a complete test plan shall be submitted to the AQD. The final plan must be approved by the AQD prior to testing.² **(40 CFR 60.4243, 40 CFR 60.4244, 40 CFR Part 60, Subpart JJJJ)**
2. The permittee shall verify NO_x, SO₂, VOC, and CO emission rates from each engine in FG-ICENGINE2, by testing at owner's expense, in accordance with Department requirements. 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.² **(R 336.1213(3), R 336.2001, R 336.2803, R 336.2804, R 336.2003, R 336.2004, 40 CFR 52.21(c) & (d))**
3. The permittee shall verify the hydrogen sulfide or total reduced sulfur content of the treated landfill gas burned in FG-ICENGINE2 on an annual basis by gas sampling. In addition, as outlined in the sulfur monitoring and emission curtailment plan, gas sampling shall be verified on a weekly basis whenever the monthly hydrogen sulfide or total reduced sulfur content level indicates a concentration of 500 ppmv or greater, and on a daily basis whenever a hydrogen sulfide or total reduced sulfur content concentration of 600 ppmv is observed. Once daily monitoring is triggered, the permittee will perform monitoring at least once per day (excluding weekends and holidays) until the measured hydrogen sulfide or total reduced sulfur content returns to a value of less than 600 ppmv. If after a year, each of the monthly concentrations of the hydrogen sulfide or total reduced sulfur concentration of the landfill gas are below 500 ppm (TRS equivalent), the permittee may petition the District Supervisor, Air Quality Division to reduce the frequency of gas sampling and recording the hydrogen sulfide/total reduced sulfur concentration of the treated landfill gas to once each calendar quarter. If, after two calendar years of quarterly sampling, each of the quarterly concentrations of the hydrogen sulfide or total reduced sulfur concentration of the landfill gas are below 500 ppm (TRS equivalent), the permittee may petition the District Supervisor, Air Quality Division to reduce the frequency of gas sampling and recording the hydrogen sulfide/total reduced sulfur concentration of the treated landfill gas to once each calendar year. If at any time the concentration readings exceed 500 ppm (TRS equivalent), the permittee shall review all operating and maintenance activities for the landfill gas collection and treatment system along with keeping records of corrective actions. The permittee shall notify the Department at least seven (7) days prior to sampling. The permittee shall keep all records on file at the facility for a period of at least five years and make them available to the Department upon request. **(R 336.1213(3))**
4. Testing shall be performed using an approved EPA Method listed in:

Pollutant	Test Method Reference
NO _x	40 CFR Part 60, Appendix A
SO ₂	40 CFR Part 60, Appendix A
VOC	40 CFR Part 60, Appendix A
CO	40 CFR Part 60, Appendix A

An alternate method, or a modification to the approved EPA Method, may be specified in an AQD-approved Test Protocol. **(R 336.1213(3), R 336.2001, R 336.2003, R 336.2004)**

5. Within 180 days of permit issuance or five years from the last test date, whichever occurs later, and then every five years thereafter, the permittee shall verify the CO, NO_x, SO₂, and VOC emission rates from each engine in FG-ICENGINE2. **(R 336.1213(3), R 336.2001, R 336.2003, R 336.2004)**
6. The permittee shall notify the AQD Technical Programs Unit Supervisor and the District Supervisor not less than 30 days of the time and place before performance tests are conducted. **(R 336.1213(3))**

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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 continuously monitor, in a satisfactory manner, the total landfill gas fuel usage of the engines and the hours of operation for each engine in FG-ICENGINE2.² **(R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d), 40 CFR 63.6625(c), 40 CFR Part 60 Subpart JJJJ)**
2. The permittee shall maintain a log of all maintenance activities conducted according to the malfunction abatement/preventative maintenance plan (pursuant to SC III.2). The permittee shall keep this log on file at the facility and make it available to the Department upon request.² **(R 336.1702, R 336.1911, R 336.1912, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d))**
3. The permittee shall keep, in a satisfactory manner, records of the total landfill gas usage of the engines and the hours of operation for each engine in FG-ICENGINE2 on a daily basis, as required by SC VI.1. The permittee shall keep all records on file at the facility and make them available to the Department upon request.² **(R 336.1225, R 336.1702, R 336.1910, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d), 40 CFR 63.6655(c), 40 CFR Part 60 Subpart JJJJ)**
4. The permittee shall keep, in a satisfactory manner, monthly SO₂ mass emission calculation records for each engine in FG-ICENGINE2. The SO₂ emission calculations shall be based on the most recent landfill gas sulfur content sampling results (per the sampling required under SC V.3) and the monthly landfill gas usage of the engines. The permittee shall keep all records on file and make them available to the Department upon request.² **(R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d))**
5. The permittee shall monitor emissions and operating information, including monitoring and recording the hours of operation of each engine in FG-ICENGINE2, in accordance with the federal Standards of Performance for New Stationary Sources as specified in 40 CFR Part 60, Subparts A and JJJJ. The permittee shall keep records of all source emissions data and operating information for each engine in FG-ICENGINE 2 on file at the facility and make the records available upon request.² **(40 CFR Part 60, Subparts A & JJJJ, 40 CFR 60.4245)**
6. The permittee shall continuously monitor and record, in a satisfactory manner, the kilowatt output from each engine in FG-ICENGINE2.² **(R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d))**
7. The permittee shall calculate and keep records of the daily gas usage for each engine on a monthly basis using the kilowatt output from each engine. All daily gas usage calculations for each engine in FG-ICENGINE2 shall be done at the end of each calendar month and made available by the 15th of the following calendar month. The permittee shall keep all records on file at the facility and make them available to the Department upon request.² **(R 336.1702, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d))**
8. The permittee shall monitor and record, on a monthly basis, the average Btu content of the landfill gas burned in FG-ICENGINE2. The permittee shall keep all records on file at the facility and make them available to the Department upon request.² **(R 336.1702, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d))**

VII. REPORTING

1. The results of the sulfur monitoring completed as required per FG-ICENGINE2 Condition V.3 shall be submitted to the appropriate AQD District Office, along with SO₂ emission calculations, within 7 days of the monitoring event. Results obtained by LFG sample laboratory analysis shall be submitted within 30-days of the LFG sampling event, along with SO₂ emissions calculations.
2. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**
3. 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))**

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4. 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))**
5. 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 reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(40 CFR 63.6650(g), 40 CFR 63.6650(b)(5))** The following information shall be included in this annual report:²
 - a. The permittee shall report the fuel flow rate and the heating value that was used in the permittee's calculations. **(40 CFR 63.6650(g)(1))**
 - b. The permittee shall report the operating limits provided in the permittee's federally enforceable permit, and any deviations from these limits. **(40 CFR 63.6650(g)(2))**
 - c. The permittee shall report any problems or errors suspected from the fuel flow rate meters. **(40 CFR 63.6650(g)(3))**
6. The permittee shall submit any performance test and sampling 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)

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 Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SV-ICENGINE8	16 ²	40 ²	R 336.1225 R 336.2803 R 336.2804 40 CFR 52.21 (c) & (d)
2. SV-ICENGINE9	16 ²	40 ²	R 336.1225 R 336.2803 R 336.2804 40 CFR 52.21 (c) & (d)

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, Subpart A and Subpart JJJJ, as they apply to FG-ICENGINE 2.² **(40 CFR Part 60, Subparts A and JJJJ)**
2. The permittee shall comply with all applicable provisions of the National Emission Standards for Hazardous Air Pollutants, as specified in 40 CFR, Part 63, Subpart A and Subpart ZZZZ, as they apply to FG-ICENGINE 2.² **(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).

**FG-RICEMACT
FLEXIBLE GROUP CONDITIONS**

DESCRIPTION

All existing, new and reconstructed engines located at a Major Source of HAPS, > 500 HP, non-emergency, firing Landfill/Digester Gas. New and reconstructed engines commenced construction or reconstruction on or after December 19, 2002, and the compliance date for these engines is upon start-up.

Emission Unit: EU-ENGINE1, EU-ENGINE2, EU-ENGINE3, EU-ENGINE4, EU-ENGINE5, EU-ENGINE6, EU-ENGINE7, EU-ICENGINE8, EU-ICENGINE9

POLLUTION CONTROL EQUIPMENT

Air-to-fuel ratio controller on each engine.

NA

I. EMISSION LIMIT(S)

NA

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. Each engine in FG-RICEMACT shall operate in a manner which reasonably minimizes HAP emissions. **(40 CFR 63.6625(c))**
2. Each engine in FG-RICEMACT 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. **(40 CFR 63.6625(h))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The engines in FG-RICEMACT shall be equipped with and maintain separate individual fuel meters to monitor and record the daily fuel usage and volumetric flow rate of each fuel used. **(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. The engines in FG-RICEMACT, which fire 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. **(40 CFR 63.6625(c))**

VII. REPORTING

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**

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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 January 31 for the previous calendar year. The following information shall be included in this annual report: **(40 CFR 63.6650(g), 40 CFR 63.6650(b)(5))**
 - 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. **(40 CFR 63.6650(g)(1))**
 - b. The operating limits provided in the permittee's federally enforceable permit, and any deviations from these limits. **(40 CFR 63.6650(g)(2))**
 - c. Any problems or errors suspected from the fuel flow rate meters. **(40 CFR 63.6650(g)(3))**

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 Subpart ZZZZ, as they apply to each engine in FGRICEMACT. **(40 CFR Part 63, Subparts A and ZZZZ)**

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).

**FGRICENSPS10
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, 2010.

Emission Unit: EUENGINE10

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. NOx	2.0 g/hp-hr or 150 ppmvd at 15% O ₂	Hourly	EUENGINE10	SC V.1	40 CFR 60.4233(e) Table 1 to Subpart JJJJ of Part 60
2. CO	5.0 g/hp-hr or 610 ppmvd at 15% O ₂	Hourly	EUENGINE10	SC V.1	40 CFR 60.4233(e) Table 1 to Subpart JJJJ of Part 60
3. VOC*	1.0 g/hp-hr or 80 ppmvd at 15% O ₂	Hourly	EUENGINE10	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)

1. The permittee shall operate and maintain EUENGINE10 such that it meets the emission limits established, over the entire life of the engine. **(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 EUENGINE10 and shall, to the extent practicable, maintain and operate each engine in a manner consistent with good air pollution control practice for minimizing emissions. **(40 CFR 60.4243(b))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall equip and maintain EUENGINE10 with non-resettable hours meters to track the operating hours. **(40 CFR 60.4243)**

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

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1. The permittee shall conduct an initial performance test shall, except as provided in 40 CFR 60.4243(b), for EUENGINE10 within one year after startup of the engine and 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). If a performance test is required, the performance tests shall be conducted according to 40 CFR 60.4244. No less than 30 days prior to any 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. **(40 CFR 60.8, 40 CFR 60.4243, 40 CFR 4244, 40 CFR 60.4245, 40 CFR Part 60 Subpart JJJJ)**

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1201)**

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 EUENGINE10 and shall, to the extent practicable, maintain and operate each engine in a manner consistent with good air pollution control practice for minimizing emissions **(40 CFR 60.4243(b))**

VII. REPORTING

1. The permittee shall submit an initial notification as required by 40 CFR 60.7(a)(1) for EUENGINE10 if the engine(s) installed is/are not certified by an engine manufacturer to meet the emission standards in 40 CFR 60.4231. The notification shall include the information below, as specified in 40 CFR 60.4245 (c)(1) through (5):
 - a) Name and address of the owner or operator. (40 CFR 60.4245(c)(1))
 - b) The address of the affected source. (40 CFR 60.4245(c)(2))
 - c) Engine information including make, model, engine family, serial number, model year, maximum engine power, and engine displacement. (40 CFR 60.4245(c)(3))
 - d) Emission control equipment. (40 CFR 60.4245(c)(4))
 - e) Fuel used. (40 CFR 60.4245(c)(5))

The permittee shall submit the initial notification to the AQD District Supervisor in an acceptable format within 30 days of commencing construction of any engine in FGRICENSPS. (40 CFR Part 60 Subpart JJJJ)

VIII. STACK/VENT RESTRICTION(S)

NA

IX. OTHER REQUIREMENT(S)

1. The permittee shall comply with the provisions of the New Source Performance Standards, as specified in 40 CFR Part 60, Subpart A and Subpart JJJJ, as they apply to each engine in FGRICENSPS10. **(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).

**FGRICEMACTNEW
FLEXIBLE GROUP CONDITIONS**

DESCRIPTION

40 CFR Part 63, Subpart ZZZZ - National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (RICE), located at a major source of HAP emissions, new and reconstructed spark ignition (SI) RICE greater than 500 bhp and combusts landfill gas equivalent to 10% or more of the gross heat input on an annual basis. Construction or reconstruction of the RICE commenced on or after December 19, 2002.

Emission Unit: EUENGINE10

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

NA

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee must operate any engine in FGRICEMACTNEW in a manner which reasonably minimizes HAP emissions. **(40 CFR 63.6625(c))**
2. At all times, the permittee must operate and maintain any engine in FGRICEMACTNEW including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. The general duty to minimize emissions does not require any further efforts to reduce emissions if levels required by this standard have been achieved. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Administrator which may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source. **(40 CFR 63.6605(b))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee must monitor and record the fuel usage daily with separate fuel meters to measure the volumetric flow rate of each fuel. **(40 CFR 63.6625(c))**

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

NA

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1201)**

1. The permittee shall complete all required records 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. **(R 336.1201(3))**

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2. A permittee that is operating an engine in FGRICEMACTNEW which fires landfill gas equivalent to 10 percent or more of the gross heat input on an annual basis must keep records of the daily fuel usage monitors. The permittee shall keep all records on file and make them available to the Department upon request. **(40 CFR 63.6655(c))**
3. The permittee's records must be in a form suitable and readily available for expeditious review according to 40 CFR 63.10(b)(1). **(40 CFR 63.6660(a))**
4. As specified in 40 CFR 63.10(b)(1), the permittee must keep each record for 5-years following the date of each occurrence, measurement, maintenance, corrective action, report, or record. **(40 CFR 63.6660(b))**
5. The permittee must keep each record readily accessible in hard copy or electronic form for at least 5 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record, according to 40 CFR 63.10(b)(1). **(40 CFR 63.6660(c))**

VII. REPORTING

1. The permittee must submit an annual report in accordance with Table 7 of 40 CFR 63, Subpart ZZZZ to the appropriate AQD District Office by no later than March 15. The following information shall be included in this annual report: **(40 CFR 63.6650(g))**
 - a) The fuel flow rate of each fuel and the heating values that were used in the calculations. The permittee must demonstrate that the percentage of heat input provided by landfill gas is equivalent to 10 percent or more of the total fuel consumption on an annual basis. **(40 CFR 63.6650(g)(1))**
 - b) The operating limits provided in the permittee's federally enforceable permit, and any deviations from these limits. **(40 CFR 63.6650(g)(2))**
 - c) Any problems or errors suspected from the fuel flow rate meters. **(40 CFR 63.6650(g)(3))**
2. The permittee is required to submit an Initial Notification but are otherwise not affected by the requirements of this subpart, in accordance with 40 CFR 63.6590(b). The notification should include the information in 40 CFR 63.9(b)(2)(i) through (v), and a statement that the stationary RICE has no additional requirements and explain the basis of the exclusion (for example, that it operates exclusively as an emergency stationary RICE if it has a site rating of more than 500 brake HP located at a major source of HAP emissions). **(40 CFR 63.6645(f))**

VIII. STACK/VENT RESTRICTION(S)

NA

IX. OTHER REQUIREMENT(S)

1. The permittee shall comply with all applicable requirements of the National Emission Standards for Hazardous Air Pollutants, as specified in 40 CFR Part 63, Subparts A and ZZZZ for Stationary Reciprocating Internal Combustion Engines. **(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).

Section 2 – Sumpter Energy Associates, LLC

ROP No: MI-ROP-N5984-

Expiration Date:

PTI No: MI-PTI-N5984-

Section 2 – Sumpter Energy Associates, LLC

ROP No: MI-ROP-N5984-

Expiration Date:

PTI No: MI-PTI-N5984-

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).

Section 2 – Sumpter Energy Associates, LLC

ROP No: MI-ROP-N5984-

Expiration Date:

PTI No: MI-PTI-N5984-

APPENDICES

Appendix 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
SNCR	Selective Non-Catalytic Reduction	TAC	Toxic Air Contaminant
SRN	State Registration Number	Temp	Temperature
TEQ	Toxicity Equivalence Quotient	THC	Total Hydrocarbons
USEPA/EPA	United States Environmental Protection Agency	tpy	Tons per year
VE	Visible Emissions	µg	Microgram
		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.

Section 2 – Sumpter Energy Associates, LLC

ROP No: MI-ROP-N5984-

Expiration Date:

PTI No: MI-PTI-N5984-

Appendix 2-2. Schedule of Compliance

The permittee certified in this ROP application that this stationary source is in compliance with all applicable requirements of this ROP.

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

Specific testing requirement plans, procedures, and averaging times are detailed in the appropriate Source-Wide, Emission Unit and/or Flexible Group Special Conditions. 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-N8004-2013. 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-N8004-2013 is being reissued as Source-Wide PTI No. MI-PTI-N5984-2019.

Permit to Install Number	ROP Revision Application Number/ Issuance Date	Description of Equipment or Change	Corresponding Emission Unit(s) or Flexible Group(s)
68-22		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 gas to produce electricity.	EUENGINE10

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 EU-ICENGINE 10 and FG-ENGINES.

I. Procedures for Calculating Emissions for EU-ICENGINE 10:

Section 2 – Sumpter Energy Associates, LLC

ROP No: MI-ROP-N5984-

Expiration Date:

PTI No: MI-PTI-N5984-

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 EUCENGINE10. The permittee shall use emission factors contained in the most recent AP-42 (Compilation of Air Pollutant Emission Factors) or the most recent FIRE (Factor Information Retrieval) database if vendor or stack testing data is not available. If emission factors from other sources are used, the permittee shall obtain the approval of the AQD District Supervisor before using the emission factors to calculate emissions. The permittee shall document the source of each emission factor used in the calculations.

Calculation for Monthly SO₂ Emissions:

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

SO₂ Emissions (tons per month)

$$= \frac{\text{Monthly H}_2\text{S Gas Sample(ppmv)}}{1,000,000} \times \frac{1.1733 \text{ mols Sulfur}}{\text{ft}^3} \times \frac{34.065 \text{ grams}}{\text{mol Sulfur}} \times \frac{\text{pound}}{453.59 \text{ grams}} \times \frac{\text{ton}}{2,000 \text{ pounds}} \times \frac{1.88 \text{ SO}_2}{\text{H}_2\text{S}}$$

× Average ratio of total sulfur to sulfur as H₂S × Actual Monthly Landfill Gas Usage (ft³/month)

Calculation for hourly SO₂ Emissions:

The monthly calculation along with the daily hours of operation shall be used to calculate the hourly SO₂ emissions, as a monthly average.

II. Nitrogen Oxide (NO_x), Carbon Monoxide (CO), and Non-Methane Organic Compound (NMOC) for FG-ENGINES:

The permittee shall calculate emissions using the emission factors and equations listed below or an alternative method approved by the District Supervisor. The emission factors shall be established and updated through stack testing and approved by the District Supervisor.

Internal Combustion Engine horsepower (EGICE HP) = generator output (kW) / (0.746kW/HP * 93.9/100)

Pounds per hour (lb/Hr) = EGICE HP * lb/454g * X g/HP*Hr, where X is a factor from table below.

Ton per month (ton/mo) = lb/Hr * Hours of operation/month * Ton/2000 lbs

Pollutant	X
CO	2.9g/HP*Hr
NO _x	2.0g/HP*Hr
NMOC	0.2g/HP*Hr

III. Hydrogen chloride (HCl) for FG-ENGINES:

Present in the landfill gas are numerous chlorinated compounds. The permittee shall calculate the emissions using the emission factor and equation listed below or an alternative method approved by the District Supervisor. The emission factor shall be established and updated through stack testing and approved by the District Supervisor.

Section 2 – Sumpter Energy Associates, LLC

ROP No: MI-ROP-N5984-

Expiration Date:

PTI No: MI-PTI-N5984-

The following equations provide an example of how HCl emissions can be calculated using the measured landfill gas lower heating value to calculate the flow rate of gas entering the seven (7) ICEs:

Notes:

A heat input of 151,090 Btu/min (LHV) is required to operate the engines at 100% load = 9.0654 MMBtu/hr.

800 kilowatts (gross) of electricity are generated at 100% load; therefore, one kilowatt hour of power generation at 100% load requires a heat input of 11,331.75 Btu (LHV).

$151,090 \text{ Btu/Min} * 60 \text{ min/hr} / 800 = 11,331.75 \text{ Btu/kWhr}$

LFG = landfill gas

LHV = lower heating value

LFG LHV = landfill gas lower heating value, measured and recorded on a weekly basis

cf = cubic foot

kWhr = kilowatt hour

$\text{LFG consumed (cf)} = \text{total gross kWhr (units 1-7)} * (11,331.75 \text{ LHV Btu/kWhr}) / (\text{LFG LHV})$

$\text{Total LFG flow (cf)} = \text{cf of LFG consumed} / (\text{total engine hours} * 7 \text{ engines})$

Total HCl emitted per hour:

$\text{Pound(s) HCl /Hr} = (5.1\text{lbHCl/MMft}^3) * (\text{Total LFG flow})$

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.



UPS Tracking No.: 1Z82F3F50390024934

October 12, 2023

EGLE – Air Quality Division
Warren District Office
27700 Donald Court
Warren, MI 48092

Subject: Renewable Operating Permit (ROP) Renewal Application
Sumpter Energy Associates at the Pine Tree Acres Landfill
MI-ROP-N5984-2019 (Section 2)

On behalf of our client, Sumpter Energy Associates (SEA) owned by NextEra Energy, Impact Compliance & Testing, Inc. (ICT) is submitting the attached application to renew Renewable Operation Permit (ROP) MI-ROP-N5984-2019 (Section 2), issued July 30, 2019. The ROP will expire on July 30, 2024. Per Michigan Air Pollution Control Rule R 336.1210(7), a renewal application is to be submitted to the Michigan Department of Environment, Great Lakes and Energy (EGLE) no earlier than 18-months prior to the expiration date and no later than 6-months prior to the expiration date. Therefore, this administratively complete ROP renewal application is required to be submitted between January 30, 2023 and January 30, 2024.

There are two (2) sections to the current ROP, NextEra Energy is the owner and operator of the conditions and equipment associated with SEA and outlined in Section 2. This application is only addressing ROP Section 2 renewal application requirements. The application for Section 1 will be submitted by the Pine Tree Acres Landfill under separate cover.

If there are any questions regarding the information contained in this application, please contact Kate Henry at (734) 464-4834 or Ed Werkheiser of NextEra Energy at (484) 294-8253.

Sincerely,

Impact Compliance & Testing, Inc.

A handwritten signature in black ink that reads "Kate Henry". The signature is written in a cursive, flowing style.

Kate Henry
Environmental Scientist

Enclosure: ROP Application Package

cc: Ed Werkheiser, Ed Wentling – NextEra (Electronically)
Rob Harvey, Tyler Wilson, Summer Hitchens – ICT (Electronically)

Renewable Operating Permit Renewal Application

Prepared for:

NextEra Energy



September 26, 2023



Report Certification

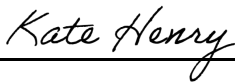
Renewable Operating Permit Renewal Application

Sumpter Energy Associates at the Pine Tree Acres Landfill Lennox Township, Michigan

This document has been reviewed by Sumpter Energy Associates representatives and approved for submittal to the Michigan Department of Environment, Great Lakes and Energy (EGLE) as part of the Renewable Operating Permit Renewal Application.

The material and data in this document were prepared under the supervision and direction of the undersigned.

Impact Compliance & Testing, Inc.



Kate Henry

Environmental Scientist



Summer Hitchens, M.P.H.

Senior Project Manager

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Table 2-2: Rule 212(3) Insignificant Sources

Table 4-1: Air Emission Estimates

1 Executive Summary

NextEra Energy is the owner and operator of Sumpter Energy Associates (SEA) which operates a landfill gas to energy (LFGTE) facility at the Pine Tree Acres Landfill located in Lennox Township, Macomb County, Michigan. The existing Renewable Operating Permit (ROP), MI-ROP-N5984-2019, is divided into two (2) sections, Section 1 – Pine Tree Acres, Inc., and Section 2 – Sumpter Energy Associates, LLC. The current ROP was issued on July 30, 2019 by the Michigan Department of Environmental, Great Lakes and Energy (EGLE) and will expire on July 30, 2024.

As part of this application PTI 68-22, issued June 6, 2022, is being requested to be incorporated. PTI 68-22 provides updated conditions for EU-ICENGINE10. Appendix E contains a copy of the PTI.

Michigan Air Pollution Control Rule R 336.1210(7) requires a renewal application to be submitted to EGLE no earlier than 18 months prior to the expiration date and no later than six months prior to the expiration date. Therefore, this administratively complete ROP renewal application is required to be submitted to EGLE no earlier than January 30, 2023 and no later than January 30, 2024.

Included in this application package, for Section 2 of the ROP only, are all required documents for an administratively complete ROP renewal package including:

- A description of the subject facility;
- Emissions calculations for each emissions unit;
- All required EGLE Forms; and
- ROP mark-up.

2 Facility Description

The SEA facility is located in Lennox Township, Macomb County and operates under Section 2 of MI-ROP-N5984-2019. SEA has a contractual agreement with the Pine Tree Acres Landfill to use treated LFG supplied by the landfill to power the SEA internal combustion engines (ICEs) to generate electricity for sale. The SEA LFGTE facility is permitted for ten (10) ICEs, a description of each engine is provided in Table 2-1.

2.1 Emission Units

The following table outlines each existing permitted emission unit including a description.

Table 2-1: Existing Emission Units

Emission Unit ID	Description	Installation Date/Modification Date	Flexible Group ID
EU-ENGINE1	Reciprocating internal combustion engine. Landfill gas fired internal combustion engines (ICE) manufactured by Caterpillar Inc. (Model No. 3516) and rated at 1138 HP and 8.6 MMBtu/hr.	07/24/01	FG-ENGINES FG-RICEMACT
EU-ENGINE2	Reciprocating internal combustion engine. Landfill gas fired internal combustion engines (ICE) manufactured by Caterpillar Inc. (Model No. 3516) and rated at 1138 HP and 8.6 MMBtu/hr.	07/24/01	FG-ENGINES FG-RICEMACT
EU-ENGINE3	Reciprocating internal combustion engine. Landfill gas fired internal combustion engines (ICE) manufactured by Caterpillar Inc. (Model No. 3516) and rated at 1138 HP and 8.6 MMBtu/hr.	07/24/01	FG-ENGINES FG-RICEMACT
EU-ENGINE4	Reciprocating internal combustion engine. Landfill gas fired internal combustion engines (ICE) manufactured by Caterpillar Inc. (Model No. 3516) and rated at 1138 HP and 8.6 MMBtu/hr.	07/24/01	FG-ENGINES FG-RICEMACT
EU-ENGINE5	Reciprocating internal combustion engine. Landfill gas fired internal combustion engines (ICE) manufactured by Caterpillar Inc. (Model No. 3516) and rated at 1138 HP and 8.6 MMBtu/hr.	07/24/01	FG-ENGINES FG-RICEMACT
EU-ENGINE6	Reciprocating internal combustion engine. Landfill gas fired internal combustion engines (ICE) manufactured	07/24/01	FG-ENGINES FG-RICEMACT

Emission Unit ID	Description	Installation Date/Modification Date	Flexible Group ID
	by Caterpillar Inc. (Model No. 3516) and rated at 1138 HP and 8.6 MMBtu/hr.		
EU-ENGINE7	Reciprocating internal combustion engine. Landfill gas fired internal combustion engines (ICE) manufactured by Caterpillar Inc. (Model No. 3516) and rated at 1138 HP and 8.6 MMBtu/hr.	07/24/01	FG-ENGINES FG-RICEMACT
EU-ICENGINE8	Spark ignition, lean burn, reciprocating internal combustion engine (Caterpillar G3520C, 2,233 bhp at 100% load) for combusting treated landfill gas to produce electricity (1.6-megawatt gross electrical output). The engine will drive an associated generator set to produce the electricity.	03/02/10	FG-ICENGINE2 FG-RICEMACT
EU-ICENGINE9	Spark ignition, lean burn, reciprocating internal combustion engine (Caterpillar G3520C, 2,233 bhp at 100% load) for combusting treated landfill gas to produce electricity (1.6-megawatt gross electrical output). The engine will drive an associated generator set to produce the electricity.	03/02/10	FG-ICENGINE2 FG-RICEMACT
EU-ICENGINE10	Spark ignition, lean burn, reciprocating internal combustion engine (Caterpillar G3520C, 2,233 bhp at 100% load) for combusting treated landfill gas to produce electricity (1.6-megawatt gross electrical output). The engine will drive an associated generator set to produce the electricity. This emission unit, and any replacement of this unit as applicable under R 336.1285(a)(vi), is for a Caterpillar G3520C internal combustion engine greater than 500hp fueled with treated landfill/digester gas to produce electricity. The engine is subject to the New Source Performance Standard for spark ignition engines (40 CFR Part 60 Subpart JJJJ) that meet the following definition: 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.	TBD	FG-RICEMACT10

2.2 Insignificant Sources

2.2.1 Rule 212(3)

The following emission sources have been identified as being exempt from inclusion in an administratively complete ROP application because they are either insignificant under R 336.1212(2) (Rule 212(2)) or they are otherwise exempt from inclusion under R 336.1212(3) (Rule 212(3)).

Table 2-2: Rule 212(3) Insignificant Sources

Process or Process Equipment	Rule 212(3)	Rule Citation
Lube Oil: One (1) 3,000-gal tank	Rule 213(3)(e)	Containers listed in R 336.1284(2)(c): Storage and surge capacity of lubricating, hydraulic, and thermal oils
Used Oil: One (1) 1,500-gal tank	Rule 213(3)(e)	Containers listed in R 336.1284(2)(c): Storage and surge capacity of lubricating, hydraulic, and thermal oils

3 Regulatory Discussion

3.1 Michigan Air Pollution Control Regulations

The following Michigan Air Pollution Control Regulations are applicable.

R 336.1201 – PTI requirements

R 336.1205 – PTI approval requirements

R 336.1210 – ROP requirements

R 336.1212 – Administratively complete application, insignificant activities, emission reporting and fee calculations

R 336.1213 – Content of ROP requirements

R 336.1214 – Approval of ROP

R 336.1215 – Operational flexibility, off-permit changes, insignificant change and responsible official changes

R 336.1216 – Modifications to renewable operating permits.

R 336.1217 – Renewals and reopening of ROPs

R 336.1219 – Change in ownership or operational control of a stationary source that does not require a revision of the ROP

R 336.1224 – Best available control technology for toxics (T-BACT) for new or modified sources

R 336.1225 - 1227 – Health based screening level requirements

R 336.1301 – Standards for density of emissions.

R 336.1702 – New sources of VOC emission requirements

R 336.1901 – Air contaminant or water vapor; prohibition.

R 336.1910 – Air-cleaning devices.

R 336.1911 – Malfunction abatement plan requirements

R 336.1912 – Abnormal conditions and reporting requirements

R 336.2001 – Performance test by owner.

R 336.2003 – Performance test criteria

R 336.2803 – Ambient air increment requirements

R 336.2804 – Ambient air ceiling requirements

SEA is currently in compliance and will continue to follow the applicable requirements and conditions of the Michigan Administrative Code as outlined in the existing ROP and in Section 3.1 of this application.

Federal Air Pollution Control Regulations

The following Federal Air Pollution Control Regulations are applicable.

3.1.1 New Source Performance Standards (NSPS)

40 CFR 60, Subpart A & XXX – The stationary source, Pine Tree Acres Landfill, has a design capacity greater than 2.5 million cubic meters and commenced construction, reconstruction, or modification on or after July 17, 2014 and is therefore subject to 40 CFR 60 Subpart A and XXX. Since SEA controls emissions from the stationary source, which is subject to NSPS, the facility is subject to the general provisions under 40 CFR Subpart A and performance standards under 40 CFR 60 Subpart XXX.

40 CFR 60, Subpart A & JJJJ – The permittee is subject to the general provisions as outlined in Subpart A and the standards of performance as outlined in Subpart JJJJ for spark ignition ICEs for EU-ICENGINE8 – EU-ICENGINE9, and EU-ICENGINE10.

3.1.2 NESHAP

40 CFR 63, Subpart A & ZZZZ – The permittee is subject to the general provision requirements as outlined in Subpart A and the Hazardous Air Pollutant (HAP) standards as outlined in Subpart ZZZZ, for stationary internal combustion engines for EU-ENGINE1 – EU-ENGINE7, EU-ICENGINE8 – EU-ICENGINE9, and EU-ICENGINE10.

40 CFR 63, Subpart A & ZZZZ – The permittee is subject to the annual compliance certification with all applicable requirements of Section 112(r) and the permit.

3.1.3 Prevention of Significant Deterioration (PSD) Program

The requirements of the PSD program apply to new major stationary sources and major modifications to existing major stationary sources. A major stationary source is defined as any source type belonging to a listed source category which emits or has the potential to emit 100 tons per year (TPY) or more of any regulated New Source Review (NSR) pollutant or any other source type which emits or has the potential to emit any regulated NSR pollutant equal to or greater than 250 TPY. The Pine Tree Acres Landfill and SEA are considered a single source with the potential to emit more than 250 TPY of carbon monoxide (CO) and therefore qualifies to be categorized as a major source.

3.1.4 Compliance Assurance Monitoring

All stationary sources, whose ROP applications were submitted after April 20, 1998, are potentially subject to the Compliance Assurance Monitoring (CAM) requirements of 40 CFR Part 64. The CAM rule is applicable to Title V major sources at which any emission unit utilizes a control device to comply with an applicable emission limitation or standard. The CAM rule requires facilities to develop a CAM Plan which outlines compliance monitoring procedures. The SEA facility is not subject to CAM.

3.2 Permit-to-Install

PTI 68-22 was issued on June 6, 2022 and has not been incorporated into the current ROP. As part of this application package, SEA has requested the ROP be modified to incorporate PTI 68-22.

3.3 State Operating Permit Program

The SEA facility is subject to 40 CFR 70 "State Operating Permit Programs" because the emissions of carbon monoxide exceed 100 TPY for the stationary source.

3.4 Area Attainment Status

Air emission sources are categorized by regulation as either major or minor (non-major) for purposes of federal and state pre-construction permitting or New Source Review (NSR). The region where the SEA facility is located, Lennox Township, Macomb County, Michigan, is currently designated as an attainment/maintenance area for particulate matter (PM), lead (Pb), nitrogen dioxide (NO₂), carbon monoxide (CO), and ozone.

4 Air Emissions Summary

As required by rule R336.1212(6) emissions were previously reported to the Michigan Air Emissions Reporting System (MAERS). The 2022 actual emission calculations were reported to the MAERS by March 15, 2023. A copy of the 2022 MAERS report is included in Appendix B.

Air emission calculations were performed to estimate potential emissions from SEA for regulated and hazardous air pollutants. These emissions calculations were calculated using AP-42 and site-specific emission factors. The table below presents a summary of the facility potential emissions, Section 2 only. Detailed potential emissions calculations are included in Appendix B.

Table 4-1: Air Emission Estimates

Source	Maximum Potential Emissions (TPY)							
	NO _x	CO	SO ₂	PM ₁₀	VOC	HAP(T)	HAP(S)	CO _{2e}
EU-ENGINE 1-7	154.2	223.80	33.73	9.22	39.58	31.36	26.06	58,392.50
EU-ICENGINE 8-9	26.28	142.79	65.70	10.34	42.22	20.69	18.40	25,318.13
EU-ICENGINE 10	13.14	71.38	20.63	5.19	21.20	10.26	9.11	13,879.96
Total Emissions	<u>193.62</u>	<u>437.97</u>	<u>120.06</u>	<u>24.75</u>	<u>103.00</u>	<u>62.31</u>	<u>53.57</u>	<u>97,590.59</u>

Notes:

1 – PM_{2.5} is assumed to be equal to PM₁₀

Under the current ROP, FG-ENGINES (EU-ENGINE1-7) is limited to 154.2 TPY of NO_x, 223.8 TPY of CO, 3.0 TPY of HCl, and 38.5 TPY of NMOC.

5 Proposed Changes to Current ROP

SEA is proposing to incorporate PTI 68-22, including the addition of conditions associated with EUENGINE10, FGRICENSPS10 and FGRICEMACTNEW and the removal of permit conditions currently outlined under EU-ICENGINE10 and FG-RICEMACT10.

In addition, SEA is proposing to modify the ROP as outlined in the ROP Minor Modification Application (Rule 216(2) Minor Modification) submitted on October 13, 2022, which requested modification of the ROP monitoring and recordkeeping conditions for FG-ENGINES Condition VI.4 and VI.5. The Application is currently pending with EGLE. A copy of the original submittal is provided in Appendix C.

SEA is also proposing to remove Conditions V.2, VI.2, and VI.3 from FG-ENGINES. As per a May 2020 email communication from EGLE to Aria Energy, these conditions are no longer required. This email correspondence is attached in Appendix F.

By way of this ROP Renewal, SEA is petitioning EGLE to reduce sulfur sampling to annually. With this, it is requested that the language regarding sulfur sampling in Condition V.3 of FG-ICENGINE2 be modified. Below are daily results for 2021, 2022 and YTD 2023, and the summary of daily results are attached in Appendix G.

CY 2021 – MAX result was 333 ppm with an annual average of 235 ppm

CY 2022 – MAX result was 468 ppm with an annual average of 294 ppm

YTD 2023 – MAX result was 451 ppm with an average of 360 ppm

The proposed changes are provided in the ROP mark-up in Appendix D and described in the ROP Renewal Form. In addition, a revised Sulfur Monitoring & Emissions Curtailment Plan is attached in Appendix C with supporting sulfur monitoring data.

Appendix A
ROP Renewal Application Forms



RENEWABLE OPERATING PERMIT RENEWAL APPLICATION FORM

This information is required by Article II, Chapter 1, Part 55 (Air Pollution Control) of P.A. 451 of 1994, as amended, and the Federal Clean Air Act of 1990. Failure to obtain a permit required by Part 55 may result in penalties and/or imprisonment. Refer to instructions for additional information to complete the Renewable Operating Permit Renewal Application Form.

GENERAL INSTRUCTIONS

This application form should be submitted as part of an administratively complete application package for renewal of a Renewable Operating Permit (ROP). This application form consists of nine parts. Parts A – H must be completed for all applications and must also be completed for each section of a sectioned ROP. Answer all questions in all parts of the form unless directed otherwise. Detailed instructions for this application form can be found at <http://michigan.gov/air> (select the Permits Tab, “Renewable Operating Permits (ROP)/Title V”, then “ROP Forms & Templates”).

PART A: GENERAL INFORMATION

Enter information about the source, owner, contact person and the responsible official.

SOURCE INFORMATION

SRN N5984	SIC Code 4911	NAICS Code 221119	Existing ROP Number MI-ROP-N5984-2019	Section Number (if applicable) 2
Source Name Sumpter Energy Associates, LLC				
Street Address 36450 29 Mile Road				
City Lennox	State MI	ZIP Code 48062	County Macomb	
Section/Town/Range (if address not available)				
Source Description Landfill gas to energy electricity generation facility located at the Pine Tree Acres Landfill. The existing facility consists of nine (9) treated landfill gas fueled reciprocating internal combustion engines (RICE) connected to electricity generators.				
<input type="checkbox"/> Check here if any of the above information is different than what appears in the existing ROP. Identify any changes on the marked-up copy of your existing ROP.				

OWNER INFORMATION

Owner Name Sumpter Energy Associates, LLC	Section Number (if applicable) 2			
Mailing address (<input type="checkbox"/> check if same as source address) 1605 N. Cedar Crest Blvd., Suite 509				
City Allentown	State PA	ZIP Code 18104	County Lehigh	Country USA

Check here if any information in this ROP renewal application is confidential. Confidential information should be identified on an Additional Information (AI-001) Form.

PART A: GENERAL INFORMATION (continued)

At least one contact and responsible official must be identified. Additional contacts and responsible officials may be included if necessary.

CONTACT INFORMATION

Contact 1 Name Ed Werkheiser		Title PGD Principal Environmental Specialist		
Company Name & Mailing address (<input type="checkbox"/> check if same as source address) NextEra Energy Resources, LLC				
City Allentown	State PA	ZIP Code 18104	County Lehigh	Country USA
Phone number (484)-294-8253		E-mail address edward.werkheiser@nexteraenergy.com		

Contact 2 Name (optional) Kate Henry		Title Environmental Scientist		
Company Name & Mailing address (<input type="checkbox"/> check if same as source address) Impact Compliance & Testing, Inc. 37660 Hills Tech Drive				
City Farmington Hills	State MI	ZIP Code 48331	County Oakland	Country USA
Phone number (734)-464-4834		E-mail address Kate.Henry@impactcandt.com		

RESPONSIBLE OFFICIAL INFORMATION

Responsible Official 1 Name Justin Brenner		Title Vice President Environmental Trading & Renewable Fuels		
Company Name & Mailing address (<input type="checkbox"/> check if same as source address) Nextera Energy Marketing, LLC – 700 Universe Blvd., Juno Beach Office (Mail Code: EPM/JB)				
City Juno Beach	State FL	ZIP Code 33408	County Palm Beach	Country USA
Phone number (561) 304-6047		E-mail address justin.brenner@nexteraenergy.com		

Responsible Official 2 Name (optional) Segun Ojetayo		Title Senior Director of Operations & Construction		
Company Name & Mailing address (<input type="checkbox"/> check if same as source address) NextEra Energy Pipeline Services, LLC – 700 Universe Blvd., Juno Beach (Mail Code: D4A/JB)				
City Juno Beach	State FL	ZIP Code 33408	County Palm Beach	Country USA
Phone number (561) 691-2777		E-mail address segun.ojetayo@nexteraenergy.com		

<input type="checkbox"/> Check here if an AI-001 Form is attached to provide more information for Part A. Enter AI-001 Form ID:

PART B: APPLICATION SUBMITTAL and CERTIFICATION by Responsible Official

Identify the items that are included as part of your administratively complete application in the checklist below. For your application to be complete, it must include information necessary to evaluate the source and to determine all applicable requirements. Answer the compliance statements as they pertain to all the applicable requirements to which the source is subject. The source's Responsible Official must sign and date this form.

Listing of ROP Application Contents. Check the box for the items included with your application.

<input checked="" type="checkbox"/> Completed ROP Renewal Application Form (and any AI-001 Forms) (required)	<input type="checkbox"/> Compliance Plan/Schedule of Compliance
<input checked="" type="checkbox"/> Mark-up copy of existing ROP using official version from the AQD website (required)	<input type="checkbox"/> Stack information
<input checked="" type="checkbox"/> Copies of all Permit(s) to Install (PTIs) that have not been incorporated into existing ROP (required)	<input type="checkbox"/> Acid Rain Permit Initial/Renewal Application
<input checked="" type="checkbox"/> Criteria Pollutant/Hazardous Air Pollutant (HAP) Potential to Emit Calculations	<input type="checkbox"/> Cross-State Air Pollution Rule (CSAPR) Information
<input type="checkbox"/> MAERS Forms (to report emissions not previously submitted)	<input type="checkbox"/> Confidential Information
<input type="checkbox"/> Copies of all Consent Order/Consent Judgments that have not been incorporated into existing ROP	<input checked="" type="checkbox"/> Paper copy of all documentation provided (required)
<input type="checkbox"/> Compliance Assurance Monitoring (CAM) Plan	<input checked="" type="checkbox"/> Electronic documents provided (optional)
<input checked="" type="checkbox"/> Other Plans (e.g., Malfunction Abatement, Fugitive Dust, Operation and Maintenance, etc.)	<input checked="" type="checkbox"/> Other, explain: ROP Modification Dated 10.13.22

Compliance Statement

This source is in compliance with **all** of its applicable requirements, including those contained in the existing ROP, Permits to Install that have not yet been incorporated into that ROP, and other applicable requirements not currently contained in the existing ROP. Yes No

This source will continue to be in compliance with all of its applicable requirements, including those contained in the existing ROP, Permits to Install that have not yet been incorporated into that ROP, and other applicable requirements not currently contained in the existing ROP. Yes No

This source will meet in a timely manner applicable requirements that become effective during the permit term. Yes No

The method(s) used to determine compliance for each applicable requirement is/are the method(s) specified in the existing ROP, Permits to Install that have not yet been incorporated into that ROP, and all other applicable requirements not currently contained in the existing ROP.

If any of the above are checked No, identify the emission unit(s) or flexible group(s) affected and the specific condition number(s) or applicable requirement for which the source is or will be out of compliance at the time of issuance of the ROP renewal on an AI-001 Form. Provide a compliance plan and schedule of compliance on an AI-001 Form.

Name and Title of the Responsible Official (Print or Type)

Segun Ojetayo – Senior Director of Operations & Construction

As a Responsible Official, I certify that, based on information and belief formed after reasonable inquiry, the statements and information in this application are true, accurate, and complete.



Signature of Responsible Official



Date

PART C: SOURCE REQUIREMENT INFORMATION

Answer the questions below for specific requirements or programs to which the source may be subject.

C1.	Actual emissions and associated data from all emission units with applicable requirements (including those identified in the existing ROP, Permits to Install and other equipment that have not yet been incorporated into the ROP) are required to be reported in MAERS. Are there any emissions and associated data that have not been reported in MAERS for the most recent emissions reporting year? If Yes , identify the emission unit(s) that was/were not reported in MAERS on an AI-001 Form. Applicable MAERS form(s) for unreported emission units must be included with this application.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
C2.	Is this source subject to the federal regulations on ozone-depleting substances? (40 CFR Part 82)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
C3.	Is this source subject to the federal Chemical Accident Prevention Provisions? (Section 112(r) of the Clean Air Act Amendments, 40 CFR Part 68) If Yes , a Risk Management Plan (RMP) and periodic updates must be submitted to the USEPA. Has an updated RMP been submitted to the USEPA?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No
C4.	Has this stationary source added or modified equipment since the last ROP renewal that changes the potential to emit (PTE) for criteria pollutant (CO, NO _x , PM ₁₀ , PM _{2.5} , SO ₂ , VOC, lead) emissions? If Yes , include potential emission calculations (or the PTI and/or ROP revision application numbers, or other references for the PTE demonstration) for the added or modified equipment on an AI-001 Form. If No , criteria pollutant potential emission calculations do not need to be included.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
C5.	Has this stationary source added or modified equipment since the last ROP renewal that changes the PTE for hazardous air pollutants (HAPs) regulated by Section 112 of the federal Clean Air Act? If Yes , include potential emission calculations (or the PTI and/or ROP revision application numbers or other references for the PTE demonstration) for the added or modified equipment on an AI-001 Form. Fugitive emissions must be included in HAP emission calculations. If No , HAP potential emission calculations do not need to be included.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
C6.	Are any emission units subject to the Cross-State Air Pollution Rule (CSAPR)? If Yes , identify the specific emission unit(s) subject to CSAPR on an AI-001 Form.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
C7.	Are any emission units subject to the federal Acid Rain Program? If Yes , identify the specific emission unit(s) subject to the federal Acid Rain Program on an AI-001 Form. Is an Acid Rain Permit Renewal Application included with this application?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
C8.	Are any emission units identified in the existing ROP subject to compliance assurance monitoring (CAM)? If Yes , identify the specific emission unit(s) subject to CAM on an AI-001 Form. If a CAM plan has not been previously submitted to EGLE, one must be included with the ROP renewal application on an AI-001 Form. If the CAM Plan has been updated, include an updated copy. Is a CAM plan included with this application? If a CAM Plan is included, check the type of proposed monitoring included in the Plan: 1. Monitoring proposed by the source based on performance of the control device, or 2. Presumptively Acceptable Monitoring, if eligible	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> <input type="checkbox"/>
C9.	Does the source have any plans such as a malfunction abatement plan, fugitive dust plan, operation/maintenance plan, or any other monitoring plan that is referenced in an existing ROP, Permit to Install requirement, or any other applicable requirement? If Yes , then a copy must be submitted as part of the ROP renewal application.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
C10.	Are there any specific requirements that the source proposes to be identified in the ROP as non-applicable? If Yes , then a description of the requirement and justification must be submitted as part of the ROP renewal application on an AI-001 Form.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<input type="checkbox"/>	Check here if an AI-001 Form is attached to provide more information for Part C. Enter AI-001 Form ID: AI-	

PART D: PERMIT TO INSTALL (PTI) EXEMPT EMISSION UNIT INFORMATION

Review all emission units at the source and answer the question below.

D1. Does the source have any emission units that do not appear in the existing ROP but are required to be listed in the ROP application under R 336.1212(4) (Rule 212(4)) of the Michigan Air Pollution Control Rules? If Yes, identify the emission units in the table below. Yes No

If No, go to Part E.

Note: Emission units that are subject to process specific emission limitations or standards, even if identified in Rule 212, must be captured in either Part G or H of this application form. Identical emission units may be grouped (e.g. PTI exempt Storage Tanks).

Emission Unit ID	Emission Unit Description	Rule 212(4) Citation <small>[e.g. Rule 212(4)(c)]</small>	Rule 201 Exemption Rule Citation <small>[e.g. Rule 282(2)(b)(i)]</small>

Comments:

Check here if an AI-001 Form is attached to provide more information for Part D. Enter AI-001 Form ID: **AI-**

PART E: EXISTING ROP INFORMATION

Review all emission units and applicable requirements (including any source wide requirements) in the existing ROP and answer the questions below as they pertain to all emission units and all applicable requirements in the existing ROP.

<p>E1. Does the source propose to make any additions, changes or deletions to terms, conditions and underlying applicable requirements as they appear in the existing ROP? If <u>Yes</u>, identify changes and additions on Part F, Part G and/or Part H.</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
<p>E2. For each emission unit(s) identified in the existing ROP, <u>all</u> stacks with applicable requirements are to be reported in MAERS. Are there any stacks with applicable requirements for emission unit(s) identified in the existing ROP that were <u>not</u> reported in the most recent MAERS reporting year? If <u>Yes</u>, identify the stack(s) that was/were not reported on applicable MAERS form(s).</p>	<p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
<p>E3. Have any emission units identified in the existing ROP been modified or reconstructed that required a PTI? If <u>Yes</u>, complete Part F with the appropriate information.</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
<p>E4. Have any emission units identified in the existing ROP been dismantled? If <u>Yes</u>, identify the emission unit(s) and the dismantle date in the comment area below or on an AI-001 Form.</p>	<p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
<p>Comments: An ROP Modification (Rule 216(2)) was submitted on October 13, 2023 and is currently pending with EGLE. Those suggested revisions to the ROP are included in the markup copy of the ROP with this application.</p>	
<p><input type="checkbox"/> Check here if an AI-001 Form is attached to provide more information for Part E. Enter AI-001 Form ID: AI-</p>	

PART F: PERMIT TO INSTALL (PTI) INFORMATION

Review all emission units and applicable requirements at the source and answer the following questions as they pertain to **all** emission units with PTIs. Any PTI(s) identified below must be attached to the application.

<p>F1. Has the source obtained any PTIs where the applicable requirements from the PTI have not been incorporated into the existing ROP? If <u>Yes</u>, complete the following table. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If <u>No</u>, go to Part G.</p>			
Permit to Install Number	Emission Units/Flexible Group ID(s)	Description (Include Process Equipment, Control Devices and Monitoring Devices)	Date Emission Unit was Installed/ Modified/ Reconstructed
68-22	EUENGINE10 FGRICENSPS10 FGRICEMACTNEW	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 gas to produce electricity	TBD
<p>F2. Do any of the PTIs listed above change, add, or delete terms/conditions to established emission units in the existing ROP? If <u>Yes</u>, identify the emission unit(s) or flexible group(s) affected in the comments area below or on an AI-001 Form and identify all changes, additions, and deletions in a mark-up of the existing ROP. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>			
<p>F3. Do any of the PTIs listed above identify new emission units that need to be incorporated into the ROP? If <u>Yes</u>, submit the PTIs as part of the ROP renewal application on an AI-001 Form, and include the new emission unit(s) or flexible group(s) in the mark-up of the existing ROP. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>			
<p>F4. Are there any stacks with applicable requirements for emission unit(s) identified in the PTIs listed above that were <u>not</u> reported in MAERS for the most recent emissions reporting year? If <u>Yes</u>, identify the stack(s) that were not reported on the applicable MAERS form(s). <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>			
<p>F5. Are there any proposed administrative changes to any of the emission unit names, descriptions or control devices in the PTIs listed above for any emission units not already incorporated into the ROP? If <u>Yes</u>, describe the changes on an AI-001 Form. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>			
<p>Comments: F.2. Deletion of conditions associated with EU-ICENGINE10 is being requested. Addition of conditions associated with EUENGINE10, FGRICENSPS10 and FGRICEMACTNEW have been proposed to be included in the ROP. Details of the proposed revisions are outlined in the mark-up ROP in Appendix D. F.3. A copy of PTI 68-22 is included as Appendix E and all conditions of the PTI are outlined in the mark-up ROP in Appendix D.</p>			
<p><input checked="" type="checkbox"/> Check here if an AI-001 Form is attached to provide more information for Part F. Enter AI-001 Form ID: AI-001</p>			

PART G: EMISSION UNITS MEETING THE CRITERIA OF RULES 281(2)(h), 285(2)(r)(iv), 287(2)(c), OR 290

Review all emission units and applicable requirements at the source and answer the following questions.

G1. Does the source have any new and/or existing emission units which do not already appear in the existing ROP and which meet the criteria of Rules 281(2)(h), 285(2)(r)(iv), 287(2)(c), or 290.
 If Yes, identify the emission units in the table below. If No, go to Part H. Yes No
Note: If several emission units were installed under the same rule above, provide a description of each and an installation/modification/reconstruction date for each.

Origin of Applicable Requirements	Emission Unit Description – <i>Provide Emission Unit ID and a description of Process Equipment, Control Devices and Monitoring Devices</i>	Date Emission Unit was Installed/ Modified/ Reconstructed
<input type="checkbox"/> Rule 281(2)(h) or 285(2)(r)(iv) cleaning operation		
<input type="checkbox"/> Rule 287(2)(c) surface coating line		
<input type="checkbox"/> Rule 290 process with limited emissions		

Comments:

Check here if an AI-001 Form is attached to provide more information for Part G. Enter AI-001 Form ID: **AI-**

PART H: REQUIREMENTS FOR ADDITION OR CHANGE

Complete this part of the application form for all proposed additions, changes or deletions to the existing ROP. This includes state or federal regulations that the source is subject to and that must be incorporated into the ROP or other proposed changes to the existing ROP. **Do not include additions or changes that have already been identified in Parts F or G of this application form.** If additional space is needed copy and complete an additional Part H.

Complete a separate Part H for each emission unit with proposed additions and/or changes.

H1. Are there changes that need to be incorporated into the ROP that have not been identified in Parts F and G? If <u>Yes</u> , answer the questions below.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
H2. Are there any proposed administrative changes to any of the existing emission unit names, descriptions or control devices in the ROP? If <u>Yes</u> , describe the changes in questions H8 – H16 below and in the affected Emission Unit Table(s) in the mark-up of the ROP.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
H3. Does the source propose to add a new emission unit or flexible group to the ROP not previously identified in Parts F or G? If <u>Yes</u> , identify and describe the emission unit name, process description, control device(s), monitoring device(s) and applicable requirements in questions H8 – H16 below and in a new Emission Unit Table in the mark-up of the ROP. See instructions on how to incorporate a new emission unit/flexible group into the ROP.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
H4. Does the source propose to add new state or federal regulations to the existing ROP? If <u>Yes</u> , on an AI-001 Form, identify each emission unit/flexible group that the new regulation applies to and identify <u>each</u> state or federal regulation that should be added. Also, describe the new requirements in questions H8 – H16 below and add the specific requirements to existing emission units/flexible groups in the mark-up of the ROP, create a new Emission Unit/Flexible Group Table, or add an AQD template table for the specific state or federal requirement.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
H5. Has a Consent Order/Consent Judgment (CO/CJ) been issued where the requirements were not incorporated into the existing ROP? If <u>Yes</u> , list the CO/CJ number(s) below and add or change the conditions and underlying applicable requirements in the appropriate Emission Unit/Flexible Group Tables in the mark-up of the ROP.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
H6. Does the source propose to add, change and/or delete source-wide requirements? If <u>Yes</u> , identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
H7. Are you proposing to streamline any requirements? If <u>Yes</u> , identify the streamlined and subsumed requirements and the EU ID, and provide a justification for streamlining the applicable requirement below.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

PART H: REQUIREMENTS FOR ADDITION OR CHANGE – (continued)

H8. Does the source propose to add, change and/or delete **emission limit** requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below. Yes No

H9. Does the source propose to add, change and/or delete **material limit** requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below. Yes No

H10. Does the source propose to add, change and/or delete **process/operational restriction** requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below. Yes No

H11. Does the source propose to add, change and/or delete **design/equipment parameter** requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below. Yes No

H12. Does the source propose to add, change and/or delete **testing/sampling** requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below. Yes No

Request to remove Condition V.2 from FG-ENGINES, as per a May 2020 email communication from EGLE to Aria Energy, this condition is no longer required.

SEA is requesting EGLE to reduce sulfur sampling to annually. A revised/updated Sulfur Monitoring & Emissions Curtailment Plan with supporting information is attached to this application in Appendix C to support this request. The summary of daily H2S results from 2021-2023 are attached in Appendix G.

H13. Does the source propose to add, change and/or delete **monitoring/recordkeeping** requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below. Yes No

Measurement of the temperature of the air/fuel mixture at the aftercooler is not a good indicator of compliance with the NOx emission limit under Condition VI.4 and VI.5 of FG-ENGINES. Review of more recent air permits issued by EGLE reveals EGLE-AQD is no longer issuing permits that require air/fuel mixture temperature recordkeeping for similar LFG fueled RICE.

Request to remove Conditions VI.2 and VI.3 From FG-ENGINES. As per a May 2020 email communication from EGLE to Aria Energy, these conditions are no longer required.

H14. Does the source propose to add, change and/or delete **reporting** requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below. Yes No

SEA is requesting EGLE to reduce sulfur sampling to annually as allowed by Condition VII.1 of FG-ICENGINE2. A revised Sulfur Monitoring & Emissions Curtailment Plan with supporting documentation is attached to this application in Appendix C.

SRN: N5984

Section Number (if applicable): 2

PART H: REQUIREMENTS FOR ADDITION OR CHANGE – (continued)

H15. Does the source propose to add, change and/or delete **stack/vent restrictions**? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below. Yes No

H16. Does the source propose to add, change and/or delete any **other** requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below. Yes No

H17. Does the source propose to add terms and conditions for an alternative operating scenario or intra-facility trading of emissions? If Yes, identify the proposed conditions in a mark-up of the corresponding section of the ROP and provide a justification below. Yes No

Check here if an AI-001 Form is attached to provide more information for Part H. Enter AI-001 Form ID: **AI-**



RENEWABLE OPERATING PERMIT APPLICATION AI-001: ADDITIONAL INFORMATION

This information is required by Article II, Chapter 1, part 55 (Air Pollution Control) of P.A. 451 of 1994, as amended, and the Federal Clean Air Act of 1990. Failure to obtain a permit required by Part 55 may result in penalties and/or imprisonment. Please type or print clearly. Refer to instructions for additional information to complete this form.

SRN: N5984

Section Number (if applicable): 2

1. Additional Information ID

AI-001

Additional Information

2. Is This Information Confidential?

Yes No

-Detailed PTE calculations are provided in Appendix B and summarized in Section 6 of the application document.
 -Section F proposes to incorporate all revised PTE calculations associated with PTI 68-22 issued June 6, 2022.
 -Below is a summary of the PTE including Total HAPS and Single HAPs (formaldehyde).

Source	Maximum Potential Emissions (TPY)							
	NO _x	CO	SO ₂	PM ₁₀	VOC	HAP(T)	HAP(S)	CO _{2e}
EU-ENGINE 1-7	154.2	223.80	33.73	9.22	39.58	31.36	26.06	58,392.50
EU-ICENGINE 8-9	26.28	142.79	65.70	10.34	42.22	20.69	18.40	25,318.13
EU-ICENGINE 10	13.14	71.38	20.63	5.19	21.20	10.26	9.11	13,879.96
Total Emissions	193.62	437.97	120.06	24.75	103.00	62.31	53.57	97,590.59

F.2 & F.3:

To incorporate PTI 68-22, emission unit EUENGINE10 and associated Flexible Groups, FGRICENSPS10 and FGRICEMACTNEW along with all associated conditions will need to be included, the ROP markup includes the proposed PTI 68-22 conditions.

Appendix B

Emission Calculations

The following facility calculations are included in Appendix B:

1. Seven (7) CAT G3516 ICE Emissions Summary
2. Three (3) CAT G3520C ICE Emissions Summary
3. 2022 MAERS Submittal Summary Report

Summary of Air Pollutant and GHG Emissions

Pollutant	Emission Factors		One (1) Engine	Seven (7) Engines		Notes
	Value	Unit	Emission Rates			
			(lb/hr)	(TpY)	(TpY)	
<u>Criteria Pollutants</u>						
CO	2.91	g/bhp-hr	7.30	31.97	223.80	1
NO _x	2.01	g/bhp-hr	5.03	22.03	154.24	1
PM ₁₀	0.12	g/bhp-hr	0.30	1.32	9.22	2
PM _{2.5}	0.12	g/bhp-hr	0.30	1.32	9.22	2
SO ₂	770.00	ppmv	1.10	4.82	33.73	1,6
VOC	0.52	g/bhp-hr	1.29	5.65	39.58	1
<u>Hazardous Air Pollutants</u>						
HAP (T)	--	--	1.02	4.48	31.36	1,2,3
HAP (S)	--	--	0.85	3.72	26.06	1,2,3
<u>Greenhouse Gases</u>						
GHG-CO ₂	52.07	kg/MMBtu	0.95	8,341.17	58,388.21	4
GHG-CH ₄	3.20E-03	kg/MMBtu	5.85E-05	0.51	3.59	5
GHG-N ₂ O	6.30E-04	kg/MMBtu	1.15E-05	0.10	0.71	5
GHG-CO ₂ e	--	--	0.95	8,341.79	58,392.50	

Notes:

- 1 - Permit limit to demonstrate maximum potential emissions
- 2 - USEPA AP-42, 5th Ed., November 1998. Tables 2.4-1, 2.4-2, 2.4-3
- 3 - USEPA AP-42 gives typical control efficiencies for halogenated and non-halogenated species of 93.0% and 86.1%.
- 4 - 40 CFR 98, Subpart A Table A-1
- 5 - 40 CFR 98, Subpart C, Tables C-1, C-2, Rev. September 10, 2010; factors are for biogas
- 6 - Sulfur containing compounds are non-halogenated, therefore it is assumed 100% conversion of SO₂.

Summary of Air Pollutant and GHG Emissions

Pollutant	Emission Factors		One (1) Engine	Two (2) Engines		Notes
	Value	Unit	(lb/hr)	(TpY)	(TpY)	
Criteria Pollutants						
CO	3.30	g/bhp-hr	16.30	71.39	142.79	1
NO _x	0.60	g/bhp-hr	3.00	13.14	26.28	1
PM ₁₀	0.24	g/bhp-hr	1.18	5.17	10.34	2
PM _{2.5}	0.24	g/bhp-hr	1.18	5.17	10.34	2
SO ₂	770.00	ppmv	7.50	32.85	65.70	1,6
VOC	0.98	g/bhp-hr	4.82	21.11	42.22	1
Hazardous Air Pollutants						
HAP (T)	--	--	2.36	10.35	20.69	1,2,3
HAP (S)	--	--	2.10	9.20	18.40	1,2,3
Greenhouse Gases						
GHG-CO ₂	52.07	kg/MMBtu	1.45	12,659.06	25,318.13	4
GHG-CH ₄	3.20E-03	kg/MMBtu	8.88E-05	0.78	1.56	5
GHG-N ₂ O	6.30E-04	kg/MMBtu	1.75E-05	0.15	0.31	5
GHG-CO ₂ e	--	--	1.45	12,660.00	25,319.99	

Notes:

- 1 - Permit limit to demonstrate maximum potential emissions
- 2 - USEPA AP-42, 5th Ed., November 1998. Tables 2.4-1, 2.4-2, 2.4-3
- 3 - USEPA AP-42 gives typical control efficiencies for halogenated and non-halogenated species of 93.0% and 86.1%.
- 4 - 40 CFR 98, Subpart A Table A-1
- 5 - 40 CFR 98, Subpart C, Tables C-1, C-2, Rev. September 10, 2010; factors are for biogas
- 6 - Sulfur containing compounds are non-halogenated, therefore it is assumed 100% conversion of SO₂.

Summary of Air Pollutant and GHG Emissions

Pollutant	Emission Factors		Emission Rates		Notes
	Value	Unit	(lb/hr)	(TpY)	
<u>Criteria Pollutants</u>					
CO	3.30	g/bhp-hr	16.30	71.38	1
NO _x	0.60	g/bhp-hr	3.00	13.14	1
PM ₁₀	0.24	g/bhp-hr	1.19	5.19	2
PM _{2.5}	0.24	g/bhp-hr	1.19	5.19	2
SO ₂	770.00	ppmv	4.71	20.63	1,6
VOC	0.98	g/bhp-hr	4.84	21.20	1
<u>Hazardous Air Pollutants</u>					
HAP (T)	--	--	2.34	10.26	1,2,3
HAP (S)	--	--	2.08	9.11	1,2,3
<u>Greenhouse Gases</u>					
GHG-CO ₂	52.07	kg/MMBtu	1.58	13,878.94	4
GHG-CH ₄	3.20E-03	kg/MMBtu	9.74E-05	0.85	5
GHG-N ₂ O	6.30E-04	kg/MMBtu	1.92E-05	0.17	5
GHG-CO ₂ e	--	--	1.58	13,879.96	

Notes:

- 1 - Permit limit to demonstrate maximum potential emissions
- 2 - USEPA AP-42, 5th Ed., November 1998. Tables 2.4-1, 2.4-2, 2.4-3
- 3 - USEPA AP-42 gives typical control efficiencies for halogenated and non-halogenated species of 93.0% and 86.1%.
- 4 - 40 CFR 98, Subpart A Table A-1
- 5 - 40 CFR 98, Subpart C, Tables C-1, C-2, Rev. September 10, 2010; factors are for biogas
- 6 - Sulfur containing compounds are non-halogenated, therefore it is assumed 100% conversion of SO₂.

Edward J. Werkheiser
Sr. Asset Manager - Compliance



LES Project Holdings, LLC
1605 North Cedar Crest Boulevard, Suite 509
Allentown, PA 18104
ewerkheiser@eppservice.com
Office: 610-557-1884 Cell: 484-294-8253

January 10, 2023

State of Michigan
Department of Environment, Great Lakes, and Energy
Air Quality Division
Southeast Michigan District Office
27700 Donald Ct.
Warren, MI 48092-2793

**Subject: Sumpter Energy Associates, LLC – Pine Tree Acres Landfill
ROP No.: MI-ROP-N5984-2019 / SRN No.: N5984
2022 MAERS Report**

Dear EGLE-AQD Southeast District Office:

LES Project Holdings, LLC (LES), the managing partner of Sumpter Energy Associates, LLC – Pine Tree Acres Landfill (SEA-PTA) has electronically certified and submitted a completed 2022 State of Michigan Air Emissions Reporting System (MAERS) file to the State of Michigan Department of Environment, Great Lakes, and Energy-Air Quality Division (EGLE-AQD) for the 2022 reporting year.

Attached please find a signed Renewable Operating Permit Report Certification form.

If you require additional information or have any questions regarding the attached report, please feel free to contact me at: (484) 294-8253 or email at ewerkheiser@eppservice.com.

Sincerely,

Ed Werkheiser
Sr. Asset Manager - Compliance

Attachments

Appendix C

Facility Plans

1. Revised Malfunction Abatement Plan
2. ROP Modification Application dated October 13, 2022.
3. Revised SO₂ Curtailment Plan



SUMPTER ENERGY ASSOCIATES

**EUCENGINE8 AND EUCENGINE9
MALFUNCTION ABATEMENT/PREVENTATIVE MAINTENANCE PLAN**

**State Registration No. (SRN) N5984
Permit No. MI-ROP-N5984-2019**

**Facility Address:
36450 29 Mile Road
Lenox, MI 48048**

Sumpter Energy Associates

1.0 Purpose	Pg 1
2.0 Facility and General Process Information	Pg 2
3.0 IC Engine/Generator Malfunction Abatement	Pg 2
3.1 Engine Oil / Engine Coolant Temperature	Pg 2
3.2 Air / Fuel Ratio Control	Pg 3
3.3 Daily Inspections	Pg 3
3.4 On-Call Dial-Out System	Pg 4
4.0 Preventative Maintenance	Pg 4
4.1 Maintenance Schedule	Pg 4
4.2 Oil Sampling Program	Pg 4
4.3 Parts Inventory	Pg 4
5.0 Recordkeeping	Pg 5
6.0 Personnel Responsibilities	Pg 5
7.0 Plan Revisions	Pg 6
8.0 Appendices	Pg 6

Sumpter Energy Associates Pine Tree Acres	Version: 2.0	Revision Date: 09/14/2023
Engine Malfunction Abatement / Preventative Maintenance Plan	Page: 1 of 6	

1.0 Purpose

The purpose of this Malfunction Abatement/Preventative Maintenance Plan is to establish appropriate process monitoring, malfunction response and preventative maintenance procedures to maintain compliance with applicable air pollutant emission limits for the two (2) landfill gas (LFG) fueled engines that will be operated at the Sumpter Energy Associates (Sumpter Energy) Pine Tree Acres location. This revision is being made to update corporate changes and operational employee titles. There are NO technical changes being made to this plan.

This plan has been developed in accordance with the requirements of Permit to Install No. 103-09, Condition III.2. that specifies:

No later than 60 days after issuance of this permit, the permittee shall submit to the AQD District Supervisor, for review and approval, a malfunction abatement/preventative maintenance plan for FGICENGINE2. After approval of the malfunction abatement/preventative maintenance plan by the AQD District Supervisor, the permittee shall not operate FGICENGINE2 unless the malfunction abatement/preventative maintenance plan, or an alternate 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.*

The above requirements are also applicable with the existing ROP. A copy of the most recent Engine Malfunction Abatement/ Preventative Maintenance Plan is maintained on file at the Sumpter Energy facility.

Sumpter Energy Associates Pine Tree Acres	Version: 2.0	Revision Date: 09/14/2023
Engine Malfunction Abatement / Preventative Maintenance Plan	Page: 2 of 6	

2.0 Facility and General Process Information

Sumpter Energy operates two (2) Caterpillar (CAT®) G3520C reciprocating internal combustion (IC) engines that are fueled with LFG and connected to electricity generators (IC engine/generator). The emission units are identified in the permit as EUCENGINE8 and EUCENGINE9.

The LFG generated at the Pine Tree Acres Landfill (which is the source of the fuel used by Sumpter Energy) is collected using a system of wells, gas headers and blowers, which have been installed and are operated by the landfill owner. The LFG is dewatered, filtered and compressed (treated) by the landfill owner before being supplied as fuel to the IC engine/generator sets. The electricity generated is distributed to the local grid.

3.0 IC Engine/Generator Malfunction Abatement

The CAT® G3520C engine is designed to fire low-pressure, lean fuel mixtures (e.g., LFG). The engine is equipped with an air-to-fuel ratio controller that monitors engine performance parameters and automatically adjusts the air-to-fuel ratio and ignition timing to maintain efficient fuel combustion. This is performed through software provided by Caterpillar.

The engine/generator sets are not equipped with add-on emission control devices. Therefore, the units maintain compliance with applicable air pollutant emission limits through the proper operation of the engine and efficient fuel combustion, which:

- Reduces the formation of carbon monoxide (CO) and nitrogen oxide (NO_x) emissions.
- Destroys methane and nonmethane organic compounds (NMOC) in the LFG fuel (nonmethane hydrocarbons may be classified as volatile organic compounds and/or hazardous air pollutants).

Malfunction Abatement for the CAT® G3520C IC engine consists of monitoring critical engine parameters to ensure proper operation. The engine is equipped with numerous sensors that monitor critical operation parameters. An engine control module (ECM) processes the data and adjusts operating variables (ignition timing, air/fuel ratio, engine speed), activate alarms to warn of an out-of-range variable or shuts down the engine.

3.1 Engine Oil / Engine Coolant Temperature

Engine oil and engine coolant conditions do not directly influence air pollutant emissions. However, maintaining proper engine oil/coolant temperature and pressure is critical to the operation of the engine and preventing early or catastrophic mechanical failure.

Sumpter Energy Associates Pine Tree Acres	Version: 2.0	Revision Date: 09/14/2023
Engine Malfunction Abatement / Preventative Maintenance Plan		Page: 3 of 6

The engine is equipped with sensors to monitor the engine oil temperature and oil pressure before and after the oil filter. Notification alarms are activated based on out-of-range conditions (e.g., high oil temperature, low or high oil pressure). An automatic shutdown will occur if the variable exceeds a critical setpoint.

Engine coolant temperature is monitored to assure proper circulation of coolant and cooling of the engine block. Notification alarms are activated based on out-of-range conditions (high or low coolant temperature). An automatic shutdown will occur if the coolant temperature exceeds its critical setpoint temperature.

Abnormal engine operations or shutdowns are logged by the ECM. The cause of the problem is investigated and corrected by the operators and the engine is restarted.

3.2 Air / Fuel Ratio Control

Maintaining proper air/fuel ratio results in efficient fuel combustion and limits the formation of CO and NO_x. The engine is equipped with an inlet gas quality monitor that continuously monitors the inlet LFG fuel for methane (fuel value) and oxygen content. The Engine Control Module (ECM) software monitors the fuel gas conditions, engine load and engine speed and automatically adjusts the air/fuel mix valve (raptor valve position) to achieve the desired air/fuel mix setting. This programming is set by the manufacturer.

If the monitored LFG oxygen level increases, or the methane content decreases, beyond preset values the engine automatically shuts down if the desired air/fuel mix ratio cannot be obtained. This prevents excess emissions.

Abnormal fuel conditions and/or engine shutdown is logged by the ECM. The cause of the excess oxygen or decreased methane is investigated (this is typically caused from landfill wellfield maintenance or adjustments) and corrected by the operators and the engines are restarted.

3.3 Daily Inspections

The operator performs daily visual inspections of the engines and logs the following information in a daily log:

- Coolant system level;
- Engine air cleaner service indicator;
- Engine oil level;
- Fuel system fuel filter differential pressure; and
- Generator load.

Appendix A provides a form that is used for recording daily observations of engine/generator set operation

Sumpter Energy Associates Pine Tree Acres	Version: 2.0	Revision Date: 09/14/2023
Engine Malfunction Abatement / Preventative Maintenance Plan		Page: 4 of 6

3.4 On-Call Dial-Out System

The facility is not staffed around the clock. Therefore, the ECM is connected to a dial-out system that notifies the on-call operator of any engine shutdowns and certain faults and warnings during evening/weekend/holiday hours when the facility is not staffed.

4.0 Preventative Maintenance

4.1 Maintenance Schedule

The EUENGINE8 and EUENGINE9 are maintained per the guidelines in the Caterpillar Operation and Maintenance Manual. The actual maintenance schedule is dependent on actual fuel gas conditions and observations of engine performance.

Proper maintenance of the fuel train ensures good fuel mixing and combustion, which limits CO and NO_x formation. The monitoring and regular replacement of worn engine parts (such as cylinder seals) reduces particulate matter (PM₁₀/PM_{2.5}) emissions (primarily engine oil).

4.2 Oil Sampling Program

When engine oil is changed per the preventative maintenance schedule (typically monthly), a sample of the oil is sent for analysis of several properties. The oil analysis results are used to determine fuel condition, the level of engine wear or parts that may need attention (inspection or replacement). Depending upon the results, the maintenance schedule may be adjusted from the manufacturer's guidelines.

4.3 Parts Inventory

Important engine and generator parts are available on-site and kept on inventory. A sample of these parts include air filters, oil filters, spark plugs, sensors, pumps, thermostats, heads, new engine oil and coolant.

Sumpter Energy Associates Pine Tree Acres	Version: 2.0	Revision Date: 09/14/2023
Engine Malfunction Abatement / Preventative Maintenance Plan		Page: 5 of 6

5.0 Recordkeeping

The following information will be maintained to verify proper operation and maintenance of the Sumpter Energy CAT® Gf3520C engines and that proper procedures were implemented in response to malfunction requirements:

1. Daily records of the equipment monitoring parameters that are presented in this document (Section 3.3 Daily Inspections and Appendix A).
2. Equipment maintenance records for those systems that affect the operation of the engine.
3. Engine faults, alarms and shutdowns are recorded and logged by the ECM.
4. Records of process malfunctions or equipment failures if such events are different from those covered in this Plan. Particularly if it is suspected that emission limits may have been exceeded or LFG was vented to the atmosphere from the Sumpter Energy facility.

6.0 Personnel Responsibilities

The PGD Operations Specialist is responsible for operating the engines, regular inspections and monitoring (completing checklists), maintaining spare parts, and preventative maintenance as specified in this Plan. Major engine maintenance or malfunctions are reported to the PGD Operations Leader.

The PGD Operations Leader and PGD Operations Specialist will determine when revision of this Plan is necessary.

The PGD Operations Leader and PGD Operations Specialist are responsible for ensuring that this Plan is maintained on file, is accessible and kept up-to-date.

Appendix B provides a contact list for facility personnel.

Sumpter Energy Associates	Version:	Revision Date:
Pine Tree Acre	2.0	09/14/2023
Engine Malfunction Abatement / Preventative Maintenance Plan		Page: 6 of 6

7.0 Plan Revisions

Permit to Install No. 103-09, Condition III.2. and MI-ROP-N5984-2019, FG-ICENGINE2, Condition III.2 specifies that:

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.

This Malfunction Abatement/Preventative Maintenance Plan will be:

1. Amended or modified if equipment or processes are added that are not covered under the Plan; or
2. Revised within 45 days of an event if the procedures described in this document do not adequately address any malfunction event that occurs at the facility.

Plan revisions will be documented using the revision history log (Appendix C) and submitted to the AQD District Supervisor as required by the Permit.

8.0 Appendices

The following documents and materials are included as part of this Malfunction Abatement/Preventative Maintenance Plan:

Appendix A: Daily Readings Form

Appendix B: Responsible Personnel Contact List

Appendix C: Malfunction Abatement/Preventative Maintenance Plan Revision History

Sumpter Energy Associates

APPENDIX A

DAILY READINGS FORM

**Sumpter Energy Associates, LLC @ Pine Tree Acres Landfill
Malfunction & Abatement Plan – Appendix A PHASE 2 Daily Readings Form**



Unit # /Serial #	EU-ICENGINE8 - GZJ00189		EU-ICENGINE9 – GJZ00609	
Gas Pressure	psi		psi	
JW Temp. Out / In °F	/		/	
Combustion Air Temp	°F		°F	
Gal. added to Make Up Tank				
Gal. Added to Engine				
Battery Charger: Amps/Volts	A:	V:	A:	V:
SCAC Temp. In / Out	/ °F		/ °F	
Crank Case Vent	FPM		FPM	
Engine Hours	HR		HR	
Megawatt Hrs.	MWH		MWH	
IAT (Intake Air Temp)	°F		°F	
Filtered Engine Oil Pressure	psi		psi	
Engine Oil Diff. Pressure	psi		psi	
Engine Coolant Pressure	psi		psi	
Engine Coolant Temp.	°F		°F	
Engine Oil Temp.	°F		°F	
Throttle Angle	%		%	
Generator KW Set Point	KW		KW	
Tie Screen Readings				
Volts:	V		Gas Readings	
Amps:	A		CH4	%
Total KW (Tie Meter Screen)	kW		CO2	%
KW Hr. Total	kWH		O2	%
Gas Flow Rate	scf/m		BTU	
Gas Flow Total	scf		Gas Head Psi.	Psi
Parasitic Load kW (Ion 6200)	kW		Gas Head Temp.	°F
Total Parasitic kWH (Ion)	kWH		H2S Readings	1.
				2.
				3.
Plant Conditions				
Air Compressor:	Run Hours:		System Psi:	
Plant Temp.:	°F		Ambient Temp. °F	
48 Volt Batteries	Amps:		Volts:	
Power Production				
Unit # 8 Kw		Phase 1 Total Kw		
Unit # 9 Kw		Phase 2 Total Kw		
Phase 2 Total Kw		PTA Total Kw		

Name: _____

Date: _____

Time: _____

Sumpter Energy Associates

APPENDIX B

RESPONSIBLE PERSONNEL CONTACT LIST

Responsible Personnel Contact List

Employee Name	Position / Title	Contact Number
Matt Strine	PGD Plant Manager	(484) 387-9820
Josh Wrubel	PGD Operations Leader	(810) 689-8316
Nicholas Visga	PGD Operations Specialist	(810) 956-3724
Ed Werkheiser	PGD Environmental Specialist	(484) 294-8253

Sumpter Energy Associates

APPENDIX C

MALFUNCTION ABATEMENT/PREVENTATIVE MAINTENANCE PLAN REVISION HISTORY

Sumpter Energy Associates

Malfunction Abatement/Preventative Maintenance Plan Revision History

This Plan will be amended if equipment or processes are added that are not covered under the plan or will be revised within 45 days of non-conforming events if the procedures described herein do not adequately address any malfunction or start- up/shutdown events that occur at the facility. A copy of the original plan and all revisions/addendums will be kept on file at the facility for at least five (5) years.

Date of Revision	Reason For Revision
2/15/2010	Initial draft of the Malfunction Abatement/Preventative Maintenance Plan
12/7/2017	Responsible Personnel Contact List updates
09/14/2023	Referenced current ROP number, updated Appendix A – Daily Readings Sheet, Appendix B contact list, and updated plant personnel titles. General technical / engine operations & maintenance information was not revised and is still appropriate as per the revised Plan.



UPS Tracking No.: 1Z82F3F50325053918

October 13, 2022

EGLE - Air Quality Division
Grand Rapids District Office
350 Ottawa Ave NW
Grand Rapids, MI 49503

Subject: Sumpter Energy Associates, ROP minor modification application submittal
Pine Tree Acres Landfill

Enclosed please find completed Renewable Operating Permit (ROP) modification application forms for the Sumpter Energy Associates facility at the Pine Tree Acres Landfill (SRN: N5984, Section 02 of MI-ROP-N5984-2019).

Impact Compliance and Testing, Inc. is submitting, on behalf of Sumpter Energy Associates (SEA), this ROP modification application to support the issuance of a ROP with modified monitoring and recordkeeping conditions at the SEA Pine Tree Acres Landfill facility located in Lennox Township, Macomb County, Michigan.

The documents were prepared under the supervision of Mr. Ed Werkheiser, Senior Asset Manager for SEA.

Please contact Andy Rusnak at (517) 481-3283 or andy.rusnak@impactcandt.com or Kate Henry at (734) 464-4834 or kate.henry@impactcandt.com to address any issues relating to the application.

Sincerely,

Impact Compliance & Testing, Inc.

A handwritten signature in black ink, appearing to read "Andy Rusnak".

Andy Rusnak
Technical Manager

A handwritten signature in black ink, appearing to read "Kate Henry".

Kate Henry
Environmental Consultant

October 13, 2022 ☐

Page 2
October 13, 2022

Enclosure: M-001/C-001/AI-001 forms
Marked-up ROP pages

cc:



**RENEWABLE OPERATING PERMIT APPLICATION
C-001: CERTIFICATION**

This information is required by Article II, Chapter 1, part 55 (Air Pollution Control) of P.A. 451 of 1994, as amended, and the Federal Clean Air Act of 1990. Failure to provide this information may result in civil and/or criminal penalties. Please type or print clearly.

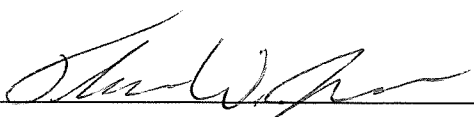
This form is completed and included as part of Renewable Operating Permit (ROP) initial and renewal applications, notifications of change, amendments, modifications, and additional information.

Form Type C-001	SRN N5984
-----------------	-----------

Stationary Source Name Sumpter Energy Associates at the Pine Tree Acres Landfill	
City Lennox Township	County Macomb

SUBMITTAL CERTIFICATION INFORMATION	
1. Type of Submittal <i>Check only one box.</i>	
<input type="checkbox"/> Initial Application (Rule 210)	<input checked="" type="checkbox"/> Notification / Administrative Amendment / Modification (Rules 215/216)
<input type="checkbox"/> Renewal (Rule 210)	<input type="checkbox"/> Other, describe on AI-001
2. If this ROP has more than one Section, list the Section(s) that this Certification applies to <u>02</u>	
3. Submittal Media <input checked="" type="checkbox"/> E-mail <input type="checkbox"/> FTP <input type="checkbox"/> Disk <input checked="" type="checkbox"/> Paper	
4. Operator's Additional Information ID - Create an Additional Information (AI) ID that is used to provide supplemental information on AI-001 regarding a submittal.	
AI	

CONTACT INFORMATION	
Contact Name Ed Werkheiser	Title Sr. Asset Manager - Compliance
Phone number 484-294-8253	E-mail address ewerkheiser@eppservice.com

This form must be signed and dated by a Responsible Official.				
Responsible Official Name Thomas Judge			Title Sr. Vice President	
Mailing address 1605 N. Cedar Crest Blvd., Suite 509				
City Allentown	State PA	ZIP Code 18104	County Lehigh	Country USA
As a Responsible Official, I certify that, based on information and belief formed after reasonable inquiry, the statements and information in this submittal are true, accurate and complete.				
 _____ Signature of Responsible Official			<u>9/23/2022</u> _____ Date	



RENEWABLE OPERATING PERMIT M-001: RULE 215 CHANGE NOTIFICATION RULE 216 AMENDMENT/MODIFICATION APPLICATION

This information is required by Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, and the Federal Clean Air Act of 1990. Failure to obtain a permit required by Part 55 may result in penalties and/or imprisonment.

1. SRN N5984	2. ROP Number N5984-2019	3. County Macomb
4. Stationary Source Name Sumpster Energy Associates at the Pine Tree Acres Landfill		
5. Location Address 36450 29 Mile Road		6. City Lennox
<p>7. Submittal Type - <i>The submittal must meet the criteria for the box checked below. Check only one box. Attach a mark-up of the affected ROP pages for applications for Rule 216 changes.</i></p> <p><input type="checkbox"/> Rule 215(1) Notification of change. Complete Items 8 – 10 and 14</p> <p><input type="checkbox"/> Rule 215(2) Notification of change. Complete Items 8 – 10 and 14</p> <p><input type="checkbox"/> Rule 215(3) Notification of change. Complete Items 8 – 11 and 14</p> <p><input type="checkbox"/> Rule 215(5) Notification of change. Complete Items 8 – 10 and 14</p> <p><input type="checkbox"/> Rule 216(1)(a)(i)-(iv) Administrative Amendment. Complete Items 8 – 10 and 14</p> <p><input type="checkbox"/> Rule 216(1)(a)(v) Administrative Amendment. Complete Items 8 – 14. Results of testing, monitoring & recordkeeping must be submitted. See detailed instructions.</p> <p><input checked="" type="checkbox"/> Rule 216(2) Minor Modification. Complete Items 8 – 12 and 14</p> <p><input type="checkbox"/> Rule 216(3) Significant Modification. Complete Items 8 – 12 and 14, and provide any additional information needed on ROP application forms. See detailed instructions.</p> <p><input type="checkbox"/> Rule 216(4) State-Only Modification. Complete Items 8 – 12 and 14</p>		
8. Effective date of the change. (MM/DD/YYYY) <i>See detailed instructions.</i> 09/21/2022		9. Change in emissions? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<p>10. Description of Change - <i>Describe any changes or additions to the ROP, including any changes in emissions and/or pollutants that will occur. If additional space is needed, complete an Additional Information form (AI-001).</i></p> <p>SEA is requesting SC Nos. VI.4. and 5. for FG-ENGINES be removed from the permit. See AI-001 for additional information.</p>		
<p>11. New Source Review Permit(s) to Install (PTI) associated with this application? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>If Yes, enter the PTI Number(s) _____ - _____ - _____ - _____ - _____</p>		
<p>12. Compliance Status - <i>A narrative compliance plan, including a schedule for compliance, must be submitted using an AI-001 if any of the following are checked No.</i></p> <p>a. Is the change identified above in compliance with the associated applicable requirement(s)? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>b. Will the change identified above continue to be in compliance with the associated applicable requirement(s)? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>c. If the change includes a future applicable requirement(s), will timely compliance be achieved? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>		
13. Operator's Additional Information ID - <i>Create an Additional Information (AI) ID for the associated AI-001 form used to provide supplemental information.</i>		AI 001
14. Contact Name Ed Werkheiser	Telephone No. 484-294-8253	E-mail Address ewerkheiser@eppservice.com
15. This submittal also updates the ROP renewal application submitted on ____/____/____ <input type="checkbox"/> Yes <input checked="" type="checkbox"/> N/A <i>(If yes, a mark-up of the affected pages of the ROP must be attached.)</i>		

NOTE: A CERTIFICATION FORM (C-001) SIGNED BY A RESPONSIBLE OFFICIAL MUST ACCOMPANY ALL SUBMITTALS

For Assistance
Contact: 800-662-9278

www.michigan.gov/egle

EQP 5775 (Rev.04-2019)



RENEWABLE OPERATING PERMIT APPLICATION

AI-001: ADDITIONAL INFORMATION

This information is required by Article II, Chapter 1, Part 55 (Air Pollution Control) of P.A. 451 of 1994, as amended, and the Federal Clean Air Act of 1990. Failure to obtain a permit required by Part 55 may result in penalties and/or imprisonment. Please type or print clearly. Refer to instructions for additional information to complete this form.

SRN: N5984	Section Number (if applicable): 02
------------	------------------------------------

1. Additional Information ID AI-001

Additional Information

2. Is This Information Confidential? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

SEA is requesting SC Nos. VI.4. and 5. for FG-ENGINES be removed from the permit.

The purpose of these monitoring and recordkeeping requirements is to provide a means of demonstrating ongoing compliance with the NOx emission limit. Experience of SEA operators has determined that measurement of the temperature of the air/fuel mixture at the aftercooler is not a good indicator of compliance with the NOx emission limit.

A review of more recent air permits (when compared to the initial date of issuance of the SEA air permit) issued by EGLE-AQD for facilities operating similar equipment (LFG fueled CAT® Model G3516 RICE) reveals that EGLE-AQD no longer issues air permits that require air/fuel mixture temperature recordkeeping/monitoring for LFG fueled RICE. The more recent issued permits do not have any monitoring/recordkeeping conditions related to ongoing NOx compliance.

SEA is proposing that the following monitoring and recordkeeping condition be added to the permit to replace SC VI.4. and 5:

The permittee shall maintain records of all information necessary for all notifications and reports for each engine in FG-ENGINES, as specified in these special conditions as well as that information necessary to demonstrate compliance with the emission limits of the 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 BTU 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.

Additional marked up ROP pages showing the deleted recordkeeping conditions are attached.

Section 2 – Sumpter Energy Associates, LLC

ROP No: MI-ROP-N5984-2019

Expiration Date: July 30, 2024

PTI No: MI-PTI-N5984-2019

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.

The permittee must submit 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)**

2. The permittee shall determine, by sampling on an annual basis, the chlorine compounds present in the landfill gas (LFG) stream influent to FG-ENGINES. Sampling shall be done by Method 18, or alternate method as approved by the AQD District Supervisor. No less than 30 days prior to testing, the permittee shall submit a complete sampling plan to the AQD Technical Programs Unit and District Office. The AQD must approve the final plan prior to sampling, 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 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)**
3. Within 180 days of permit issuance or five years from the last test date, whichever is later, and then every five years thereafter, the permittee shall verify the NO_x, CO, HCl and NMOC emission rates from each engine in FG-ENGINES. **(R 336.1213(3), R 336.2001, R 336.2003, R 336.2004)**
4. The permittee shall notify the AQD Technical Programs Unit Supervisor and the District Supervisor not less than 30 days of the time and place before performance tests are conducted. **(R 336.1213(3))**

See Appendix 7-2

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 continuously monitor and record the following parameters:
 - a. Electrical output (KW) of each generator driven by each internal combustion engine.
 - b. Hours of operation of each generator driven by each internal combustion engine.²
 - c. Total flow of landfill gas to FG-ENGINES (HCl compliance).

The permittee shall use the equations and emission factors as specified in Appendix 7-2 to calculate the emissions of CO, NO_x, HCl, and NMOC for each engine. Records of the monitored parameters and calculations shall be kept on file and made available to the Department upon request.² **(R 336.1224, R 336.1225, R 336.1702(a), 40 CFR 52.21(c) & (d))**

2. The permittee shall measure and record the heating value of the landfill gas used as fuel in the ICEs on a weekly basis (for HCl compliance). **(R 336.1213(3))**
3. The permittee shall keep a written record of the chlorinated compound content of the LFG as determined in the most recent sampling and analysis. **(R 336.1213(3))**
4. ~~The permittee shall monitor and record the temperature of the air/fuel mixture at the after cooler outlet a minimum of once per day, excluding holidays and weekends, when an engine operator is not scheduled or called in, to be on site. A list of excluded holidays shall be maintained on site and be made available to the Air Quality Division upon request. **(R 336.1213(3))**~~
5. ~~The permittee shall record and report as a deviation any air/fuel mixture temperature reading greater than five degrees Fahrenheit in excess of the maximum air/fuel mixture temperature observed during the performance test in which compliance with the NO_x emission limit was established. **(R 336.1213(3))**~~
6. The permittee shall maintain a monthly log of all maintenance activities conducted on each engine in FG-ENGINES, including but not limited to the following: daily maintenance activities, top-end repairs, major overhauls, and engine replacements. **(R 336.1213(3))**



September 18, 2023

State of Michigan
Department of Environment, Great Lakes, and Energy
Southeast Michigan District – Air Quality Division
27700 Donald Court
Warren, MI 48092-2793

**RE: Sumpter Energy Associates, LLC – Pine Tree Acres Landfill
ROP No.: MI-ROP-N5984-2019 / SRN No.: N5984
Revised Sulfur Monitoring & Emissions Curtailment Plan**

Dear EGLE Southeast Michigan District Office AQ Division:

Sumpter Energy Associates (SEA) is submitting to the Michigan Department of Environmental Quality, Air Quality Division (MDEQ-AQD) a revised Sulfur Monitoring and Emission Curtailment Plan for its landfill gas-to-energy facility located at the Pine Tree Acres Landfill in Lenox Twp., Macomb County (SRN N5984). Upon MDEQ-AQD approval, this revised plan will replace an earlier version of the plan that was submitted to the regulatory agency in a correspondence dated November 13, 2014 (enclosed).

Background:

Following the issuance of a Notice of Violation relative to potential SO₂ emission exceedances in 2012, the MDEQ-AQD requested that Sumpter Energy:

1. Continue to conduct monthly sulfur monitoring through December 2013, and submit the results of the monitoring, along with the SO₂ emission calculations, within 7 days of the monitoring event.
2. Explain how operations will be curtailed during periods when there is a high concentration of H₂S in the treated landfill gas (LFG) fuel stream.

In a correspondence dated January 4, 2013, SEA provided a plan to address the issues above. After further monitoring, the revised November 13, 2014 plan was submitted and later approved by EGLE. Since the submittal of the November 13, 2014 plan, a considerable amount of LFG sulfur content and facility operational data have been collected. Monthly H₂S and SO₂ emissions data is submitted to EGLE monthly as per the conditions of the ROP.

The SO₂ emissions reference sheet that was developed and submitted to EGLE in the November 13, 2014 plan update is still valid and is being used to determine when it is necessary to curtail engine operations to make sure the facility does not exceed the 7.5 lb/hr SO₂ limit.

I. Current Treated LFG Sulfur Monitoring & Curtailment Plan / Implementation

In general, SEA has been performing landfill gas (LFG) sulfur content monitoring for its Phase II facility (FG-ICENGINE2) on a daily basis, above and beyond what is required by condition V.3 of ROP No. MI-ROP-N5984-2019 and identified in the previously submitted and approved Sulfur Monitoring & Curtailment Plan. The “reported” monthly LFG sulfur monitoring is typically performed the first Monday of each month. SEA, or its environmental contractor IMPACT Compliance & Testing provides this data to the EGLE District Office staff via email, as requested by EGLE, within seven (7) days of the monitoring event.

The submitted monthly data includes:

- Most recent LFG sulfur sampling result (ppmv sulfur in the LFG used at the Phase II facility).
- LFG flowrate (scfm) for FG-ICENGINE2 at the time of the LFG sampling event.
- Treated LFG throughput (FG-ICENGINE2 fuel use) for the previous month and calculated sulfur dioxide (SO₂) mass emission rate for the previous month.

Curtailing of Operations

In addition to the monthly monitoring required by condition V.3 of ROP No. MI-ROP- N5984-2019, Sumpter Energy monitors the LFG sulfur content on a:

- Weekly basis whenever the monthly H₂S level indicates a concentration of 500 ppmv or greater. **(NOTE: SEA has not recorded an H₂S concentration in excess of 500 ppmv since August 26, 2020 where one of the 3 monitored concentrations was 712 ppmv). The MAX value for CY 2021 = 333 ppmv / AVG = 235 ppmv, MAX value for CY 2022 = 468 ppmv / AVG = 294 ppmv and MAX value for CY 2023 YTD = 451 ppmv / AVG = 360 ppmv – See Attached data.**
- Daily basis whenever an H₂S concentration of 600 ppmv or greater is observed (during either the weekly or monthly monitoring events). **See Above NOTE.**

Once daily monitoring is triggered, SEA has performed monitoring at least once per day (excluding weekends and holidays) until the measured H₂S concentration returned to a value of less than 600 ppmv.

SEA has developed a spreadsheet to record the monthly, weekly and (if required) daily monitoring events. The following information has been recorded with each LFG H₂S measurement:

- LFG flowrate (scfm) for FG-ICENGINE2 at the time of the LFG sampling event.
- Gas totalizer reading (total accumulated scf) at the time of the LFG sampling event.

The attachment 2021 – 2023 sulfur monitoring data includes the reference sheet that was developed for SEA Phase II operations that correlates LFG sulfur content to allowed flowrate (i.e., the maximum allowable treated LFG fuel flowrate that results in SO₂ emissions that are less than the permit limit of 7.5 lb/hr). The reference sheet is based on the assumption that 100% of the fuel sulfur is converted to SO₂ exhaust gas emissions. Previous emissions testing performed at the facility verified that this is a conservative calculation technique (the measured SO₂ stack emissions are less than the theoretical SO₂ emission rate based on fuel sulfur monitoring results). The reference sheet has been used by the SEA Phase II operators to determine when to curtail engine operations. The grey shading on the reference sheet indicates an SO₂ emission rate of 7.44 lb/hr or greater when FG-ICENGINE2 operations will be curtailed to avoid exceeding the 7.5 lb/hr permit limit.

Information for any operations curtailment will also be provided to the MDEQ-AQD with the monthly monitoring results.

II. Proposed Treated LFG Sulfur Monitoring & Emission Curtailment Plan / Implementation

FG-ICENGINE2 Condition V.3 of MI-ROP-N5984-2019 reads as follows:

The permittee shall verify the hydrogen sulfide or total reduced sulfur content of the treated landfill gas burned in FG-ICENGINE2 on a monthly basis by gas sampling. In addition, as outlined in the sulfur monitoring and emission curtailment plan, gas sampling shall be verified on a weekly basis whenever the monthly hydrogen sulfide or total reduced sulfur content level indicates a concentration of 500 ppmv or greater, and on a daily basis whenever a hydrogen sulfide or total reduced sulfur content concentration of 600 ppmv is observed. Once daily monitoring is triggered, the permittee will perform monitoring at least once per day (excluding weekends and holidays) until the measured hydrogen sulfide or total reduced sulfur content returns to a value of less than 600 ppmv. If after a year, each of the monthly concentrations of the hydrogen sulfide or total reduced sulfur concentration of the landfill gas are below 500 ppm (TRS equivalent), the permittee may petition the District Supervisor, Air Quality Division to reduce the frequency of gas sampling and recording the hydrogen sulfide/total reduced sulfur concentration of the treated landfill gas to once each calendar quarter. If, after two calendar years of quarterly sampling, each of the quarterly concentrations of the hydrogen sulfide or total reduced sulfur concentration of the landfill gas are below 500 ppm (TRS equivalent), the permittee may petition the District Supervisor, Air Quality Division to reduce the frequency of gas sampling and recording the hydrogen sulfide/total reduced sulfur concentration of the treated landfill gas to once each calendar year. If at any time the concentration readings exceed 500 ppm (TRS equivalent), the permittee shall review all operating and maintenance activities for the landfill gas collection and treatment system along with keeping records of corrective actions. The permittee shall notify the Department at least seven (7) days prior to sampling. The permittee shall keep all records on file at the facility for a period of at least five years and make them available to the Department upon request. (R 336.1213(3))

SEA proposes to continue complying with the above permit condition and is petitioning the District to reduce the frequency of landfill gas sampling to annually. The attached sampling result data from CY 2020 through YTD 2023 is being provided to support this request. The maximum H₂S concentration over this 3+ year period was 417 ppm with an average of 282 ppm. These concentrations equate to a maximum 4.43 lb/hr with an average of 2.78 lb/hr SO₂ emissions factor – well within compliance with the 7.5 lb/hr SO₂ emissions limit. SEA will continue to implement the approved November 13, 2014 Plan if H₂S concentrations dictate. Sumpter Energy Associates proposes to perform the annual LFG sampling during the annual 40 CFR Part 60, Subpart JJJJ emissions testing of the FG-ICENGINE2 engines. Sampling will be performed by SEA plant employees using a calibrated hand-held device and via a grab sample of the LFG collected by the third-party environmental contractor performing the Subpart JJJJ emissions testing. The grab sample will be sent to a laboratory for analysis. Results of the in-house hand-held results will be provided to EGLE within 7-days of receipt. Results of the laboratory analysis will be provided to EGLE within 30-days of obtaining the sample (this schedule is contingent on the turn-around time of the laboratory performing the LFG sample analysis).

SEA appreciates the consideration by the MDEQ-AQD of the information presented in this correspondence and looks forward to its concurrence with the proposed, revised monitoring and emission curtailment plan.

If you require additional information or have any questions regarding this request, please feel free to contact me at: (484) 294-8253 or email at edward.werkheiser@nexteraenergy.com.

Sincerely,

Edward J. Werkheiser

Ed Werkheiser
PGD Principal Environmental Specialist

Attachments:

- 1) November 13, 2014 Treated LFG Sulfur Monitoring & Emission Curtailment Plan
- 2) Supporting H₂S Concentration and SO₂lb/hr Data (CY 2020 – YTD 2023)

Cc: (via emailed pdf)

Kate Henry	IMPACT C&T
Josh Wrubel	NEER (PGD-Operations)
Ed Wentling	NEER (Technical Services)
File	

Attachment 1

~

Sumpter Energy Associates @
Pine Tree Acres Landfill
November 13, 2014
Sulfur Monitoring & Emissions Curtailment Plan

SUMPTER ENERGY ASSOCIATES

46280 DYLAN DRIVE • SUITE 200 • NOVI, MI 48377 • (248) 380-3920

November 13, 2014

Ms. Rebecca Loftus
Environmental Quality Analyst
MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
Air Quality Division
27700 Donald Court
Warren, MI 48092-2793

Subject: Revised Sulfur Monitoring and Emission Curtailment Plan
Sumpter Energy Associates at the Pine Tree Acres Landfill
State Registration No. N8004

Dear Ms. Loftus:

Sumpter Energy Associates (Sumpter Energy) is submitting to the Michigan Department of Environmental Quality, Air Quality Division (MDEQ-AQD) a revised Sulfur Monitoring and Emission Curtailment Plan for its landfill gas-to-energy facility located at the Pine Tree Acres Landfill in Lenox Twp., Macomb County (SRN N8004). Upon MDEQ-AQD approval, this revised plan will replace an earlier version of the plan that was submitted to the regulatory agency in a correspondence dated January 4, 2013.

Background

Following the issuance of a Notice of Violation relative to potential SO₂ emission exceedances in 2012, the MDEQ-AQD requested that Sumpter Energy:

1. Continue to conduct monthly sulfur monitoring through December 2013, and submit the results of the monitoring, along with the SO₂ emission calculations, within 7 days of the monitoring event.
2. Explain how operations will be curtailed during periods when there is a high concentration of H₂S in the treated landfill gas (LFG) fuel stream.

In a correspondence dated January 4, 2013, Sumpter Energy provided a plan to address the issues above. A considerable amount of LFG sulfur content and facility operational data have been collected since implementing the plan in early 2013. Based on this information, Sumpter Energy has reevaluated the approach that was originally developed for curtailing engine operations during periods of high LFG sulfur content. The initial approach (submitted plan) was based on a conservative scenario that has resulted in several engine curtailment events that may have been unnecessary (engine operations were curtailed while the SO₂ emission rate was well below the 7.5 pounds per hour permit limit).

These engine curtailment events result in the reduction of renewable energy production and lost revenues and do not reduce the overall SO₂ emission rate. During the engine curtailment period the LFG that would've been used as fuel is directed to the LFG flares, which emit the same amount of SO₂ per volume of fuel combusted as the renewable energy (engine) facility.

Following a review of the collected data, Sumpter Energy has developed a more comprehensive SO₂ emissions reference sheet that will be used to determine when it is appropriate to curtail engine operations.

Treated LFG Sulfur Monitoring

The treated LFG sulfur content monitoring procedures remain unchanged from the originally submitted plan and have been updated for consistency with the Renewable Operating Permit conditions contained in ROP No. MI-ROP-N8004-2013.

In general, Sumpter Energy is required to perform landfill gas (LFG) sulfur content monitoring for its Phase II facility (FGICENGINE2) on a monthly basis as required by condition V.2 of ROP No. MI-ROP-N8004-2013.

The monthly LFG sulfur monitoring is typically performed the first Monday of each month. Sumpter Energy, or its environmental contractor Derenzo and Associates, notifies the MDEQ-AQD of its sampling schedule at least seven days in advance of the planned monitoring date.

The MDEQ-AQD has requested that Sumpter Energy submit the monitoring results, along with the SO₂ emission calculations, within (7) days of the monitoring event. Therefore, within seven (7) days of completing the scheduled monthly monitoring event, Sumpter Energy (or Derenzo and Associates, Inc.) will submit to the MDEQ-AQD via electronic mail the:

- Most recent LFG sulfur sampling result (ppmv sulfur in the LFG used at the Phase II facility).
- LFG flowrate (scfm) for FGICENGINE2 at the time of the LFG sampling event.
- Treated LFG throughput (FGICENGINE2 fuel use) for the previous month and calculated sulfur dioxide (SO₂) mass emission rate for the previous month.

Curtailing of Operations

In addition to the monthly monitoring required by condition V.2 of ROP No. MI-ROP-N8004-2013, Sumpter Energy will monitor the LFG sulfur content, as required by the ROP No. MI-ROP-N8004-2013 Appendix 2 schedule of compliance, on a:

- Weekly basis whenever the monthly H₂S level indicates a concentration of 500 ppmv or greater.
- Daily basis whenever an H₂S concentration of 600 ppmv or greater is observed (during either the weekly or monthly monitoring events).

Once daily monitoring is triggered, Sumpter Energy will perform monitoring at least once per day (excluding weekends and holidays) until the measured H₂S concentration returns to a value of less than 600 ppmv.

Sumpter Energy has developed a spreadsheet to record the monthly, weekly and (if required) daily monitoring events. The following information will be recorded with each LFG H₂S measurement:

- LFG flowrate (scfm) for FGICENGINE2 at the time of the LFG sampling event.
- Gas totalizer reading (total accumulated scf) at the time of the LFG sampling event.

The Attachment provides a reference sheet that has been developed for Sumpter Energy Phase II operations that correlates LFG sulfur content to allowed flowrate (i.e., the maximum allowable treated LFG fuel flowrate that results in SO₂ emissions that are less than the permit limit of 7.5 lb/hr). The reference sheet is based on the assumption that 100% of the fuel sulfur is converted to SO₂ exhaust gas emissions. Recent stack testing performed at the facility verifies that this is a conservative calculation technique (the measured SO₂ stack emissions are less than the theoretical SO₂ emission rate based on fuel sulfur monitoring results). The attached reference sheet will be used by the Sumpter Energy Phase II operators to determine when to curtail engine operations. The grey shading on the reference sheet indicates an SO₂ emission rate of 7.44 lb/hr or greater when operations will be curtailed to avoid exceeding the 7.5 lb/hr permit limit.

The revised SO₂ emission reference sheet attached to this correspondence establishes an allowed operating envelope for the facility (combinations of fuel flowrate and fuel sulfur content). The previously submitted SO₂ emission reference sheet was based on an assumed LFG fuel consumption rate for both engines, which, based on actual data collected with the fuel sulfur monitoring data, is greater than normal operations. At times, this resulted in a requirement to curtail engine operations even when the actual SO₂ emission rate (lb/hr) was well below the permit allowed SO₂ emission rate.

Information for any operations curtailment will also be provided to the MDEQ-AQD with the monthly monitoring results.

Sumpter Energy Associates appreciates the consideration by the MDEQ-AQD of the information presented in this correspondence and looks forward to its concurrence with the proposed, revised monitoring and emission curtailment plan.

Please contact us at (248) 380-3920 if you have any questions or require additional information.

Sincerely,

SUMPTER ENERGY ASSOCIATES, LLC

Dennis Plaster
Vice President of Operations

Sumpter Energy Pine Tree Acres Phase II

SO₂ Emission Reference Sheet (lb/hr SO₂ for corresponding sulfur content and flowrate)

Sulfur (ppmv)	SO ₂ Rate (lb/MMcf)	950 (scfm)	960 (scfm)	970 (scfm)	980 (scfm)	990 (scfm)	1000 (scfm)	1010 (scfm)	1020 (scfm)	1030 (scfm)	1040 (scfm)	1050 (scfm)	1060 (scfm)	1070 (scfm)	1080 (scfm)	1090 (scfm)	1100 (scfm)	1110 (scfm)	1120 (scfm)	1130 (scfm)	1140 (scfm)	1150 (scfm)	1160 (scfm)	1170 (scfm)	1180 (scfm)	1190 (scfm)	1200 (scfm)	1210 (scfm)
500	83.2	4.74	4.79	4.84	4.89	4.94	4.99	5.04	5.09	5.14	5.19	5.24	5.29	5.34	5.39	5.44	5.49	5.54	5.59	5.64	5.69	5.74	5.79	5.84	5.89	5.94	5.99	6.04
505	84.0	4.79	4.84	4.89	4.94	4.99	5.04	5.09	5.14	5.19	5.24	5.29	5.34	5.39	5.44	5.50	5.55	5.60	5.65	5.70	5.75	5.80	5.85	5.90	5.95	6.00	6.05	6.10
510	84.9	4.84	4.89	4.94	4.99	5.04	5.09	5.14	5.19	5.24	5.30	5.35	5.40	5.45	5.50	5.55	5.60	5.65	5.70	5.75	5.80	5.86	5.91	5.96	6.01	6.06	6.11	6.16
515	85.7	4.88	4.94	4.99	5.04	5.09	5.14	5.19	5.24	5.30	5.35	5.40	5.45	5.50	5.55	5.60	5.66	5.71	5.76	5.81	5.86	5.91	5.96	6.02	6.07	6.12	6.17	6.22
520	86.5	4.93	4.98	5.04	5.09	5.14	5.19	5.24	5.30	5.35	5.40	5.45	5.50	5.55	5.61	5.66	5.71	5.76	5.81	5.87	5.92	5.97	6.02	6.07	6.13	6.18	6.23	6.28
525	87.4	4.98	5.03	5.08	5.14	5.19	5.24	5.29	5.35	5.40	5.45	5.50	5.56	5.61	5.66	5.71	5.77	5.82	5.87	5.92	5.98	6.03	6.08	6.13	6.18	6.24	6.29	6.34
530	88.2	5.03	5.08	5.13	5.19	5.24	5.29	5.34	5.40	5.45	5.50	5.56	5.61	5.66	5.71	5.77	5.82	5.87	5.93	5.98	6.04	6.08	6.14	6.19	6.24	6.30	6.35	6.40
535	89.0	5.07	5.13	5.18	5.23	5.29	5.34	5.39	5.45	5.50	5.55	5.61	5.66	5.71	5.77	5.82	5.88	5.93	5.98	6.04	6.09	6.14	6.20	6.25	6.30	6.36	6.41	6.46
540	89.9	5.12	5.18	5.23	5.28	5.34	5.39	5.44	5.50	5.55	5.61	5.66	5.71	5.77	5.82	5.88	5.93	5.98	6.04	6.09	6.15	6.20	6.25	6.31	6.36	6.42	6.47	6.52
545	90.7	5.17	5.22	5.28	5.33	5.39	5.44	5.50	5.55	5.60	5.66	5.71	5.77	5.82	5.88	5.93	5.99	6.04	6.09	6.15	6.20	6.26	6.31	6.37	6.42	6.47	6.53	6.58
550	91.5	5.22	5.27	5.33	5.38	5.44	5.49	5.55	5.60	5.66	5.71	5.77	5.82	5.88	5.93	5.99	6.04	6.09	6.15	6.20	6.26	6.31	6.37	6.42	6.48	6.53	6.59	6.64
555	92.3	5.26	5.32	5.37	5.43	5.49	5.54	5.60	5.65	5.71	5.76	5.82	5.87	5.93	5.98	6.04	6.09	6.15	6.21	6.26	6.32	6.37	6.43	6.48	6.54	6.59	6.65	6.70
560	93.2	5.31	5.37	5.42	5.48	5.53	5.59	5.65	5.70	5.76	5.81	5.87	5.93	5.98	6.04	6.09	6.15	6.21	6.26	6.32	6.37	6.43	6.49	6.54	6.60	6.66	6.71	6.76
565	94.0	5.36	5.41	5.47	5.53	5.58	5.64	5.70	5.75	5.81	5.87	5.92	5.98	6.04	6.09	6.15	6.20	6.26	6.32	6.37	6.43	6.49	6.54	6.60	6.66	6.71	6.77	6.83
570	94.8	5.41	5.46	5.52	5.58	5.63	5.69	5.75	5.80	5.86	5.92	5.98	6.03	6.09	6.15	6.20	6.26	6.32	6.37	6.43	6.49	6.54	6.60	6.66	6.71	6.77	6.83	6.89
575	95.7	5.45	5.51	5.57	5.63	5.68	5.74	5.80	5.86	5.91	5.97	6.03	6.08	6.14	6.20	6.26	6.31	6.37	6.43	6.49	6.54	6.60	6.66	6.72	6.77	6.83	6.89	6.95
580	96.5	5.50	5.56	5.62	5.67	5.73	5.79	5.85	5.91	5.96	6.02	6.08	6.14	6.20	6.25	6.31	6.37	6.43	6.49	6.54	6.60	6.66	6.72	6.77	6.83	6.89	6.95	7.01
585	97.3	5.55	5.61	5.67	5.72	5.78	5.84	5.90	5.96	6.02	6.07	6.13	6.19	6.25	6.31	6.37	6.42	6.48	6.54	6.60	6.66	6.72	6.77	6.83	6.89	6.95	7.01	7.07
590	98.2	5.60	5.65	5.71	5.77	5.83	5.89	5.95	6.01	6.07	6.13	6.18	6.24	6.30	6.36	6.42	6.48	6.54	6.60	6.66	6.71	6.77	6.83	6.89	6.95	7.01	7.07	7.13
595	99.0	5.64	5.70	5.76	5.82	5.88	5.94	6.00	6.06	6.12	6.18	6.24	6.30	6.36	6.42	6.47	6.53	6.59	6.65	6.71	6.77	6.83	6.89	6.95	7.01	7.07	7.13	7.19
600	99.8	5.69	5.75	5.81	5.87	5.93	5.99	6.05	6.11	6.17	6.23	6.29	6.35	6.41	6.47	6.53	6.59	6.65	6.71	6.77	6.83	6.89	6.95	7.01	7.07	7.13	7.19	7.25
605	100.7	5.74	5.80	5.86	5.92	5.98	6.04	6.10	6.16	6.22	6.28	6.34	6.40	6.46	6.52	6.58	6.64	6.70	6.76	6.83	6.89	6.95	7.01	7.07	7.13	7.19	7.25	7.31
610	101.5	5.79	5.85	5.91	5.97	6.03	6.09	6.15	6.21	6.27	6.33	6.39	6.46	6.52	6.58	6.64	6.70	6.76	6.82	6.88	6.94	7.00	7.06	7.13	7.19	7.25	7.31	7.37
615	102.3	5.83	5.89	5.96	6.02	6.08	6.14	6.20	6.26	6.32	6.39	6.45	6.51	6.57	6.63	6.69	6.75	6.82	6.88	6.94	7.00	7.06	7.12	7.18	7.24	7.31	7.37	7.43
620	103.2	5.88	5.94	6.00	6.07	6.13	6.19	6.25	6.31	6.38	6.44	6.50	6.56	6.62	6.68	6.75	6.81	6.87	6.93	6.99	7.06	7.12	7.18	7.24	7.30	7.37	7.43	7.49
625	104.0	5.93	5.99	6.05	6.11	6.18	6.24	6.30	6.36	6.43	6.49	6.55	6.61	6.68	6.74	6.80	6.86	6.93	6.99	7.05	7.11	7.18	7.24	7.30	7.36	7.43	7.49	7.55
630	104.8	5.98	6.04	6.10	6.16	6.23	6.29	6.35	6.42	6.48	6.54	6.60	6.67	6.73	6.79	6.86	6.92	6.98	7.04	7.11	7.17	7.23	7.30	7.36	7.42	7.48	7.55	7.61
635	105.7	6.02	6.09	6.15	6.21	6.28	6.34	6.40	6.47	6.53	6.59	6.66	6.72	6.78	6.85	6.91	6.97	7.04	7.10	7.16	7.23	7.29	7.35	7.42	7.48	7.54	7.61	7.67
640	106.5	6.07	6.13	6.20	6.26	6.33	6.39	6.45	6.52	6.58	6.64	6.71	6.77	6.84	6.90	6.96	7.03	7.09	7.16	7.22	7.28	7.35	7.41	7.48	7.54	7.60	7.67	7.73
645	107.3	6.12	6.18	6.25	6.31	6.37	6.44	6.50	6.57	6.63	6.70	6.76	6.83	6.89	6.95	7.02	7.08	7.15	7.21	7.28	7.34	7.41	7.47	7.53	7.60	7.66	7.73	7.79
650	108.2	6.16	6.23	6.29	6.36	6.42	6.49	6.55	6.62	6.68	6.75	6.81	6.88	6.94	7.01	7.07	7.14	7.20	7.27	7.33	7.40	7.46	7.53	7.59	7.66	7.72	7.79	7.85
655	109.0	6.21	6.28	6.34	6.41	6.47	6.54	6.60	6.67	6.74	6.80	6.87	6.93	7.00	7.06	7.13	7.19	7.26	7.32	7.39	7.45	7.52	7.59	7.65	7.72	7.78	7.85	7.91
660	109.8	6.26	6.33	6.39	6.46	6.52	6.59	6.65	6.72	6.79	6.85	6.92	6.98	7.05	7.12	7.18	7.25	7.31	7.38	7.45	7.51	7.58	7.64	7.71	7.78	7.84	7.91	7.97
665	110.6	6.31	6.37	6.44	6.51	6.57	6.64	6.71	6.77	6.84	6.90	6.97	7.04	7.10	7.17	7.24	7.30	7.37	7.44	7.50	7.57	7.63	7.70	7.77	7.83	7.90	7.97	8.03
670	111.5	6.35	6.42	6.49	6.56	6.62	6.69	6.76	6.82	6.89	6.96	7.02	7.09	7.16	7.22	7.29	7.36	7.42	7.49	7.56	7.63	7.69	7.76	7.83	7.89	7.96	8.03	8.09
675	112.3	6.40	6.47	6.54	6.60	6.67	6.74	6.81	6.87	6.94	7.01	7.08	7.14	7.21	7.28	7.35	7.41	7.48	7.55	7.61	7.68	7.75	7.82	7.88	7.95	8.02	8.09	8.15
680	113.1	6.45	6.52	6.59	6.65	6.72	6.79	6.86	6.92	6.99	7.06	7.13	7.20	7.26	7.33	7.40	7.47	7.54	7.60	7.67	7.74	7.81	7.87	7.94	8.01	8.08	8.15	8.21
685	114.0	6.50	6.57	6.63	6.70	6.77	6.84	6.91	6.98	7.04	7.11	7.18	7.25	7.32	7.39	7.45	7.52	7.59	7.66	7.73	7.80	7.86	7.93	8.00	8.07	8.14	8.21	8.27
690	114.8	6.54	6.61	6.68	6.75	6.82	6.89	6.96	7.03	7.10	7.16	7.23	7.30	7.37	7.44	7.51	7.58	7.65	7.72	7.78	7.85	7.92	7.99	8.06	8.13	8.20	8.27	8.34
695	115.6	6.59	6.66	6.73	6.80	6.87	6.94	7.01	7.08	7.15	7.22	7.29	7.35	7.42	7.49	7.56	7.63	7.70	7.77	7.84	7.91	7.98	8.05	8.12	8.19	8.26	8.33	8.40
700	116.5	6.64	6.71	6.78	6.85	6.92	6.99	7.06	7.13	7.20	7.27	7.34	7.41	7.48	7.55	7.62	7.69	7.76	7.83	7.90	7.97	8.04	8.11	8.18	8.25	8.32	8.39	8.46
705	117.3	6.69	6.76	6.83	6.90	6.97	7.04	7.11	7.18	7.25	7.32	7.39	7.46	7.53	7.60	7.67	7.74	7.81	7.88	7.95	8.02	8.09	8.16	8.23	8.31	8.38	8.45	8.52
710	118.1	6.73	6.80	6.88	6.95	7.02	7.09	7.16	7.23	7.30	7.37	7.44	7.51	7.58	7.66	7.73	7.80	7.87	7.94	8.01	8.08	8.15	8.22	8.29	8.36	8.43	8.51	8.58
715	119.0	6.78	6.85	6.92	7.00	7.07	7.14	7.21	7.28	7.35	7.42	7.50	7.57	7.64	7.71	7.78	7.85	7.92	7.99	8.07	8.14	8.21	8.28	8.35	8.42	8.49	8.57	8.64
720	119.8	6.83	6.90	6.97	7.04	7.12	7.19	7.26	7.33	7.40	7.48	7.55	7.62	7.69	7.76	7.83	7.											

Attachment 2

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Supporting H₂S Concentration &
SO₂ lb/hr Data (CY 2020 – YTD 2023)

Attachment 2 - H2S SO2 Data

Sample Date	Zero Check with Ambient Air (ppm)	Calibration Gas Concentration (ppm)	Pre-Test Calibration (ppm)	H ₂ S Test 1 (ppm)	H ₂ S Test 2 (ppm)	H ₂ S Test 3 (ppm)	H ₂ S Test 1 Adjusted for Calibration Bias (ppm)	H ₂ S Test 2 Adjusted for Calibration Bias (ppm)	H ₂ S Test 3 Adjusted for Calibration Bias (ppm)	Recorded Initial 3-Test Avg. Sampling Result (ppm Sulfur)	Average Sampling Result for Month (ppmv Sulfur)	SO ₂ Emission Factor (lb/MMCF)	SO ₂ Emissions (lbs/month)	SO ₂ Emissions (lbs/hour)	SO ₂ Emissions Rolling 12-Months (tons/yr)	12-month period
01/06/20	0.0	496	496	304	305	306	304	305	306	305	326	54.2	2,143	2.89	15.24	Feb 19 - Jan 20
02/03/20	0.0	496	496	322	322	322	322	322	322	322	314	52.3	1,999	2.89	14.79	Mar 19 - Feb 20
03/01/20	0.0	496	496	299	299	299	299	299	299	299	288	48.0	2,152	2.93	14.48	Apr 19 - Mar 20
04/06/20	0.0	496	496	216	218	218	216	218	218	217	245	40.7	1,758	2.45	13.89	May 19 - Apr 20
05/04/20	0.0	496	496	268	270	268	268	270	268	269	246	40.9	1,651	2.22	13.4	Jun 19 - May 20
06/01/20	0.0	496	496	252	252	252	252	252	252	252	243	40.43	1,794	2.49	13.1	Jul 19 - Jun 20
07/07/20	0.0	496	496	246	245	246	246	245	246	246	248	41.26	1,951	2.64	13.1	Aug 19 - Jul 20
08/03/20	0.0	496	496	230	231	232	230	231	232	231	240	39.93	1,889	2.57	12.7	Sep 19 - Aug 20
09/08/20	0.0	496	496	231	232	233	231	232	233	232	234	38.94	1,818	2.54	12.7	Oct 19 - Sep 20
10/05/20	0.0	496	496	224	226	228	224	226	228	226	247	41.1	1,787	2.40	12.4	Nov 19 - Oct 20
11/01/20	0.0	496	496	237	238	241	237	238	241	239	230	38.3	1,711	2.38	12.2	Dec 19 - Nov 20
12/07/20	0.0	496	496	250	250	251	250	250	251	250	223	37.1	1,779	2.40	12.1	Jan 20 - Dec 20
01/04/21	0.0	496	496	172	173	174	172	173	174	173	178	29.6	1,350	1.81	11.5	Feb 20 - Jan 21
02/01/21	0.0	496	496	148	149	150	148	149	150	149	173	28.8	1,268	1.90	11.1	Mar 20 - Feb 21
03/01/21	0.0	496	496	210	211	211	210	211	211	211	222	36.9	1,777	2.40	11.2	Apr 20 - Mar 21
04/05/21	0.0	496	496	265	266	266	265	266	266	266	246	40.9	1,865	2.60	11.3	May 20 - Apr 21
05/03/21	0.0	496	496	233	234	233	233	234	233	233	225	37.4	1,257	1.71	10.8	Jun 20 - May 21
06/07/21	0.0	496	496	230	231	232	230	231	232	231	235	39.1	1,693	2.36	10.9	Jul 20 - Jun 21
07/01/21	0.0	496	496	247	248	249	247	248	249	248	237	39.4	1,268	1.81	10.4	Aug 20 - Jul 21
08/02/21	0.0	496	496	238	241	244	238	241	244	241	257	42.8	1,902	2.60	10.7	Sep 20 - Aug 21
09/02/21	0.0	496	496	246	247	248	246	247	248	247	248	41.3	1,813	2.53	10.6	Oct 20 - Sep 21
10/04/21	0.0	496	496	251	250	251	251	250	251	251	255	42.4	1,636	2.31	10.5	Nov 20 - Oct 21
11/02/21	0.0	496	496	343	342	332	343	342	332	339	312	51.9	1,696	2.36	10.5	Dec 20 - Nov 21
12/06/21	0.0	496	496	318	317	317	318	317	317	317	282	46.9	2,040	2.75	10.8	Jan 21 - Dec 21
01/03/22	0.0	496	496	281	281	282	281	281	282	281	274	45.6	1,988	2.73	11.1	Feb 21 - Jan 22
02/07/22	0.0	496	496	173	173	174	173	173	174	173	227	37.8	1,521	2.31	11.0	Mar 21 - Feb 22
03/07/22	0.0	496	496	284	282	282	284	282	282	283	264	43.9	2,010	2.72	11.3	Apr 21 - Mar 22
04/04/22	0.0	496	496	271	272	271	271	272	271	271	273	45.4	2,388	3.32	11.8	May 21 - Apr 22
05/02/22	0.0	496	496	297	297	298	297	297	298	297	297	49.4	2,232	3.03	12.2	Jun 21 - May 22
06/06/22	0.0	496	496	277	277	278	277	277	278	277	268	44.6	1,982	2.75	12.2	Jul 21 - Jun 22
07/04/22	0.0	496	496	238	239	240	238	239	240	239	268	44.6	2,148	2.94	12.8	Aug 21 - Jul 22
08/01/22	0.0	496	496	291	291	291	291	291	291	291	318	52.9	2,316	3.11	13.0	Sep 21 - Aug 22
09/05/22	0.0	496	496	326	327	329	326	327	329	327	309	51.4	2,382	3.39	13.4	Oct 21 - Sep 22
10/03/22	0.0	496	496	304	305	306	304	305	306	305	308	51.2	2,353	3.21	13.7	Nov 21 - Oct 22
11/07/22	0.0	496	496	298	299	299	298	299	299	299	348	57.9	2,379	3.31	14.1	Dec - 21 - Nov 22
12/06/22	0.0	496	496	413	414	414	413	414	414	414	417	69.4	3,112	4.27	15.0	Jan 22 - Dec 22
01/02/23	0.0	496	496	389	390	392	389	390	392	390	398	66.2	3,283	4.43	15.7	Feb 22 - Jan 23
02/06/23	0.0	50	48	401	402	403	418	419	420	419	349	58.1	2,129	3.21	15.4	Mar 22 - Feb 23
03/06/23	0.0	50	48	401	402	402	418	419	419	418	352	58.6	2,359	3.28	15.7	Apr 22 - Mar 23
04/03/23	0.0	50	46	389	391	392	423	425	426	425	382	63.6	2,620	3.69	16.0	May 22 - Apr 23
05/01/23	0.0	50	48	435	436	437	453	454	455	454	376	62.6	2,658	3.58	16.2	Jun 22 - May 23
06/05/23	0.0	50	47	309	310	312	312	313	315	313	336	55.9	2,398	3.41	16.3	Jul 22 - Jun 23
07/03/23	0.0	50	49	320	321	321	321	322	322	322	344	57.2	1,553	2.73	15.5	Aug 22 - Jul 23
08/07/23	0.0	50	50	343	344	345	343	344	345	344	340	56.6	2,088	2.85	15.7	Sep 22 - Aug 23

MAX ppm H₂S 417
 AVG ppm H₂S 282
 MAX lb/hr 4.43
 AVG lb/hr 2.78
 lb/hr limit 7.5

Appendix D
ROP Mark-up

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

EFFECTIVE DATE: ~~July 30, 2019~~

ISSUED TO

Pine Tree Acres, Inc. and Sumpter Energy Associates, LLC

State Registration Number (SRN): N5984

LOCATED AT

36600 29 Mile Road and 36450 29 Mile Road, Lenox Township, Michigan 48048

RENEWABLE OPERATING PERMIT

Permit Number: MI-ROP-N5984-~~2019~~

Expiration Date: ~~July 30, 2024~~

Administratively Complete ROP Renewal Application
Due Between ~~January 30, 2023 and January 30, 2024~~

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 Michigan Air Pollution Control Rule 210(1), 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-N5984-~~2019~~

This Permit to Install (PTI) is issued in accordance with and subject to Section 5505(5) of Act 451. Pursuant to Michigan Air Pollution Control Rule 214a, 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

Joyce Zhu, Warren District Supervisor

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ROP No: MI-ROP-N5984-2019
Expiration Date: ~~July 30, 2024~~
PTI No: MI-PTI-N5984-2019

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.

Section 1 – Pine Tree Acres, Inc.

ROP No: MI-ROP-N5984-~~2019~~

Expiration Date: ~~July 30, 2024~~

PTI No: MI-PTI-N5984-~~2019~~

SECTION 1 – PINE TREE ACRES, INC.

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))**

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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 states 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))**

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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))**

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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).

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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.

SOURCE-WIDE CONDITIONS

POLLUTION CONTROL EQUIPMENT

Sulfur/Total Reduced Sulfur removal system

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))

NA

VI. MONITORING/RECORDKEEPING

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

NA

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))

See Appendix 8-1

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VIII. STACK/VENT RESTRICTION(S)

N/A

IX. OTHER REQUIREMENT(S)

1. The operational restrictions and testing requirements in SC II.1, SC III.3 and SC V.3 under FG-ICENGINES at Pine Trees Acres (section 1) also applies to the landfill gas supplied to FG-ENGINES at the facility operated by Sumpter Energy (section 2).² **(R 336.2803, R 336.2804, 40 CFR 52.21 (c) & (d))**

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).

C. EMISSION UNIT 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
EU-ASBESTOS	Any active or inactive asbestos disposal at the MSW landfill.	01/01/1988	FG-LANDFILL-XXX FG-LANDFILL-WWW
EU-LANDFILL	A municipal solid waste (MSW) landfill that commenced construction, reconstruction, or modification after July 17, 2014. The MSW landfill has a design capacity equal to or greater than 2.5 million megagrams and 2.5 million cubic meters, and NMOC emissions equal to or greater than 34 Mg per year.	06/30/1986	FG-LANDFILL-XXX FG-LANDFILL-WWW
EU-ACTIVECOLLECTION	This emission unit represents the active landfill gas collection system that uses gas mover equipment to draw landfill gas from the wells and moves the gas to the control equipment.	01/01/1993	FG-LANDFILL-XXX FG-LANDFILL-WWW FG-ACTIVECOLLECTION-XXX FG-ACTIVECOLLECTION-WWW
EU-TREATMENTSYSTEM	A treatment system that filters, de-waters, and compresses landfill gas for subsequent sale or beneficial use. The treatment system removes particulate to at least the 10-micron level, compresses the landfill gas, and removes enough moisture to ensure good combustion of gas for subsequent use.	07/24/2001	FG-LANDFILL-XXX FG-LANDFILL-WWW FG-TREATMENTSYSTEM-XXX FG-TREATMENTSYSTEM-WWW
EU-FLARE3	A 3,000 CFM open flare. Open flare is an open combustor without enclosure or shroud.	08/12/2005 / 08/01/2006	FG-LANDFILL-XXX FG-LANDFILL-WWW FG-FLARES FG-OPENFLARES-XXX FG-OPENFLARES-WWW

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Emission Unit ID	Emission Unit Description (Including Process Equipment & Control Device(s))	Installation Date/ Modification Date	Flexible Group ID
EU-FLARE4	A 3,000 CFM enclosed flare with a sulfur removal system for reducing sulfur content of landfill gas prior to combustion. An enclosed flare is an enclosed combustor or firebox which maintains a relatively constant limited peak temperature generally using a limited supply of combustion air.	06/24/2009	FG-LANDFILL-XXX FG-LANDFILL-WWW FG-FLARES FG-ENCLOSEDFLARES-XXX FG-ENCLOSEDFLARES-WWW
EU-FLARE5	A 2,100 CFM portable, back-up only, open flare. Open flare is an open combustor without enclosure or shroud.	03/18/2009	FG-LANDFILL-XXX FG-LANDFILL-WWW FG-FLARES FG-OPENFLARES-XXX FG-OPENFLARES-WWW
EU-FLARE6	A 6,000 CFM enclosed flare with a sulfur removal system for reducing sulfur content of landfill gas prior to combustion. An enclosed flare is an enclosed combustor or firebox which maintains a relatively constant limited peak temperature generally using a limited supply of combustion air.	04/01/2011	FG-LANDFILL-XXX FG-LANDFILL-WWW FG-FLARES FG-ENCLOSEDFLARES-XXX FG-ENCLOSEDFLARES-WWW
EU-COLDCLEANER	This emission unit represents one or more small cold cleaners/degreasers installed after July 1, 1979, which are exempt from permit-to-install requirements.	06/26/2001	FG-COLDCLEANERS
EU-ICENGINE1	Spark ignition, lean burn, reciprocating internal combustion engine (Caterpillar G3520C, 2,233 bhp at 100% load) and associated generator set for combusting treated landfill gas to produce electricity (1.6-megawatt gross electrical output). This emission unit, and any replacement of this unit as applicable under R 336.1285(2)(a)(vi), is for a Caterpillar G3520C internal combustion engine greater than 500hp fueled with treated landfill/digester gas to produce electricity.	02/28/11	FG-ICENGINES FG-RICEMACT FG-RICENSPS

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Emission Unit ID	Emission Unit Description (Including Process Equipment & Control Device(s))	Installation Date/ Modification Date	Flexible Group ID
EU-ICENGINE2	Spark ignition, lean burn, reciprocating internal combustion engine (Caterpillar G3520C, 2,233 bhp at 100% load) and associated generator set for combusting treated landfill gas to produce electricity (1.6-megawatt gross electrical output). This emission unit, and any replacement of this unit as applicable under R 336.1285(2)(a)(vi), is for a Caterpillar G3520C internal combustion engine greater than 500hp fueled with treated landfill/digester gas to produce electricity.	02/28/11	FG-ICENGINES FG-RICEMACT FG-RICENSPS
EU-ICENGINE3	Spark ignition, lean burn, reciprocating internal combustion engine (Caterpillar G3520C, 2,233 bhp at 100% load) and associated generator set for combusting treated landfill gas to produce electricity (1.6-megawatt gross electrical output). This emission unit, and any replacement of this unit as applicable under R 336.1285(2)(a)(vi), is for a Caterpillar G3520C internal combustion engine greater than 500hp fueled with treated landfill/digester gas to produce electricity.	02/28/11	FG-ICENGINES FG-RICEMACT FG-RICENSPS
EU-ICENGINE4	Spark ignition, lean burn, reciprocating internal combustion engine (Caterpillar G3520C, 2,233 bhp at 100% load) and associated generator set for combusting treated landfill gas to produce electricity (1.6-megawatt gross electrical output). This emission unit, and any replacement of this unit as applicable under R 336.1285(2)(a)(vi), is for a Caterpillar G3520C internal combustion engine greater than 500hp fueled with treated landfill/digester gas to produce electricity.	02/28/11	FG-ICENGINES FG-RICEMACT FG-RICENSPS

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Emission Unit ID	Emission Unit Description (Including Process Equipment & Control Device(s))	Installation Date/ Modification Date	Flexible Group ID
EU-ICENGINE5	Spark ignition, lean burn, reciprocating internal combustion engine (Caterpillar G3520C, 2,233 bhp at 100% load) and associated generator set for combusting treated landfill gas to produce electricity (1.6-megawatt gross electrical output). This emission unit, and any replacement of this unit as applicable under R 336.1285(2)(a)(vi), is for a Caterpillar G3520C internal combustion engine greater than 500hp fueled with treated landfill/digester gas to produce electricity.	02/28/11	FG-ICENGINES FG-RICEMACT FG-RICENSPS
EU-ICENGINE6	Spark ignition, lean burn, reciprocating internal combustion engine (Caterpillar G3520C, 2,233 bhp at 100% load) and associated generator set for combusting treated landfill gas to produce electricity (1.6-megawatt gross electrical output). This emission unit, and any replacement of this unit as applicable under R 336.1285(2)(a)(vi), is for a Caterpillar G3520C internal combustion engine greater than 500hp fueled with treated landfill/digester gas to produce electricity.	02/28/11	FG-ICENGINES FG-RICEMACT FG-RICENSPS
EU-ICENGINE7	Spark ignition, lean burn, reciprocating internal combustion engine (Caterpillar G3520C, 2,233 bhp at 100% load) and associated generator set for combusting treated landfill gas to produce electricity (1.6-megawatt gross electrical output). This emission unit, and any replacement of this unit as applicable under R 336.1285(2)(a)(vi), is for a Caterpillar G3520C internal combustion engine greater than 500hp fueled with treated landfill/digester gas to produce electricity.	02/28/11	FG-ICENGINES FG-RICEMACT FG-RICENSPS

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Emission Unit ID	Emission Unit Description (Including Process Equipment & Control Device(s))	Installation Date/ Modification Date	Flexible Group ID
EU-ICENGINE8	Spark ignition, lean burn, reciprocating internal combustion engine (Caterpillar G3520C, 2,233 bhp at 100% load) and associated generator set for combusting treated landfill gas to produce electricity (1.6-megawatt gross electrical output). This emission unit, and any replacement of this unit as applicable under R 336.1285(2)(a)(vi), is for a Caterpillar G3520C internal combustion engine greater than 500hp fueled with treated landfill/digester gas to produce electricity.	02/28/11	FG-ICENGINES FG-RICEMACT FG-RICENSPS

**EU-ASBESTOS
EMISSION UNIT CONDITIONS**

DESCRIPTION

Any active or inactive asbestos disposal at the MSW landfill.

Flexible Group ID: FG-LANDFILL-XXX, FG-LANDFILL-WWWW

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

NA

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. If the landfill accepts asbestos-containing waste materials from a source covered under 40 CFR 61.149, 40 CFR 61.150, or 40 CFR 61.155, the permittee shall meet the following operational requirements: **(40 CFR 61.154)**
 - a. Either there must be no visible emissions to the outside air from any active waste disposal site where asbestos-containing waste material has been deposited, or the requirements of 40 CFR 61.154(c) or (d) must be met. **(40 CFR 61.154(a))**
 - b. Unless a natural barrier adequately deters access by the general public, either warning signs and fencing must be installed and maintained as required in 40 CFR 61.154(b), or the requirements of 40 CFR 61.154(c)(1) must be met.
 - i. Warning signs must be displayed at all entrances and at intervals of 100 m (330 ft) or less along the property line of the site or along the perimeter of the sections of the site where asbestos-containing waste material is deposited. The warning signs must:
 1. Be posted in such a manner and location that a person can easily read the legend **(40 CFR 61.154(b)(1)(i))**
 2. Conform to the requirements of 51 cm by 36cm (20 inches by 14 inches) upright format signs specified in 29 CFR 1910.145(d)(4) and 40 CFR 61.154(b)(1). **(40 CFR 61.154(b)(1)(ii))**
 3. The permittee shall display the legend in the lower panel with letter sizes and styles of a visibility at least equal to those specified in 40 CFR 61.154(b)(1). Spacing between any two lines must be at least equal to the height of the upper of the two lines. **(40 CFR 61.154(b)(1)(iii))**
 - ii. The perimeter of the disposal site must be fenced in a manner adequate to deter access by the general public. **(40 CFR 61.154(b)(2))**
 - iii. Upon request and supply of appropriate information, the appropriate AQD District Supervisor will determine whether a fence or a natural barrier adequately deters access by the general public. **(40 CFR 61.154(b)(3))**

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- c. Rather than meet the no visible emission requirement of 40 CFR 61.154(a), at the end of each operating day, or at least once every 24-hour period while the site is in continuous operation, the asbestos-containing waste material that has been deposited at the site during the operating day or previous 24-hour period shall:
 - i. Be covered with at least 15 centimeters (6 inches) of compacted non-asbestos-containing material. **(40 CFR 61.154(c)(1))** or
 - ii. Be covered with a resinous or petroleum-based dust suppression agent that effectively binds dust and controls wind erosion. Such an agent shall be used in the manner and frequency recommended for the particular dust by the dust suppression agent manufacturer to achieve and maintain dust control. Other equally effective dust suppression agents may be used upon prior approval by the appropriate AQD District Supervisor. For purposes of 40 CFR 61.154(c)(2), any used, spent, or other waste oil is not considered a dust suppression agent. **(40 CFR 61.154(c)(2))**
- d. Rather than meet the no visible emission requirement of 40 CFR 61.154(a), use an alternative emissions control method that has received prior written approval by the appropriate AQD District Supervisor according to the procedures described in 40 CFR 61.149(c)(2). **(40 CFR 61.154(d))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. Any segregated area of asbestos or nondegradable material may be excluded from collection if documented as provided under 40 CFR 60.758(d) or 40 CFR 60.768(d). The documentation shall provide the nature, date of deposition, location and amount of asbestos or nondegradable material deposited in the area and shall be provided to the AQD upon request. **(40 CFR 60.759(a)(3)(i), 40 CFR 60.769(a)(3)(i))**

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. For all asbestos-containing waste material received, the permittee of the active waste disposal site shall:
 - a. Maintain waste shipment records that include the following information: **(40 CFR 61.154(e)(1))**
 - i. The name, address, and telephone number of the waste generator. **(40 CFR 61.154(e)(1)(i))**
 - ii. The name, address, and telephone number of the transporter(s). **(40 CFR 61.154(e)(1)(ii))**
 - iii. The quantity of the asbestos-containing waste material in cubic meters (cubic yards). **(40 CFR 61.154(e)(1)(iii))**
 - iv. The presence of improperly enclosed or uncovered waste, or any asbestos-containing waste material not sealed in leak-tight containers. Report in writing to the local, State, or USEPA Regional office responsible for administering the asbestos NESHAP program for the waste generator (identified in the waste shipment record), and, if different, the local, State, or USEPA Regional office responsible for administering the asbestos NESHAP program for the disposal site, by the following working day, the presence of a significant amount of improperly enclosed or uncovered waste. Submit a copy of the waste shipment record along with the report. **(40 CFR 61.154(e)(1)(iv))**
 - v. The date of the receipt. **(40 CFR 61.154(e)(1)(v))**
 - b. As soon as possible and no longer than 30 days after receipt of the waste, send a copy of the signed waste shipment record to the waste generator. **(40 CFR 61.154(e)(2))**

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- c. Upon discovering a discrepancy between the quantity of waste designated on the waste shipment records and the quantity actually received, attempt to reconcile the discrepancy with the waste generator. If the discrepancy is not resolved within 15 days after receiving the waste, immediately report in writing to the local, State, or USEPA Regional office responsible for administering the asbestos NESHAP program for the waste generator (identified in the waste shipment record). **(40 CFR 61.154(e)(3))**
2. The permittee shall maintain, until closure, records of the location, depth and area, and quantity in cubic meters (cubic yards) of asbestos-containing waste material within the disposal site on a map or diagram of the disposal area storage. **(40 CFR 61.154(f))**
3. The permittee shall keep readily accessible documentation of the nature, date of deposition, amount, and location of asbestos-containing or nondegradable waste excluded from collection as provided in 40 CFR 60.759(a)(3)(i) or 40 CFR 60.769(a)(3)(i). **(40 CFR 60.758(d)(2), 40 CFR 60.768(d)(2))**
4. The permittee shall keep records of one the following regarding any active disposal site where asbestos containing materials have been deposited:
 - a. USEPA Method 22 readings demonstrating no visible emissions from any active disposal site where asbestos containing materials have been deposited. These readings are to be taken for 15 minutes each operating day.
 - b. Records of the date asbestos waste is received, the amount and type of material that has been used to cover the asbestos waste, and documentation that the cover material was applied in the frequency required in SC III.1.c. **(40 CFR 61.154(c))**
 - c. Records pursuant to an alternative emissions control method that has prior written approval of the AQD District Supervisor as noted in SC III.1.d. **(40 CFR 61.154(d))**

The permittee shall keep all records on file in a format acceptable to the AQD District Supervisor and make them available upon request. **(R 336.1213(3), 40 CFR 61.154)**

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. For all asbestos-containing waste material received, the permittee of the active waste disposal site shall:
 - a. Report in writing to the AQD District Supervisor by the following working day, the presence of a significant amount of improperly enclosed or uncovered waste and submit a copy of the waste shipment record along with the report. **(40 CFR 61.154(e)(1)(iv))**
 - b. Upon discovering a discrepancy between the quantity of waste designated on the waste shipment records and the quantity actually received, attempt to reconcile the discrepancy with the waste generator. If the discrepancy is not resolved within 15 days after receiving the waste, immediately report in writing to the AQD Supervisor. Describe the discrepancy and attempts to reconcile it and submit a copy of the waste shipment record along with the report. **(40 CFR 61.154(e)(3))**

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5. The permittee shall notify the AQD Technical Programs Unit and appropriate AQD District Office in writing at least 45 days prior to excavating or otherwise disturbing any asbestos-containing waste material that has been deposited at a waste disposal site and is covered. If the excavation will begin on a date other than the one contained in the original notice, notice of the new start date must be provided to the appropriate AQD District Office at least 10 working days before excavation begins and in no event shall excavation begin earlier than the date specified in the original notification. The notice shall include the following information:
 - a. Scheduled starting and completion dates. **(40 CFR 61.154(j)(1))**
 - b. Reason for disturbing the waste. **(40 CFR 61.154(j)(2))**
 - c. Procedures to be used to control emissions during the excavation, storage, transport, and ultimate disposal of the excavated asbestos-containing waste material. If deemed necessary, the AQD or may require changes in the emission control procedures to be used. **(40 CFR 61.154(j)(3))**
 - d. Location of any temporary storage site and the final disposal site. **(40 CFR 61.154(j)(4))**
6. The permittee shall submit to the appropriate AQD District Supervisor, upon closure of the facility, a copy of records of asbestos waste disposal locations and quantities. **(40 CFR 61.154(h))**

See Appendix 8-1

VIII. STACK/VENT RESTRICTION(S)

NA

IX. OTHER REQUIREMENT(S)

1. The permittee shall 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 WWW. **(40 CFR 60, Subparts A and WWW)**
2. The permittee shall 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 60, Subparts A and XXX)**
3. The permittee shall comply with all applicable provisions of the National Emission Standards for Hazardous Air Pollutants as specified in 40 CFR Part 61 Subparts A and M. **(40 CFR 61, Subparts A and M)**

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).

D. FLEXIBLE GROUP 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
FG-LANDFILL-XXX	This flexible group represents the general MSW landfill with a required collection and control system. This flexible group contains 40 CFR 60, Subpart XXX requirements.	EU-LANDFILL EU-ACTIVECOLLECTION EU-TREATMENTSYSTEM EU-ASBESTOS EU-FLARE3 EU-FLARE4 EU-FLARE5 EU-FLARE6
FG-LANDFILL-WWW	This flexible group represents the general MSW landfill with a required collection and control system. This flexible group contains 40 CFR 60, Subpart WWW requirements.	EU-LANDFILL EU-ACTIVECOLLECTION EU-TREATMENTSYSTEM EU-ASBESTOS EU-FLARE3 EU-FLARE4 EU-FLARE5 EU-FLARE6
FG-ACTIVECOLLECTION-XXX	This flexible group represents the active landfill gas collection system at the landfill that uses gas mover equipment to draw landfill gas from the wells and moves the gas to the control equipment. This flexible group contains 40 CFR 60, Subpart XXX requirements.	EU-ACTIVECOLLECTION
FG-ACTIVECOLLECTION-WWW	This flexible group represents the active landfill gas collection system that uses gas mover equipment to draw landfill gas from the wells and moves the gas to the control equipment. This flexible group contains 40 CFR 60, Subpart WWW requirements.	EU-ACTIVECOLLECTION
FG-TREATMENTSYSTEM-XXX	A treatment system that filters, de-waters, and compresses landfill gas for subsequent sale or beneficial use. The treatment system removes particulate to at least the 10-micron level, compresses the landfill gas, and removes enough moisture to ensure good combustion of gas for subsequent use. This flexible group contains the requirements of 40 CFR Part 60, Subpart XXX.	EU-TREATMENTSYSTEM

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Flexible Group ID	Flexible Group Description	Associated Emission Unit IDs
FG-TREATMENTSYSTEM-WWW	A treatment system that filters, de-waters, and compresses landfill gas for subsequent sale or beneficial use. The treatment system removes particulate to at least the 10-micron level, compresses the landfill gas, and removes enough moisture to ensure good combustion of gas for subsequent use. This flexible group contains the requirements of 40 CFR Part 60, Subpart WWW.	EU-TREATMENTSYSTEM
FG-ENCLOSEDFLARES-XXX	Two enclosed flares with a combined capacity of 9,000 CFM, used in combusting landfill gas. An enclosed flare is an enclosed combustor or firebox which maintains a relatively constant limited peak temperature generally using a limited supply of combustion air. This flexible group contains the requirements of 40 CFR Part 60, Subpart XXX.	EU-FLARE4 EU-FLARE6
FG-ENCLOSEDFLARES-WWW	Two enclosed flares with a combined capacity of 9,000 CFM, used in combusting landfill gas. An enclosed flare is an enclosed combustor or firebox which maintains a relatively constant limited peak temperature generally using a limited supply of combustion air. This flexible group contains the requirements of 40 CFR Part 60 Subpart WWW.	EU-FLARE4 EU-FLARE6
FG-OPENFLARES-XXX	Two open flares with a combined capacity of 5,100 CFM used to control LFG generated by the landfill. An open flare is an open combustor without enclosure or shroud. EUFLARE5 serves as a backup flare and only operates if one or more flares and/or engines are not in operation. This flexible group contains the requirements of 40 CFR Part 60 Subpart XXX.	EU-FLARE3 EU-FLARE5
FG-OPENFLARES-WWW	Two open flares with a combined capacity of 5,100 CFM used to control LFG generated by the landfill. An open flare is an open combustor without enclosure or shroud. EUFLARE5 serves as a backup flare and only operates if one or more flares and/or engines are not in operation. This flexible group contains the requirements of 40 CFR Part 60 Subpart WWW.	EU-FLARE3 EU-FLARE5
FG-FLARES	Four flares (one open, two enclosed, and one stand by portable open flare) with a combined capacity of 14,200 CFM, used in combusting landfill gas.	EU-FLARE3 EU-FLARE4 EU-FLARE5 EU-FLARE6
FG-COLDCLEANERS	This flexible group represents one or more small cold cleaners/degreasers installed after July 1, 1979, which are exempt from permit-to-install requirements.	EU-COLDCLEANERS
FG-ICENGINES	Eight internal combustion engines and associated generator sets for combusting treated landfill gas to produce electricity.	EU-ICENGINE1 EU-ICENGINE2 EU-ICENGINE3 EU-ICENGINE4 EU-ICENGINE5 EU-ICENGINE6 EU-ICENGINE7 EU-ICENGINE8

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Flexible Group ID	Flexible Group Description	Associated Emission Unit IDs
FG-RICEMACT	New and reconstructed non-emergency engines greater than 500 hp firing landfill/digester gas, located at a major source of HAPs. Commenced construction or reconstruction on or after December 19, 2002.	EU-ICENGINE1 EU-ICENGINE2 EU-ICENGINE3 EU-ICENGINE4 EU-ICENGINE5 EU-ICENGINE6 EU-ICENGINE7 EU-ICENGINE8
FG-RICENSPS	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.	EU-ICENGINE1 EU-ICENGINE2 EU-ICENGINE3 EU-ICENGINE4 EU-ICENGINE5 EU-ICENGINE6 EU-ICENGINE7 EU-ICENGINE8

**FG-LANDFILL-XXX
FLEXIBLE GROUP CONDITIONS**

DESCRIPTION

This flexible group represents the general MSW landfill with a required collection and control system. This flexible group contains 40 CFR 60, Subpart XXX requirements.

Emission Units: EU-LANDFILL, EU-ACTIVECOLLECTION, EU-TREATMENTSYSYSTEM, EU-FLARE3, EU-FLARE4, EU-FLARE5, EU-FLARE6, EU-ASBESTOS

POLLUTION CONTROL EQUIPMENT

Open and enclosed flare, landfill gas treatment system.

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. Methane concentration	Less than 500 ppm above background level	Calendar quarter	Surface of Landfill	SC V.1 SC VI.1	40 CFR 60.763(d)

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTIONS

1. The permittee shall develop a written startup, shutdown, and malfunction (SSM) plan that describes how emissions will be minimized during periods of startup, shutdown, and malfunction; and a program of corrective action for the malfunctioning process, air pollution control, and monitoring equipment used to comply. **(R 336.1213(3), R 336.1911)**
2. During periods of startup, shutdown, and malfunction, you must comply with the work practice specified in 40 CFR 60.763(e) in lieu of the compliance provisions in 40 CFR 60.765. **(40 CFR 60.765(e))**

IV. DESIGN/EQUIPMENT PARAMETERS

1. The permittee shall install a collection and control system that captures the landfill gas generated within the landfill according to the requirements in 40 CFR 60.762(b)(2)(ii) and 40 CFR 60.762(b)(2)(iii). **(40 CFR 60.762(b)(2))**
2. The permittee shall route all the collected landfill gas to at least one of the following:
 - a. An open flare designed in accordance with 40 CFR 60.18 except as noted in 40 CFR 60.764(e). **(40 CFR 60.762(b)(2)(iii)(A))**
 - b. A control system designed and operated to reduce NMOC by 98 weight percent, or, when an enclosed combustion device is used for control, to either reduce NMOC by 98 weight percent or reduce the outlet NMOC concentration to less than 20 ppmv on dry basis, as hexane at 3 percent oxygen. **(40 CFR 60.762(b)(2)(iii)(B))**

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- c. To a treatment system that processes the collected gas for subsequent sale or beneficial use. The treatment system shall be designed so that all emissions from any atmospheric vent(s) shall be subject to 40 CFR 60.762(b)(2)(iii)(A) or (B). **(40 CFR 60.762(b)(2)(iii)(C))**

V. TESTING/SAMPLING

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

1. Quarterly, the permittee shall conduct surface testing around the perimeter of the collection area and along a pattern that traverses the landfill at 30-meter intervals and where visual observations indicate elevated concentrations of landfill gas, such as distressed vegetation and cracks or seeps in the cover and all cover penetrations. A surface monitoring design plan shall be developed that includes a topographical map with the monitoring route, any alternative traversing pattern that ensures equivalent coverage, and the rationale for any site-specific deviations from the 30-meter intervals. **(40 CFR 60.763(d))**
2. The permittee shall use the procedures in 40 CFR 60.765(c) for compliance with the surface methane operational standard in 40 CFR 60.763(d). **(40 CFR 60.765(c))**
3. The permittee shall document any reading of 500 ppm or more above background at any location as a monitored exceedance. As long as the following specified actions are taken, the exceedance is not a violation of the operational requirements of 40 CFR 60.763(d). **(40 CFR 60.765(c)(4))**
 - a. The location of each monitored exceedance shall be marked, and the location and concentration recorded. **(40 CFR 60.765(c)(4)(i))**
 - b. Cover maintenance or adjustments to the vacuum of the adjacent wells to increase the gas collection in the vicinity of each exceedance shall be made and the location shall be re-monitored within 10 calendar days of detecting the exceedance. **(40 CFR 60.765(c)(4)(ii))**
 - c. If the re-monitoring of the location shows a second exceedance, additional corrective action shall be taken, and the location shall be monitored again within 10 days of the second exceedance. If the re-monitoring shows a third exceedance for the same location, the action specified in SC V.3.e shall be taken, and no further monitoring of that location is required until the action specified in SC V.3.e has been taken. **(40 CFR 60.765(c)(4)(iii))**
 - d. Any location that initially showed an exceedance but has a methane concentration less than 500 ppm methane above background at the 10-day re-monitoring specified in 60.765(c)(4)(ii) or (iii) shall be re-monitored 1 month from the initial exceedance. If the 1-month re-monitoring shows a concentration less than 500 ppm above backgrounds, no further monitoring of that location is required until the next quarterly monitoring period. If the 1-month re-monitoring shows an exceedance, the actions specified in SC V.3.c or SC V.3.e shall be taken. **(40 CFR 60.765(c)(4)(iv))**
 - e. For any location where monitored methane concentration equals or exceeds 500 ppm above backgrounds three times within a quarterly period, a new well or other collection device shall be installed within 120 calendar days of the initial exceedance. An alternative remedy to the exceedance, such as upgrading the blower, header pipes or control device, and a corresponding timeline for installation may be submitted to the AQD for approval. **(40 CFR 60.765(c)(4)(v))**
4. The permittee shall comply with instrumentation specifications and procedures in 40 CFR 60.765(d) for surface emission monitoring devices. **(40 CFR 60.765(d))**
 - a. The portable analyzer shall meet the instrument specifications provided in Method 21 of Appendix A of 40 CFR Part 60, except that "methane" shall replace all references to VOC. **(40 CFR 60.755(d)(1))**
 - b. The calibration gas shall be methane, diluted to a nominal concentration of 500 ppm in air. **(40 CFR 60.755(d)(2))**
 - c. To meet the performance evaluation requirements in Method 21 of Appendix A of 40 CFR Part 60, the instrument evaluation procedures of Method 21 of Appendix A of 40 CFR Part 60 shall be used. **(40 CFR 60.755(d)(3))**

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- d. The calibration procedures provided in Method 21 of Appendix A of 40 CFR Part 60 shall be followed immediately before commencing a surface monitoring survey. **(40 CFR 60.755(d)(4))**
5. Any closed landfill that has no monitored exceedances of the operational standard in three consecutive quarterly monitoring periods may skip to annual monitoring. Any methane reading of 500 ppm or more above background detected during the annual monitoring returns the frequency for that landfill to quarterly monitoring. **(40 CFR 60.766(f))**

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 keep monthly records of the surface methane monitoring including the following information at a minimum:
 - a. The route traversed including any areas not monitored because of unsafe conditions (i.e., truck traffic, construction, active face, dangerous areas, etc.) and areas included where visual observations indicate elevated levels of landfill gas.
 - b. The location(s) and concentrations of the methane readings and noting any reading above 500 ppm above background.
 - c. The meteorological conditions the day of the testing including wind speed, wind direction, temperature, and cloud cover.

The permittee shall keep all records on file in a format acceptable to the AQD District Supervisor and make them available upon request. **(R 336.1213(3), 40 CFR 60.763(d))**

2. The permittee shall implement a program to monitor on a monthly basis for cover integrity and implement cover repairs as necessary. Records of the cover integrity and any cover repairs shall be kept on file in a format acceptable to the AQD District Supervisor and made available upon request. **(40 CFR 60.765(c)(5))**
3. The permittee shall keep monthly records of the SSM events including the date of the event, how emissions were minimized during the event, and the corrective action taken for the malfunctioning process, air pollution control, and monitoring equipment. The permittee shall keep all records on file in a format acceptable to the AQD District Supervisor and make them available upon request. **(R 336.1213(3), R 336.1911)**
4. The permittee shall 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 four hours. The permittee shall 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))**
5. Landfill owners or operators who convert design capacity from volume to mass or mass to volume to demonstrate that landfill design capacity is less than 2.5 million megagrams or 2.5 million cubic meters, as provided in the definition of "design capacity", shall keep readily accessible, on-site records of the annual recalculation of site-specific density, design capacity, and the supporting documentation. Off-site records may be maintained if they are retrievable within four hours. Either paper copy or electronic formats are acceptable. **(40 CFR 60.768(f))**
6. If reporting leachate or other liquids addition under 40 CFR 60.767(k), the permittee shall keep records of any engineering calculations or company records used to estimate the quantities of leachate or liquids added, the surface areas for which the leachate or liquids were applied, and the estimates of annual waste acceptance or total waste in place in the areas where leachate or liquids were applied. **(40 CFR 60.768(j))**

VII. REPORTING

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**

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2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. 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. 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 reports which shall be postmarked or received by appropriate AQD District Office by March 15 for reporting period January 1 to December 31. The report shall include the location of each exceedance of the 500 ppm methane concentrations as provided in 40 CFR 60.763(d) and the concentration recorded at each location for which an exceedance was recorded in the previous month. The report shall also contain include information on all deviations that occurred during the six-month reporting period. **(40 CFR 60.767(g)(5))**
5. Semiannually, the permittee shall submit a startup, shutdown, and malfunction (SSM) plan report to the appropriate AQD District Office and it shall be delivered or postmarked by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. The report shall include actions taken to minimize emissions consistent with the procedures specified in the (SSM) plan. If actions taken are not consistent with the SSM plan, the permittee shall report actions taken within two working days after commencing such actions followed by a letter seven days after the event. **(R 336.1213(3), R 336.1911)**
6. The permittee shall submit an equipment removal report to the appropriate AQD District Supervisor 30 days prior to removal or cessation of operation of the control equipment. **(40 CFR 60.767(f))**
 - a. The equipment removal report shall contain all of the following items:
 - i. A copy of the closure report submitted in accordance with 40 CFR 60.767(d); **(40 CFR 60.767(f)(1)(i))**
 - ii. A copy of the initial performance test report demonstrating that the 15-year minimum control period has expired. **(40 CFR 60.767(f)(1)(ii))**
 - iii. Dated copies of three successive NMOC emission rate reports demonstrating that the landfill is no longer producing 34 megagrams or greater of NMOC per year; and **(40 CFR 60.767(f)(1)(iii))**
 - b. The AQD may request such additional information as may be necessary to verify that all of the conditions for removal in 40 CFR 60.762(b)(2)(v) have been met. **(40 CFR 60.767(e)(2))**
7. The permittee shall 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))**

See Appendix 8-1

VIII. STACK/VENT RESTRICTION(S)

NA

IX. OTHER REQUIREMENTS

1. The permittee that has already submitted a design plan under 40 CFR 60.767(c) shall submit a revised design plan to the AQD for approval as follows:
 - a. At least 90 days before expanding operations to an area not covered by the previously approved design plan. **(40 CFR 60.767(d)(1))**

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- b. Prior to installing or expanding the gas collection system in a way that is not consistent with the design plan that was submitted plan under 40 CFR 60.767(c). **(40 CFR 60.767(d)(2))**
2. The collection and control system may be capped or removed as provided in 40 CFR 60.762(b)(2)(v) if all the following conditions are met:
 - a. The landfill shall be a closed landfill as defined in 40 CFR 60.761. A closure report shall be submitted to the appropriate AQD District Office as provided in 40 CFR 60.767(e); **(40 CFR 60.762(b)(2)(v)(A))**
 - b. The collection and control system shall have been in operation a minimum of 15 years or the landfill owner or operator demonstrates that the GCCS will be unable to operate for 15 years due to declining gas flow; and **(40 CFR 60.762(b)(2)(v)(B))**
 - c. Following the procedures specified in 40 CFR 60.764(b), the calculated NMOC gas produced by the landfill shall be less than 34 megagrams per year on three successive test dates. The test dates shall be no less than 90 days apart, and no more than 180 days apart. **(40 CFR 60.762(b)(2)(v)(C))**
3. The permittee shall 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 60, Subparts A and XXX)**

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).

**FG-LANDFILL-WWW
FLEXIBLE GROUP CONDITIONS**

DESCRIPTION

This flexible group represents the general Municipal Solid Waste (MSW) landfill in which the collected landfill gas is sent primarily to a treatment system. This flexible group contains 40 CFR 60, Subpart WWW requirements.

Emission Units: EU-LANDFILL, EU-ACTIVECOLLECTION, EU-TREATMENTSYSYSTEM, EU-FLARE 3, EU-FLARE 4, EU-FLARE 5, EU-FLARE 6, EU-ASBESTOS

POLLUTION CONTROL EQUIPMENT

Open and enclosed flares, landfill gas treatment system.

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. Methane concentration	Less than 500 ppm above background level	Calendar quarter	Surface of Landfill	SC V.1 SC V.2	40 CFR 60.753(d) 40 CFR 60.755(c) 40 CFR 63.1955(a)(1)

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTIONS

1. The permittee shall comply with the requirements in 40 CFR 63.1955(b) and 40 CFR 63.1960 through 40 CFR 63.1980. **(40 CFR 63.1945(d))**

IV. DESIGN/EQUIPMENT PARAMETERS

1. The permittee shall have installed a collection and control system that captures the landfill gas generated within the landfill as required by 40 CFR 60.752(b)(2)(i)(C), 40 CFR 60.752(b)(2)(ii), and 40 CFR 60.752(b)(2)(iii). **(40 CFR 60.752(b)(2)(i)(C), 40 CFR 60.752(b)(2)(ii), 40 CFR 60.752(b)(2)(iii), 40 CFR 63.1955(a)(1))**
2. The permittee shall route all the collected landfill gas to at least one of the following:
 - a. A flare designed in accordance with 40 CFR 60.18 except as noted in 40 CFR 60.754(e). **(40 CFR 60.752(b)(2)(iii)(A), 40 CFR 63.1955(a)(1))**
 - b. A control system designed and operated to reduce NMOC by 98 weight-percent, or, when an enclosed combustion device is used for control, to either reduce NMOC by 98 weight-percent or reduce the outlet NMOC concentration to less than 20 ppm by volume, dry basis as hexane at three percent oxygen. The reduction efficiency or ppm by volume shall be established by an initial performance test to be completed no later than 180 days after the initial startup of the approved control system using the test methods specified in 40 CFR 60.754(d). **(40 CFR 60.752(b)(2)(iii)(B), 40 CFR 63.1955(a)(1))**

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- c. To a treatment system that processes the collected gas for subsequent sale or use. The treatment system shall be designed so that all emissions from any atmospheric vent(s) shall be subject to 40 CFR 60.752(b)(2)(iii)(B) or (C). **(40 CFR 60.752(b)(2)(iii)(C), 40 CFR 63.1955(a)(1))**

V. TESTING/SAMPLING

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

1. To determine if the methane concentration is less than 500 ppm above background at the surface of the landfill is exceeded, the permittee shall conduct surface testing around the perimeter of the collection area and along a pattern that traverses the landfill at 30-meter intervals and where visual observations indicate elevated concentrations of landfill gas, such as distressed vegetation and cracks or seeps in the cover. The permittee may establish an alternative traversing pattern that ensures equivalent coverage. A surface monitoring design plan shall be developed that includes a topographical map with the monitoring route and the rationale for any site-specific deviations from the 30-meter intervals. Areas with steep slopes or other dangerous areas may be excluded from the surface testing. **(40 CFR 60.753(d), 40 CFR 63.1955(a)(1))**
2. The permittee shall use the following procedures for compliance with the surface methane operational standard as provided in 40 CFR 60.753(d).
 - a. The permittee shall monitor surface concentrations of methane along the entire perimeter of the collection area and along a pattern that traverses the landfill at 30-meter intervals (or a site-specific established spacing approved by the AQD) for each collection area on a quarterly basis using an organic vapor analyzer, flame ionization detector, or other portable monitor meeting the specifications provided in 40 CFR 60.755(d). **(40 CFR 60.755(c)(1), 40 CFR 63.1955(a)(1))**
 - b. The background concentration shall be determined by moving the probe inlet upwind and downwind outside the boundary of the landfill at a distance of at least 30 meters from the perimeter wells. **(40 CFR 60.755(c)(2), 40 CFR 63.1955(a)(1))**
 - c. Surface emission monitoring shall be performed in accordance with Section 8.3.1 of Method 21 of Appendix A of 40 CFR Part 60, except that the probe inlet shall be placed within five to 10 centimeters of the ground. Monitoring shall be performed during typical meteorological conditions. **(40 CFR 60.755(c)(3), 40 CFR 63.1955(a)(1))**
 - d. Any reading of 500 ppm or more above background at any location shall be recorded as a monitored exceedance and the actions specified below shall be taken. As long as the specified actions are taken, the exceedance is not a violation of the operational requirements of 40 CFR 60.753(d). **(40 CFR 60.755(c)(4), 40 CFR 63.1955(a)(1))**
 - i. The location of each monitored exceedance shall be marked, and the location recorded. **(40 CFR 60.755(c)(4)(i), 40 CFR 63.1955(a)(1))**
 - ii. Cover maintenance or adjustments to the vacuum of the adjacent wells to increase the gas collection in the vicinity of each exceedance shall be made and the location shall be re-monitored within 10 calendar days of detecting the exceedance. **(40 CFR 60.755(c)(4)(ii), 40 CFR 63.1955(a)(1))**
 - iii. If the re-monitoring of the location shows a second exceedance, additional corrective action shall be taken, and the location shall be monitored again within 10 days of the second exceedance. If the re-monitoring shows a third exceedance for the same location, the action specified in 40 CFR 60.755(c)(4)(v) (below in SC V.2.d.v.) shall be taken, and no further monitoring of that location is required until the action specified in 40 CFR 60.755(c)(4)(v) (below in SC V.2.d.v.) has been taken. **(40 CFR 60.755(c)(4)(iii), 40 CFR 63.1955(a)(1))**

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- iv. Any location that initially showed an exceedance but has a methane concentration less than 500 ppm methane above background at the 10-day re-monitoring specified in 60.755(c)(4) (ii) or (iii) (above in SC V.2.d.ii. or iii.) shall be re-monitored one month from the initial exceedance. If the one-month re-monitoring shows a concentration less than 500 ppm above backgrounds, no further monitoring of that location is required until the next quarterly monitoring period. If the one-month re-monitoring shows an exceedance, the actions specified in 40 CFR 60.755(c)(4)(iii) (above in SC V.2.d.ii. or iii.) or in 40 CFR 60.755(c)(4)(v) (below in SC V.2.d.v.) shall be taken. **(40 CFR 60.755(c)(4)(iv), 40 CFR 63.1955(a)(1))**
 - v. For any location where monitored methane concentration equals or exceeds 500 ppm above backgrounds three times within a quarterly period, a new well or other collection device shall be installed within 120 calendar days of the initial exceedance. An alternative remedy to the exceedance, such as upgrading the blower, header pipes or control device, and a corresponding timeline for installation may be submitted to the AQD for approval. **(40 CFR 60.755(c)(4)(v), 40 CFR 63.1955(a)(1))**
3. The permittee shall comply with the provisions in 40 CFR 60.755(c) with the following instrumentation specifications and procedures for surface emission monitoring devices: **(40 CFR 60.755(d), 40 CFR 63.1955(a)(1))**
 - a. The portable analyzer shall meet the instrument specifications provided in Section 6 of Method 21 of Appendix A of 40 CFR Part 60, except that "methane" shall replace all references to VOC. **(40 CFR 60.755(d)(1), 40 CFR 63.1955(a)(1))**
 - b. The calibration gas shall be methane, diluted to a nominal concentration of 500 ppm in air. **(40 CFR 60.755(d)(2), 40 CFR 63.1955(a)(1))**
 - c. To meet the performance evaluation requirements in Section 8.1 of Method 21 of Appendix A of 40 CFR Part 60, the instrument evaluation procedures of Section 8.1 of Method 21 of Appendix A of 40 CFR Part 60 shall be used. **(40 CFR 60.755(d)(3), 40 CFR 63.1955(a)(1))**
 - d. The calibration procedures provided in Sections 8 and 10 of Method 21 of Appendix A of 40 CFR Part 60 shall be followed immediately before commencing a surface monitoring survey. **(40 CFR 60.755(d)(4), 40 CFR 63.1955(a)(1))**
 4. The permittee shall monitor surface concentrations of methane according to the instrument specifications and procedures provided in 40 CFR 60.755(d). Any closed landfill that has no monitored exceedances of the operational standard in three consecutive quarterly monitoring periods may skip to annual monitoring. Any methane reading of 500 ppm or more above background detected during the annual monitoring returns the frequency for that landfill to quarterly monitoring. **(40 CFR 60.756(f), 40 CFR 63.1955(a)(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 shall implement a program to monitor on a monthly basis for cover integrity and implement cover repairs as necessary. **(40 CFR 60.755(c)(5), 40 CFR 63.1955(a)(1))**
2. The permittee shall keep the following written records pertaining to surface methane monitoring: **(R 336.1213(3))**
 - a. The route traversed including any areas not monitored because of unsafe conditions (i.e., truck traffic, construction, active face, dangerous areas, etc.) and areas included where visual observations indicate elevated levels of landfill gas. **(R 336.1213(3))**
 - b. The location(s) and concentrations of any reading above 500 ppm above background. **(40 CFR 60.755(c)(4)(i), R 336.1213(3))**
 - c. The meteorological conditions the day of the testing including wind speed, wind direction, temperature, and cloud cover). **(R 336.1213(3))**
 - d. Monitoring date. **(R 336.1213(3))**

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3. Except as provided in 40 CFR 60.752(b)(2)(i)(B), the permittee shall maintain up-to-date, readily accessible, on-site records of the design capacity report which triggered 40 CFR 60.752(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 four hours. Either paper copy or electronic formats are acceptable. **(40 CFR 60.758(a), 40 CFR 63.1955(a)(1))**
4. Landfill owners or operators who convert design capacity from volume to mass or mass to volume to demonstrate that landfill design capacity is less than 2.5 million megagrams or 2.5 million cubic meters, as provided in the definition of "design capacity", shall keep readily accessible, on-site records of the annual recalculation of site-specific density, design capacity, and the supporting documentation. Off-site records may be maintained if they are retrievable within four hours. Either paper copy or electronic formats are acceptable. **(40 CFR 60.758(f), 40 CFR 40 CFR 63.1955(a)(1))**
5. The permittee shall calculate and record the NMOC emission rate for purposes of determining when the system can be removed as provided in 40 CFR 60.752(b)(2)(v), using the equation presented in 40 CFR 60.754(b). **(40 CFR 60.754(b))**
6. If the permittee adds any liquids other than leachate in a controlled fashion to the waste mass and does not comply with the bioreactor requirements in 40 CFR 63.1947, 40 CFR 63.1955(c), and 40 CFR 63.1980(c) through (f), the permittee shall keep a record of calculations showing that the percent moisture by weight expected in waste mass to which liquid is added is less than 40 percent. The calculation must consider the waste mass, moisture content of the incoming waste, mass of the water added to the waste including leachate recirculation and other liquids addition, and precipitation, and the mass of water removed through leachate or other water losses. Moisture level sampling or mass balances calculations can be used. The permittee shall document the calculations and the basis of the assumptions. **(40 CFR 63.1980(g))**

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 equipment removal report to the appropriate AQD District Supervisor 30 days prior to removal or cessation of operation of the control equipment. **(40 CFR 60.757(e), 40 CFR 63.1955(a)(1))**
 - a. The equipment removal report shall contain all of the following items:
 - i. A copy of the closure report submitted in accordance with 40 CFR 60.757(d). **(40 CFR 60.757(e)(1)(i), 40 CFR 63.1955(a)(1))**
 - ii. Dated copies of three successive NMOC emission rate reports demonstrating that the landfill is no longer producing 50 megagrams or greater of NMOC per year. **(40 CFR 60.757(e)(1)(iii), 40 CFR 63.1955(a)(1))**
 - iii. A copy of the initial performance test report demonstrating that the 15-year minimum control period has expired. **(40 CFR 60.757(e)(1)(ii), 40 CFR 63.1955(a)(1))**
 - b. The AQD may request such additional information as may be necessary to verify that all of the conditions for removal in 40 CFR 60.752(b)(2)(v) have been met. **(40 CFR 60.757(e)(2), 40 CFR 63.1955(a)(1))**

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5. The permittee shall 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 60.757(d), 40 CFR 63.1955(a)(1))**
6. The permittee shall submit reports which shall be postmarked or received by 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. The report shall include the location of each exceedance of the 500 ppm methane concentrations as provided in 40 CFR 60.753(d) and the concentration recorded at each location for which an exceedance was recorded in the previous month. The report shall also contain information on all deviations that occurred during the 6-month reporting period. **(40 CFR 60.757(f)(5), 40 CFR 63.1955(a)(1), 40 CFR 63.1955(c), 40 CFR 63.1980(a))**
7. The permittee shall submit the startup, shutdown, and malfunction (SSM) report to the appropriate AQD District Office and it shall be delivered or postmarked by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(40 CFR 63.10(a)(5), 40 CFR 63.10(d)(5))**

See Appendix 8-1

VIII. STACK/VENT RESTRICTION(S)

NA

IX. OTHER REQUIREMENTS

1. The collection and control system may be capped or removed provided that all the following conditions are met:
 - a. The landfill shall be a closed landfill as defined in 40 CFR 60.751. A closure report shall be submitted to the appropriate AQD District Office as provided in 40 CFR 60.757(d). **(40 CFR 60.752(b)(2)(v)(A), 40 CFR 63.1955(a)(1))**
 - b. The collection and control system shall have been in operation a minimum of 15 years. **(40 CFR 60.752(b)(2)(v)(B), 40 CFR 63.1955(a)(1))**
 - c. Following the procedures specified in 40 CFR 60.754(b), the calculated NMOC gas produced by the landfill shall be less than 50 megagrams per year on three successive test dates. The test dates shall be no less than 90 days apart, and no more than 180 days apart. **(40 CFR 60.752(b)(2)(v)(C), 40 CFR 63.1955(a)(1))**
2. If monitoring demonstrates that the operational requirements above in 40 CFR 60.753(b), (c), or (d) are not met, corrective action shall be taken as specified in 40 CFR 60.755(a)(3) through (5) or 40 CFR 60.755(c). If corrective actions are taken as specified in 40 CFR 60.755, the monitored exceedance is not a violation of the operational requirements in this section. **(40 CFR 60.753(g), 40 CFR 63.1955(a)(1))**
3. For the approval of collection and control systems that includes any alternatives to the operational standards, test methods, procedures, compliance measures, monitoring, recordkeeping or reporting provisions, the permittee shall follow the procedures in 40 CFR 60.752(b)(2). **(40 CFR 63.1955(c))**
4. The permittee shall comply with the requirements of 40 CFR Part 60, Subpart WWW. **(40 CFR 63.1955(a)(1))**
5. The permittee shall comply with the requirements of 40 CFR Part 63, Subpart AAAA, including the general provisions specified in Table 1 and the SSM requirements in 40 CFR 63.6. **(40 CFR 63.1955, 40 CFR 63.6)**

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6. The permittee is no longer required to comply with the requirements of 40 CFR Part 63, Subpart AAAA when it is no longer required to apply controls as specified in 40 CFR 60.752(b)(2)(v) of Subpart WWW. **(40 CFR 63.1950)**

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).

**FG-ACTIVECOLLECTION-XXX
FLEXIBLE GROUP CONDITIONS**

DESCRIPTION

This emission unit represents the active landfill gas collection system that uses gas mover equipment to draw landfill gas from the wells and moves the gas to the control equipment.

Emission Unit: EU-ACTIVECOLLECTION

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

NA

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTIONS

1. The permittee shall operate the collection system such that gas is collected from each area, cell, or group of cells in the MSW landfill in which solid waste has been in place for:
 - a. Five years or more if active; or **(40 CFR 60.763(a)(1))**
 - b. Two years or more if closed or at final grade. **(40 CFR 60.763(a)(2))**
2. The permittee shall operate the collection system with negative pressure at each wellhead except under the following conditions:
 - a. A fire or increased well temperature. The owner or operator must record instances when positive pressure occurs in efforts to avoid a fire. These records must be submitted with the annual reports as provided in §60.767(g)(1). **(40 CFR 60.763(b)(1))**
 - b. Use of a geo-membrane or synthetic cover. **(40 CFR 60.763(b)(2))**
 - c. A decommissioned well. A well may experience a static positive pressure after shutdown to accommodate for declining flows. All design changes must be approved by the AQD as specified in 40 CFR 60.767(c). **(40 CFR 60.763(b)(3))**
3. The permittee shall operate each interior wellhead in the collection system with a landfill gas temperature less than 55°C (131°F). The permittee may establish a higher operating temperature at a particular well. A higher operating value demonstration shall be submitted to the AQD for approval and it shall include supporting data that the elevated parameter does not cause fires or significantly inhibit anaerobic decomposition by killing methanogens. **(40 CFR 60.763(c), 40 CFR 60.766(e))**
4. During periods of startup, shutdown, and malfunction, the permittee shall comply with the work practice specified in 40 CFR 60.763(e) in lieu of the compliance provisions in 40 CFR 60.765 as follows:
 - a. Operate the system such that all collected gases are vented to a control system designed and operated in compliance with 40 CFR 60.762(b)(2)(iii). **(R 336.1911, 40 CFR 60.765(e))**

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- b. In the event the collection or control system is not operating, the gas mover system shall be shut down and all valves in the collection and control system contributing to venting of the gas to the atmosphere shall be closed within one hour of the collection or control system not operating. **(R 336.1911, 40 CFR 60.765(e))**

IV. DESIGN/EQUIPMENT PARAMETERS

1. The permittee shall install an active collection system that meets the following requirements:
 - a. Designed to handle the maximum expected gas flow rate from the entire area of the landfill that warrants control over the intended use period of the gas control or system equipment. **(40 CFR 60.762(b)(2)(ii)(C)(1))**
 - b. Each well shall be installed no later than 60 days after the date on which the initial solid waste has been in place for a period of 5 years or more if active; or 2 years or more if closed at final grade. **(40 CFR 60.765(b), 40 CFR 60.762(b)(2)(ii)(C)(2))**
 - c. Collects gas at a sufficient extraction rate. **(40 CFR 60.762(b)(2)(ii)(C)(3))**
 - d. Designed to minimize off-site migration of subsurface gas. **(40 CFR 60.762(b)(2)(ii)(C)(4))**
2. The permittee shall operate the collection system so that all collected gases are vented to a control system designed and operated in compliance with 40 CFR 60.762(b)(2)(iii). **(40 CFR 60.763(e))**
3. The permittee shall install a sampling port and a thermometer, other temperature measuring device, or an access port for temperature measurements at each wellhead. **(40 CFR 60.766(a))**
4. The permittee shall site active gas collection devices as required in 40 CFR 60.769 and shall control all gas producing areas, except as provided below.
 - a. Any segregated area of asbestos or non-degradable material may be excluded from collection if documented as provided under 40 CFR 60.768(d). **(40 CFR 60.769(a)(3)(i))**
 - b. Any nonproductive area of the landfill may be excluded from control, provided that the total of all excluded areas can be shown to contribute less than 1 percent of the total amount of NMOC emissions from the landfill. The amount, location, and age of the material shall be documented and provided to the AQD upon request. A separate NMOC emissions estimate shall be made for each section proposed for exclusion, and the sum of all such sections shall be compared to the NMOC emissions estimate for the entire landfill. Emissions from each section shall be computed using the equation in Appendix 7-1. **(40 CFR 60.769(a)(3)(ii))**

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. For the purpose of demonstrating whether the gas collection system flow rate is sufficient to determine compliance with 40 CFR 60.762(b)(2)(ii)(C)(3), the permittee shall measure, on a monthly basis, the gauge pressure in the gas collection header at each individual well as provided in 40 CFR 60.765(a)(3) and 40 CFR 60.766(a)(1). If a positive pressure exists, the following corrective actions shall be taken:
 - a. Action shall be initiated to correct the exceedance within five calendar days, except for the three conditions allowed under 40 CFR 60.763(b). Any attempted corrective measure shall not cause exceedances of other operational or performance standards. **(40 CFR 60.765(a)(3))**
 - b. If negative pressure cannot be achieved without excess air infiltration within 15 calendar days of the first measurement of positive pressure, the permittee must conduct a root cause analysis and correct the exceedance as soon as practicable, but no later than 60 days after positive pressure was first measured. **(40 CFR 60.765(a)(3)(i))**

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- c. If corrective actions cannot be fully implemented within 60 days following the positive pressure measurement for which the root cause analysis was required, the permittee must also conduct a corrective action analysis and develop an implementation schedule to complete the corrective action(s) as soon as practicable, but no more than 120 days following the positive pressure measurement. **(40 CFR 60.765(a)(3)(ii))**
 - d. If corrective action is expected to take longer than 120 days to complete after the initial exceedance, the permittee must submit the root cause analysis, corrective action analysis, and corresponding implementation timeline to the AQD, according to 40 CFR 60.767(g)(7) and 40 CFR 60.767(j). **(40 CFR 60.753(g), 40 CFR 60.765(a)(3)(iii))**
 2. The permittee shall monitor each well monthly for temperature as provided in 40 CFR 60.763(c) and 40 CFR 60.766(a)(3). If a well exceeds the operating parameter for temperature, the following corrective actions shall be taken:
 - a. Action shall be initiated to correct the exceedance within five calendar days. Any attempted corrective measure shall not cause exceedances of other operational or performance standards. **(40 CFR 60.765(a)(5))**
 - b. If a landfill gas temperature less than 55°C (131°F) cannot be achieved within 15 calendar days of the first measurement of landfill gas temperature greater than 55°C (131°F), the permittee shall conduct a root cause analysis and correct the exceedance as soon as practicable, but no later than 60 days after a landfill gas temperature greater than 55°C (131°F) was first measured. **(40 CFR 60.765(a)(5)(i))**
 - c. If corrective actions cannot be fully implemented within 60 days following the positive pressure measurement for which the root cause analysis was required, the permittee shall also conduct a corrective action analysis and develop an implementation schedule to complete the corrective action(s) as soon as practicable, but no more than 120 days following the measurement of landfill gas temperature greater than 55°C (131°F). **(40 CFR 60.765(a)(5)(ii))**
 - d. If corrective action is expected to take longer than 120 days to complete after the initial exceedance, the permittee shall submit the root cause analysis, corrective action analysis, and corresponding implementation timeline to the AQD, according to §60.767(g)(7) and §60.767(j). **(40 CFR 60.765(a)(5)(iii))**
 3. The permittee shall monitor, on a monthly basis, the nitrogen or oxygen concentration in the landfill gas using the procedures in 40 CFR 60.766(a)(2)(i) or (ii). **(40 CFR 60.766(2))**
 4. The permittee shall keep, on a monthly basis, readily accessible records of the following:
 - a. All collection and control system exceedances of the operational standards in 40 CFR 60.763, the reading in the subsequent month whether or not the second reading is an exceedance, and the location of each exceedance. **(40 CFR 60.768(e)(1))**
 - b. Each wellhead temperature monitoring value of 55°C (131°F) or above, each wellhead nitrogen level at or above 20 percent, and each wellhead oxygen level at or above 5 percent. **(40 CFR 60.768(e)(2))**
 - c. For any root cause analysis for which corrective actions are required in 40 CFR 60.765(a)(3)(i) or (a)(5)(i), keep a record of the root cause analysis conducted, including a description of the recommended corrective action(s) taken, and the date(s) the corrective action(s) were completed. **(40 CFR 60.768(e)(3))**
 - d. For any root cause analysis for which corrective actions are required in 40 CFR 60.765(a)(3)(ii) or (a)(5)(ii), keep a record of the root cause analysis conducted, the corrective action analysis, the date for corrective action(s) already completed following the positive pressure reading or high temperature reading, and, for action(s) not already completed, a schedule for implementation, including proposed commencement and completion dates. **(40 CFR 60.768(e)(4))**
 - e. For any root cause analysis for which corrective actions are required in 40 CFR 60.765(a)(3)(iii) or (a)(5)(iii), keep a record of the root cause analysis conducted, the corrective action analysis, the date for corrective action(s) already completed following the positive pressure reading or high temperature reading, for action(s) not already completed, a schedule for implementation, including proposed commencement and completion dates, and a copy of any comments or final approval on the corrective action analysis or schedule from the AQD. **(40 CFR 60.768(e)(5))**

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5. The permittee shall keep up-to-date, readily accessible records for the life of the control equipment of the data listed as follows:
 - a. The maximum expected gas generation flow rate as calculated in 40 CFR 60.765(a)(1). The permittee may use another method to determine the maximum gas generation flow rate, if the method has been approved by the appropriate AQD District Office. **(40 CFR 60.768(b)(1)(i))**
 - b. The density of wells, horizontal collectors, surface collectors, or other gas extraction devices determined using the procedures specified in 40 CFR 60.769(a)(1). **(40 CFR 60.768(b)(1)(ii))**
6. The permittee shall keep for the life of the collection system an up-to-date, readily accessible plot map showing each existing and planned collector in the system and providing a unique identification location label for each collector; and the installation date and location of all newly installed collectors as specified under 40 CFR 60.765(b). **(40 CFR 60.768(d), 40 CFR 60.768(d)(1))**
7. The permittee shall maintain the following information:
 - a. A diagram of the collection system showing collection system positioning including all wells, horizontal collectors, surface collectors, or other gas extraction devices, including the locations of any areas excluded from collection and the proposed sites for the future collection system expansion. **(40 CFR 60.767(h)(1))**
 - b. The documentation of the presence of asbestos or non-degradable material for each area from which collection wells have been excluded based on the presence of asbestos or non-degradable material. **(40 CFR 60.767(h)(3))**
 - c. The sum of the gas generation flow rates for all areas from which collection wells have been excluded based on non-productivity and the calculations of gas generation flow rate for each excluded area. **(40 CFR 60.757(h)(4))**
 - d. The provisions for increasing gas mover equipment capacity with increased gas generation flow rate, if the present gas mover equipment is inadequate to move the maximum flow rate expected over the life of the landfill. **(40 CFR 60.767(h)(5))**
 - e. The provisions for the control of off-site migration. **(40 CFR 60.767(h)(6))**
 - f. The permittee shall maintain the dates of the landfill gas well installations, the age of the waste in which the landfill gas wells were installed, and the age of the in-place waste for each portion of the landfill. **(R 336.1213(3), 40 CFR 60.769(a)(3)(ii))**
 - g. The permittee shall maintain the current amount of solid waste in-place, and the year-by-year waste acceptance rate. **(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. Report shall be postmarked or received by 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. Report shall be postmarked or received by appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**
4. The permittee shall submit to the appropriate AQD District Office annual reports for the gas collection system. Reports shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period January 1 to December 31. The report for the gas collection system shall include the following information:

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- a. Value and length of time for exceedance of applicable parameters monitored under 40 CFR 60.766(a). **(40 CFR 60.767(g)(1))**
 - b. All periods when the collection system was not operating and length of time not operating. **(40 CFR 60.767(g)(4))**
 - c. The date of installation and the location of each well or collection system expansion added pursuant to 40 CFR 60.765(a)(3), 40 CFR 60.765(a)(5), 40 CFR 60.765(b), and 40 CFR 60.765(c)(4). **(40 CFR 60.767(g)(6))**
 - d. The permittee shall record instances when a positive pressure occurs in efforts to avoid fire. **(40 CFR 60.763(b)(1))**
5. Annually, the permittee shall submit to the appropriate AQD District Office reports for any corrective action analysis for which corrective actions are required in 40 CFR 60.765(a)(3) or (5) and that take more than 60 days to correct the exceedance. The report shall include the following information:
- a. The root cause analysis conducted, including a description of the recommended corrective action(s), the date for corrective action(s) already completed following the positive pressure reading. **(40 CFR 60.767(g)(7))**
 - b. For action(s) not already completed, a schedule for implementation, including proposed commencement and completion dates. **(40 CFR 60.767(g)(7))**
6. The permittee shall submit to the appropriate AQD District Office reports for any corrective action and the corresponding timeline as follows:
- a. For corrective action that is required according to 40 CFR 60.765(a)(3)(iii) or (a)(5)(iii) and is expected to take longer than 120 days after the initial exceedance to complete, submit the root cause analysis, corrective action analysis, and corresponding implementation timeline as soon as practicable but no later than 75 days after the first measurement of positive pressure or temperature monitoring value of 55°C (131°F). The AQD must approve the plan for corrective action and the corresponding timeline. **(40 CFR 60.767(j)(1))**
 - b. For corrective action that is required according to 40 CFR 60.765(a)(3)(iii) or (a)(5)(iii) and is not completed within 60 days after the initial exceedance, submit a notification as soon as practicable but no later than 75 days after the first measurement of positive pressure or temperature exceedance. **(40 CFR 60.767(j)(2))**

See Appendix 8-1

VIII. STACK/VENT RESTRICTION(S)

NA

IX. OTHER REQUIREMENTS

1. Each permittee seeking to demonstrate compliance with 40 CFR 60.762(b)(2)(ii)(C)(4) through the use of a collection system not conforming to the specifications provided in 40 CFR 60.769 shall provide information satisfactory to the AQD as specified in 40 CFR 60.767(c)(3) demonstrating that off-site migration is being controlled. **(40 CFR 60.765(a)(6))**
2. Each permittee seeking to install a collection system that does not meet the specifications in 40 CFR 60.759 or is seeking to monitor alternative parameters to those required by 40 CFR 60.763 through 40 CFR 60.766 shall provide information satisfactory to the appropriate AQD District Office as required in 40 CFR 60.767(c)(2) and (3) describing the design and operation of the collection system, the operating parameters that would indicate proper performance, and appropriate monitoring procedures. The AQD may specify additional appropriate monitoring procedures. **(40 CFR 60.766(e))**

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3. The permittee shall 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 60, Subparts A and XXX)**

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).

FG-ACTIVECOLLECTION-WWW FLEXIBLE GROUP CONDITIONS
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DESCRIPTION

This flexible group represents the active landfill gas collection system that uses gas mover equipment to draw landfill gas from the wells and moves the gas to the control equipment. This flexible group contains 40 CFR 60, Subpart WWW requirements.

Emission Unit: EU-ACTIVECOLLECTION

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

NA

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTIONS

1. In the event the collection or control system is inoperable, the gas mover system shall be shut down and all valves in the collection and control system contributing to venting of the gas to the atmosphere shall be closed within one hour. **(40 CFR 60.753(e), 40 CFR 63.1955(a))**
2. The permittee shall operate the collection system such that gas is collected from each area, cell, or group of cells in the MSW landfill in which solid waste has been in place for:
 - a. Five years or more if active; or **(40 CFR 60.753(a)(1), 40 CFR 63.1955(a))**
 - b. Two years or more if closed or at final grade. **(40 CFR 60.753(a)(2), 40 CFR 63.1955(a))**
3. The permittee shall operate the collection system with negative pressure at each wellhead except under the following conditions: **(40 CFR 60.753(b), 40 CFR 63.1955(a))**
 - a. A fire or increased well temperature. The owner or operator shall record instances when positive pressure occurs in efforts to avoid a fire. These records shall be submitted with the semiannual reports as provided in 40 CFR 60.757(f)(1). **(40 CFR 60.753(b)(1), 40 CFR 63.1955(a))**
 - b. Use of a geo-membrane or synthetic cover. The owner or operator shall develop acceptable pressure limits in the design plan **(40 CFR 60.753(b)(2), 40 CFR 63.1955(a))**
 - c. A decommissioned well. A well may experience a static positive pressure after shutdown to accommodate for declining flows. All design changes shall be approved by the AQD. **(40 CFR 60.753(b)(3), 40 CFR 63.1955(a))**
4. The permittee shall operate each interior wellhead in the collection system with a landfill gas temperature less than 55°C and with an oxygen level less than five percent. The owner or operator may establish a higher operating temperature or oxygen value at a particular well. A higher operating value demonstration shall be submitted to the appropriate AQD District Office for approval and it shall include supporting data that the elevated parameter does not cause fires or significantly inhibit anaerobic decomposition by killing methanogens. **(40 CFR 60.753(c), 40 CFR 60.756(e), 40 CFR 63.1955(a))**

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5. The permittee shall operate the installed collection system in accordance with the provisions of 40 CFR 60.753, 40 CFR 60.755, and 40 CFR 60.756. **(40 CFR 60.752(b)(2)(iv), 40 CFR 63.1955(a))**

IV. DESIGN/EQUIPMENT PARAMETERS

1. An active collection system:
 - a. Shall be designed to handle the maximum expected gas flow rate from the entire area of the landfill that warrants control over the intended use period of the gas control or treatment system equipment. **(40 CFR 60.752(b)(2)(ii)(A)(1), 40 CFR 63.1955(a))**
 - b. The permittee shall place each well or design component in the collection system as specified in the approved design plan as provided in 40 CFR 60.752(b)(2)(i). Each well shall be installed no later than 60 days after the date on which the initial solid waste has been in place for a period of five years or more if active; or two years or more if closed at final grade. **(40 CFR 60.755(b), 40 CFR 60.752(b)(2)(ii)(A)(2), 40 CFR 63.1955(a))**
 - c. Collect gas at a sufficient extraction rate. **(40 CFR 60.752(b)(2)(ii)(A)(3), 40 CFR 63.1955(a))**
 - d. Shall be designed to minimize off-site migration of subsurface gas. **(40 CFR 60.752(b)(2)(ii)(A)(4), 40 CFR 63.1955(a))**
2. The permittee shall design the collection system so that all collected gases are vented to a control system designed and operated in compliance with 40 CFR 60.752(b)(2)(iii). **(40 CFR 60.753(e), 40 CFR 63.1955(a))**
3. When adding gas collectors to the active gas collection system, a sufficient density of gas collectors shall be installed in compliance with 40 CFR 60.752(b)(2)(ii)(A)(2) (as specified above in SC IV.1.). The permittee shall design a system of vertical wells, horizontal collectors, or other collection devices, satisfactory to the appropriate AQD District Office, capable of controlling and extracting gas from all portions of the landfill sufficient to meet all operational and performance standards in NSPS WWW. **(40 CFR 60.755(a)(2), 40 CFR 63.1955(a))**
 - a. If the permittee is seeking to demonstrate compliance through the use of a collection system not conforming to the specifications provided in 40 CFR 60.759, then the permittee shall provide information that satisfies the AQD District Supervisor as specified in 40 CFR 60.752(b)(2)(i)(C), demonstrating that off-site migration is being controlled. **(40 CFR 60.755(a)(6), 40 CFR 63.1955(a))**
4. The permittee shall install a sampling port and a thermometer, other temperature measuring device, or an access port for temperature measurements at each wellhead. **(40 CFR 60.756(a), 40 CFR 63.1955(a))**
5. The permittee shall site active collection wells, horizontal collectors, surface collectors, or other extraction devices at a sufficient density throughout all gas producing areas using the following procedures unless alternative procedures have been approved by the appropriate AQD District Supervisor as provided in 40 CFR 60.752(b)(2)(i)(C) and (D):
 - a. The collection devices within the interior and along the perimeter areas shall be certified, by a professional engineer, to achieve comprehensive control of surface gas emissions. The following issues shall be addressed in the design: depths of refuse, refuse gas generation rates and flow characteristics, cover properties, gas system expandability, leachate and condensate management, accessibility, compatibility with filling operations, integration with closure end use, air intrusion control, corrosion resistance, fill settlement, and resistance to the refuse decomposition heat. **(40 CFR 60.759(a)(1), 40 CFR 63.1955(a))**
 - b. The sufficient density of gas collection devices determined in 40 CFR 60.759(a)(1) (above in SC IV.5.a.) shall address landfill gas migration issues and augmentation of the collection system through the use of active or passive systems at the landfill perimeter or exterior. **(40 CFR 60.759(a)(2), 40 CFR 63.1955(a))**
 - c. The placement of gas collection devices determined in 40 CFR 60.759(a)(1) (above in SC IV.5.a.) shall control all gas producing areas, except as provided in 40 CFR 60.759(a)(3) (i) and (ii) (below in SC IV.5.c.i. and ii.). **(40 CFR 60.759(a)(3), 40 CFR 63.1955(a))**

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- i. Any segregated area of asbestos or non-degradable material may be excluded from collection if documented as provided under 40 CFR 60.758(d). The documentation shall provide the nature, date of deposition, location and amount of asbestos or non-degradable material deposited in the area and shall be provided to the District Supervisor upon request. **(40 CFR 60.759(a)(3)(i), 40 CFR 63.1955(a))**
 - ii. Any nonproductive area of the landfill may be excluded from control, provided that the total of all excluded areas can be shown to contribute less than one percent of the total amount of NMOC emissions from the landfill. The amount, location, and age of the material shall be documented and provided to the AQD District Supervisor upon request. A separate NMOC emissions estimate shall be made for each section proposed for exclusion, and the sum of all such sections shall be compared to the NMOC emissions estimate for the entire landfill. Emissions from each section shall be computed using the equation in Appendix 7-1. **(40 CFR 60.759(a)(3)(ii), 40 CFR 63.1955(a))**
6. The permittee shall construct the gas collection devices using the following equipment or procedures:
- a. The landfill gas extraction components shall be constructed of polyvinyl chloride (PVC), high density polyethylene (HDPE) pipe, fiberglass, stainless steel, or other nonporous corrosion resistant material of suitable dimensions to convey projected amounts of gases; withstand installation, static, and settlement forces; and withstand planned overburden or traffic loads. The collection system shall extend as necessary to comply with emission and migration standards. Collection devices such as wells and horizontal collectors shall be perforated to allow gas entry without head loss sufficient to impair performance across the intended extent of control. Perforations shall be situated with regard to the need to prevent excessive air infiltration. **(40 CFR 60.759(b)(1), 40 CFR 63.1955(a))**
 - b. Vertical wells shall be placed so as not to endanger underlying liners and shall address the occurrence of water within the landfill. Holes and trenches constructed for piped wells and horizontal collectors shall be of sufficient cross-section so as to allow for their proper construction and completion including, for example, centering of pipes and placement of gravel backfill. Collection devices shall be designed so as not to allow indirect short circuiting of air into the cover or refuse into the collection system or gas into the air. Any gravel used around pipe perforations should be of a dimension so as not to penetrate or block perforations. **(40 CFR 60.759(b)(2), 40 CFR 63.1955(a))**
 - c. Collection devices may be connected to the collection header pipes below or above the landfill surface. The connector assembly shall include a positive closing throttle valve, any necessary seals and couplings, access couplings and at least one sampling port. The collection devices shall be constructed of PVC, HDPE, fiberglass, stainless steel, or other nonporous material of suitable thickness. **(40 CFR 60.759(b)(3), 40 CFR 63.1955(a))**
7. The active gas collection system shall be designed so as to convey the landfill gas to a control system in compliance with 40 CFR 60.752(b)(2)(iii) through the collection header pipe(s). The gas mover equipment shall be sized to handle the maximum gas generation flow rate expected over the intended use period of the gas moving equipment using the following procedures: **(40 CFR 60.759(c), 40 CFR 63.1955(a))**
- a. For existing collection systems, the flow data shall be used to project the maximum flow rate. If no flow data exists, the procedures in 40 CFR 60.759(c)(2) shall be used. **(40 CFR 60.759(c)(1), 40 CFR 63.1955(a))**
 - b. For new collection systems, the maximum flow rate shall be in accordance with 40 CFR 60.755(a)(1). **(40 CFR 60.759(c)(2), 40 CFR 63.1955(a))**

V. TESTING/SAMPLING

NA

VI. MONITORING/RECORDKEEPING

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

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1. For the purpose of demonstrating whether the gas collection system flow rate is sufficient to determine compliance with 40 CFR 60.752(b)(2)(ii)(A)(3), the permittee shall measure gauge pressure in the gas collection header at each individual well, monthly. If a positive pressure exists, action shall be initiated to correct the exceedance within five calendar days, except for the three conditions allowed under 40 CFR 60.753(b) (above in SC III.3.a-c). If negative pressure cannot be achieved without excess air infiltration within 15 calendar days of the first measurement, the gas collection system shall be expanded to correct the exceedance within 120 days of the initial measurement of positive pressure. Any attempted corrective measure shall not cause exceedances of other operational or performance standards. An alternative timeline for correcting the exceedance may be submitted to the AQD for approval. **(40 CFR 60.755(a)(3), 40 CFR 60.756(a)(1), 40 CFR 63.1955(a))**
 - a. If monitoring demonstrates that the negative pressure is not being met, then corrective action shall be taken as noted in 40 CFR 60.755(a)(3) (above in SC VI.1.). If corrective actions are taken as specified in 40 CFR 60.755, the monitored exceedance is not a violation of the operational requirements. **(40 CFR 60.753(g), 40 CFR 63.1955(a))**
2. The permittee is not required to expand the gas collection system as required in 40 CFR 60.755(a)(3) (above in SC VI.1.) during the first 180 days after gas collection system startup. **(40 CFR 60.755(a)(4), 40 CFR 63.1955(a))**
3. For the purpose of identifying whether excess air infiltration into the landfill is occurring, the permittee shall monitor each well monthly for temperature and oxygen as provided in 40 CFR 60.753(c). If a well exceeds one of these operating parameters, action shall be initiated to correct the exceedance within five calendar days. If correction of the exceedance cannot be achieved within 15 calendar days of the first measurement, the gas collection system shall be expanded to correct the exceedance within 120 days of the initial exceedance. Any attempted corrective measure shall not cause exceedances of other operational or performance standards. An alternative timeline for correcting the exceedance may be submitted to the AQD for approval. **(40 CFR 60.755(a)(5), 40 CFR 60.756(a)(2), 40 CFR 60.756(a)(3), 40 CFR 63.1955(a))**
 - a. If monitoring demonstrates that the temperature and oxygen levels are not being met, then corrective action shall be taken as noted above and specified in 40 CFR 60.755(a)(5). If corrective actions are taken as specified in 40 CFR 60.755, the monitored exceedance is not a violation of the operational requirements. **(40 CFR 60.753(g), 40 CFR 63.1955(a))**
 - b. Unless an alternative test method is established as allowed by 40 CFR 60.752(b)(2)(i), the oxygen shall be determined by an oxygen meter using Method 3A or 3C except that:
 - i. The span shall be set so that the regulatory limit is between 20 and 50 percent of the span. **(40 CFR 60.753(c)(i), 40 CFR 63.1955(a))**
 - ii. A data recorder is not required. **(40 CFR 60.753(c)(ii), 40 CFR 63.1955(a))**
 - iii. Only two calibration gases are required, a zero and span, and ambient air may be used as the span. **(40 CFR 60.753(c)(iii), 40 CFR 63.1955(a))**
 - iv. A calibration error check is not required. **(40 CFR 60.753(c)(iv), 40 CFR 63.1955(a))**
 - v. The allowable sample bias, zero drift, and calibration drift are ± 10 percent. **(40 CFR 60.753(c)(v), 40 CFR 63.1955(a))**
4. Except as provided in 40 CFR 60.752(b)(2)(i)(B), the permittee shall keep up-to-date, readily accessible records for the life of the control equipment of the data listed in 40 CFR 60.758(b)(1) (below in SC VI.4.a-b) as measured during the compliance determination. Records of the control device vendor specifications shall be maintained until removal. **(40 CFR 60.758(b), 40 CFR 63.1955(a))**
 - a. The maximum expected gas generation flow rate as calculated in 40 CFR 60.755(a)(1). The permittee may use another method to determine the maximum gas generation flow rate, if the method has been approved by the appropriate AQD District Office. **(40 CFR 60.758(b)(1)(i), 40 CFR 63.1955(a))**

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- b. The density of wells, horizontal collectors, surface collectors, or other gas extraction devices determined using the procedures specified in 40 CFR 60.759(a)(1). **(40 CFR 60.758(b)(1)(ii), 40 CFR 63.1955(a))**
5. Except as provided in 40 CFR 60.752(b)(2)(i)(B), the permittee shall keep for the life of the collection system an up-to-date, readily accessible plot map showing each existing and planned collector in the system and providing a unique identification location label for each collector; and the installation date and location of all newly installed collectors as specified under 40 CFR 60.755(b) (above in SC IV.1.b.). **(40 CFR 60.758(d), 40 CFR 60.758(d)(1), 40 CFR 63.1955(a))**
6. The permittee shall keep readily accessible records of all collection and control system exceedances of the operational standards in 40 CFR 60.753, the reading in the subsequent month whether or not the second reading is an exceedance, and the location of each exceedance. **(40 CFR 60.758(e), 40 CFR 63.1955(a))**
7. The permittee shall maintain the following information:
 - a. A diagram of the collection system showing collection system positioning including all wells, horizontal collectors, surface collectors, or other gas extraction devices, including the locations of any areas excluded from collection and the proposed sites for the future collection system expansion. **(40 CFR 60.757(g)(1), 40 CFR 63.1955(a))**
 - b. The data upon which the sufficient density of wells, horizontal collectors, surface collectors, or other gas extraction devices and the gas mover equipment sizing are based. **(40 CFR 60.757(g)(2), 40 CFR 63.1955(a))**
 - c. The documentation of the presence of asbestos or non-degradable material for each area from which collection wells have been excluded based on the presence of asbestos or non-degradable material. **(40 CFR 60.757(g)(3), 40 CFR 63.1955(a))**
 - d. The sum of the gas generation flow rates for all areas from which collection wells have been excluded based on non-productivity and the calculations of gas generation flow rate for each excluded area. **(40 CFR 60.757(g)(4), 40 CFR 63.1955(a))**
 - e. The provisions for increasing gas mover equipment capacity with increased gas generation flow rate, if the present gas mover equipment is inadequate to move the maximum flow rate expected over the life of the landfill. **(40 CFR 60.757(g)(5), 40 CFR 63.1955(a))**
 - f. The provisions for the control of off-site migration. **(40 CFR 60.757(g)(6), 40 CFR 63.1955(a))**
 - g. The permittee shall maintain the dates of the landfill gas well installations, the age of the waste in which the landfill gas wells were installed, and the age of the in-place waste for each portion of the landfill. **(R 336.1213(3))**

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))**

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4. The permittee shall submit to the appropriate AQD District Office semiannual reports for the gas collection system. The reports 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. For enclosed combustion devices and flares, reportable exceedances are defined under 40 CFR 60.758(c). The semiannual reports for the gas collection system shall include the following information: **(40 CFR 60.757(f), 40 CFR 63.1980(a), 40 CFR 63.1955(a), 40 CFR 63.1965)**
 - a. Value and length of time for exceedance of applicable parameters monitored under 40 CFR 60.756(a), (above in SC VI.1. and VI.3.). **(40 CFR 60.757(f)(1))**
 - b. All periods when the collection system was not operating in excess of five days. **(40 CFR 60.757(f)(4))**
 - c. The date of installation and the location of each well or collection system expansion added pursuant to 40 CFR 60.755(a)(3), 40 CFR 60.755(b), and 40 CFR 60.755(c)(4) (above in SC IV.1.b., VI.1. and VI.3.). **(40 CFR 60.757(f)(6))**
 - d. Any deviations as listed in 40 CFR 63.1965. **(40 CFR 63.1965)**
 - e. The permittee shall record instances when a positive pressure occurs in efforts to avoid fire. **(40 CFR 60.753(b)(1))**
5. The permittee shall submit the startup, shutdown, and malfunction (SSM) report to the appropriate AQD District Office and it shall be delivered or postmarked by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(40 CFR 63.10(a)(5), 40 CFR 63.10(d)(5))**

See Appendix 8-1

VIII. STACK/VENT RESTRICTION(S)

N/A

IX. OTHER REQUIREMENTS

1. If monitoring demonstrates that the operational requirements in 40 CFR 60.753(b), (c), or (d) (above in SC III.3. and III.4.) are not met, corrective action shall be taken as specified above in 40 CFR 60.755(a)(3) through (5) or 40 CFR 60.755(c) (SC VI.1. and VI.3.). If corrective actions are taken as specified in 40 CFR 60.755 755 (above in SC VI.1. and VI.3.), the monitored exceedance is not a violation of the operational requirements in 40 CFR 60.753 (SC III.3. and III.4.). **(40 CFR 60.753(g), 40 CFR 63.1955(a))**
2. The provisions of 40 CFR Part 60, Subpart WWW, apply at all times, except during periods of start-up, shutdown, or malfunction, provided that the duration of start-up, shutdown, or malfunction shall not exceed five days for collection systems and shall exceed one hour for treatment and control devices. **(40 CFR 60.755(e), 40 CFR 63.1955(a))**
3. If the permittee is seeking to install a collection system that does not meet the specifications in 40 CFR 60.759 (above in SC IV.5, IV.6 and IV.7.) or is seeking to monitor alternative parameters to those required by 40 CFR 60.753 through 40 CFR 60.756, they shall provide information satisfactory to the appropriate AQD District Office as provided in 40 CFR 60.752(b)(2)(i)(B) and (C) describing the design and operation of the collection system, the operating parameters that would indicate proper performance, and appropriate monitoring procedures. The AQD may specify additional appropriate monitoring procedures. **(40 CFR 60.756(e), 40 CFR 63.1955(a))**
4. The permittee shall have developed and implemented a written SSM plan according to the provision in 40 CFR 63.6(e)(3) for EU-ACTIVECOLLECTION. A copy of the SSM plan shall be maintained on site. **(40 CFR 63.1960)**

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).

FG-TREATMENTSYSYSTEM-XXX FLEXIBLE GROUP CONDITIONS

DESCRIPTION

Processing equipment that treats landfill gas before it is used for subsequent use or sale. The treatment system removes particulate to at least the 10-micron level, compresses the landfill gas, and removes enough moisture to ensure good combustion of gas for subsequent use. This flexible group contains the requirements of 40 CFR Part 60, Subpart XXX.

Emission Unit: EU-TREATMENTSYSYSTEM

POLLUTION CONTROL EQUIPMENT

Any emissions from any atmospheric vents or stacks associated with the treatment system shall be subject to 40 CFR 60.762(b)(2)(iii)(A) or (B).

I. EMISSION LIMIT(S)

NA

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall operate the treatment system at all times when the collected gas is routed to the treatment system. **(40 CFR 60.763(f))**
2. The permittee shall operate the treatment system so that any emissions from any atmospheric vents or stacks associated with the treatment system shall be subject to 40 CFR 60.762(b)(2)(iii)(A) or (B). **(40 CFR 60.762(b)(2)(iii)(C) and (D))**
3. The permittee shall develop a site-specific treatment system monitoring plan as required in 40 CFR 60.768(b)(5)(ii). The plan shall at a minimum contain the following: **(40 CFR 60.766(g))**
 - a. Monitoring of filtration, de-watering, and compression parameters that ensure the treatment system is operating properly for each intended end use of the treated landfill gas. **(40 CFR 60.768(b)(5)(ii)(A))**
 - b. Monitoring methods, frequencies, and operating ranges for each monitored operating parameter based on manufacturer's recommendations or engineering analysis for each intended end use of the treated landfill gas. **(40 CFR 60.768(b)(5)(ii)(B))**
 - c. Documentation of the monitoring methods and ranges, along with justification for their use. **(40 CFR 60.768(b)(5)(ii)(C))**
 - d. Identify who is responsible (by job title) for data collection. **(40 CFR 60.768(b)(5)(ii)(D))**
 - e. Processes and methods used to collect the necessary data. **(40 CFR 60.768(b)(5)(ii)(E))**
 - f. Description of the procedures and methods that are used for quality assurance, maintenance, and repair of all continuous monitoring systems. **(40 CFR 60.768(b)(5)(ii)(F))**

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4. The monitoring requirements apply at all times the treatment system is operating except for periods of monitoring system malfunctions, repairs associated with monitoring system malfunctions, and required monitoring system quality assurance or quality control activities. The permittee shall complete monitoring system repairs in response to monitoring system malfunctions and to return the monitoring system to operation as expeditiously as practicable. **(R 336.1911, 40 CFR 60.766(h))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall install and properly operate a treatment system in accordance with 40 CFR 60.767(c)(2). **(40 CFR 60.766(d))**
2. The permittee shall install, calibrate, maintain, and operate according to the manufacturer's specifications, a device that records flow to the treatment system and bypass of the treatment system (if applicable). **(40 CFR 60.766(g))**

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. The permittee shall keep monthly records of all treatment system operating parameters specified to be monitored according to 40 CFR 60.766(g). The records shall include:
 - a. Continuous records of the indication of flow and gas flow rate to the treatment system. **(40 CFR 60.768(c)(2))**
 - b. The indication of bypass flow or records of monthly inspections of car-seals or lock-and-key configurations used to seal bypass lines. **(40 CFR 60.768(c)(2))**
 - c. Maintenance and repair of the monitoring system. **(40 CFR 60.766(h))**

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. Report shall be postmarked or received by 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. Report shall be postmarked or received by appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**
4. The permittee shall submit to the appropriate AQD District Office annual reports for the landfill gas treatment system. The report shall be received by appropriate AQD District Office by March 15 for reporting period January 1 to December 31. The report shall include the following:
 - a. Value and length of time for exceedance of applicable parameters monitored under 40 CFR 60.766(g). **(40 CFR 60.767(g)(1))**
 - b. Description and duration of all periods when the gas stream is diverted from the treatment system through a bypass line or the indication of bypass flow. **(40 CFR 60.767(g)(2))**
 - c. Description and duration of all periods when the treatment system was not operating and length of time the control device was not operating. **(40 CFR 60.767(g)(3))**

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See Appendix 8-1

VIII. STACK/VENT RESTRICTION(S)

NA

IX. OTHER REQUIREMENT(S)

1. The permittee shall 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 60, Subparts A and XXX)**

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).

FG-TREATMENTSYSTEM-WWW FLEXIBLE GROUP CONDITIONS

DESCRIPTION

A treatment system that filters, de-waters, and compresses landfill gas for subsequent sale or beneficial use. The treatment system removes particulate to at least the 10-micron level, compresses the landfill gas, and removes enough moisture to ensure good combustion of gas for subsequent use. This flexible group contains the requirements of 40 CFR Part 60, Subpart WWW.

Emission Unit: EU-TREATMENTSYSTEM

POLLUTION CONTROL EQUIPMENT

Any emissions from any atmospheric vents or stacks associated with the treatment system shall be subject to 40 CFR 60.752(b)(2)(iii)(A) or (B).

I. EMISSION LIMIT(S)

NA

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall operate the treatment system at all times when the collected gas is routed to the treatment system. **(40 CFR 60.753(f))**
2. The permittee shall operate the treatment system so that any emissions from any atmospheric vents or stacks associated with the treatment system shall be subject to 40 CFR 60.752(b)(2)(iii)(A) or (B). **(40 CFR 60.752(b)(2)(iii)(C), 40 CFR 63.1955(c))**
3. The permittee shall operate the treatment system to comply with the provisions of 40 CFR 60.753(e) and (f), and 40 CFR 60.756(d). **(40 CFR 60.752(b)(2)(iv), 40 CFR 63.1955(c))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The treatment system shall be designed as approved by AQD. **(40 CFR 60.752(b)(2)(iii)(C), 40 CFR 60.752(b)(2)(i)(D), 40 CFR 63.1955(c))**

V. TESTING/SAMPLING

NA

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 keep up-to-date; readily accessible records of all control or treatment system exceedances of the operational standards in 40 CFR 60.753(e) and (f). **(40 CFR 60.758(e), 40 CFR 63.1955(a))**
2. The permittee shall keep records of all preventative maintenance performed in accordance with the preventative maintenance plan (PMP) prepared pursuant to SC IX.3 of this permit. **(40 CFR 60.756(d), R 336.1213(3))**

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3. The permittee shall provide information to the AQD as provided in 40 CFR 60.752(b)(2)(i)(B) describing the operation of the control device, the operating parameters that would indicate proper performance, and appropriate monitoring procedures. The AQD shall review the information and either approve it, or request that additional information be submitted. The AQD may specify additional appropriate monitoring procedures. **(40 CFR 60.756(d))**.

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. Report shall be postmarked or received by 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. Report shall be postmarked or received by appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**
4. The permittee shall submit to the appropriate AQD District Office semiannual reports for the landfill gas treatment system. The report shall be received by 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. **(40 CFR 60.757(f), 40 CFR 63.1980(a), 40 CFR 63.1955(a))**

The report shall include:

- a. Value and length of time for exceedance of applicable parameters monitored under 40 CFR 60.756(d). **(R 336.1213(3), 40 CFR 60.757(f)(1), 40 CFR 63.1980(a), 40 CFR 63.1955(c))**
 - b. Description and duration of all periods when the gas stream is diverted from the treatment system through a bypass line or the indication of bypass flow. **(R 336.1213(3))**
 - c. Description and duration of all periods when the treatment system was not operating for a period exceeding one hour and length of time the control device was not operating. **(40 CFR 60.757(f)(3), 40 CFR 63.1980(a), 40 CFR 63.1955(c))**
 - d. Description and duration of all periods when the treatment system was not operated in accordance with the operating parameters and monitoring procedures that were part of the plan in SC VII.4. **(R 336.1213(3))**
5. The permittee shall submit the startup, shutdown, and malfunction (SSM) report to the appropriate AQD District Office and it shall be delivered or postmarked by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(40 CFR 63.10(a)(5), 40 CFR 63.10(d)(5))**

See Appendix 8-1

VIII. STACK/VENT RESTRICTION(S)

NA

IX. OTHER REQUIREMENT(S)

1. The provisions of 40 CFR Part 60, Subpart WWW, apply at all times, except during periods of start-up, shutdown, or malfunction, provided that the duration of start-up, shutdown, or malfunction shall not exceed one hour for the treatment system. **(40 CFR 60.755(e), 40 CFR 63.1955(c))**
2. The permittee shall have developed and implemented a written SSM plan according to the provision in 40 CFR 63.6(e)(3) for EUTREATMNTSYSTEM. A copy of the SSM plan shall be maintained on-site. **(40 CFR 63.1960, (40 CFR 63.1965(c))**

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3. The permittee shall have implemented a written preventative maintenance plan (PMP) for EUTREATMNTSYSTEM. At a minimum, the plan shall include a schedule of maintenance activities consistent with manufacturer's recommendations, and the operating variables that will be monitored to detect a malfunction or failure. A copy of the PMP shall be maintained on site and available upon request. **(40 CFR 60.756(d), R 336.1213(3), R 336.1911)**

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).

**FG-ENCLOSED FLARE-XXX
FLEXIBLE GROUP CONDITIONS**

DESCRIPTION

Two enclosed flares with a combined capacity of 9,000 CFM, used in combusting landfill gas. An enclosed flare is an enclosed combustor or firebox which maintains a relatively constant limited peak temperature generally using a limited supply of combustion air. This flexible group contains the requirements of 40 CFR Part 60, Subpart XXX.

Emission Unit: EU-FLARE4, EU-FLARE6

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMITS

NA

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. NMOC	20 ppmv dry as hexane at 3% oxygen -OR- 98% weight reduction or more	Hourly	Enclosed Flares	SC V.1 SC V.2	40 CFR 60.762(b)(2)(iii)(B)

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTIONS

1. The permittee shall operate the enclosed flare at all times when the collected gas is routed to it. **(40 CFR 60.763(f))**
2. The permittee shall operate control system such that all collected gases are vented to a control system designed and operated in accordance 60.762(b)(2)(iii). **(40 CFR 60.762(b)(2)(iii)(B))**
3. The enclosed flare shall be operated within the parameter ranges established during the most recent performance test in compliance with 40 CFR 60.764(d). **(40 CFR 60.762(b)(2)(iii)(B)(2))**
4. In the event the control system is inoperable, the gas mover system shall be shut down and all valves in the collection and control system contributing to venting of the gas to the atmosphere shall be closed within one hour. **(R 336.1911, 40 CFR 60.763(e))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall install, calibrate, maintain, and operate according to the manufacturer's specifications, the following equipment:

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- a. A temperature monitoring device equipped with a continuous recorder and having a minimum accuracy of ± 1 percent of the temperature being measured expressed in degrees Celsius or ± 0.5 degrees Celsius, whichever is greater. **(40 CFR 60.766(b)(1))**
- b. A device that records flow to the control device and bypass of the control device (if applicable). **(40 CFR 60.766(b)(2))**

V. TESTING/SAMPLING

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

1. Within 180 days of permit issuance or five years from the last test date, whichever is later, the permittee shall verify the NMOC reduction efficiency or ppmv from EU-FLARE4 and EU-FLARE6, by testing at owner's expense, in accordance with Department requirements. Testing shall be performed using an approved EPA method listed in 40 CFR 60, Appendix A. An alternate 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. The permittee must submit 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 336.2001, R 336.2003, R 336.2004, 40 CFR 60.762(b)(2)(iii)(B), 40 CFR 60.764(d))**
2. The permittee shall verify the NMOC reduction efficiency or ppmv from EU-FLARE4 and EU-FLARE6 every five years from the date of the last test. **(R 336.1213(3), R 336.2001, R 336.2003, R 336.2004, 40 CFR 60.762(b)(2)(iii)(B), 40 CFR 60.764(d))**

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 keep monthly records of the operating parameters specified to be monitored in 40 CFR 60.766(b). The records shall include:
 - a. Continuous records of the indication of flow and gas flow rate to the control device. **(40 CFR 60.766(b)(2)(i))**
 - b. The indication of bypass flow or records of monthly inspections of car-seals or lock-and-key configurations used to seal bypass lines. **(40 CFR 60.766(b)(2)(ii))**
2. The permittee shall keep monthly, readily accessible records for periods of operation during which the parameter boundaries established during the most recent performance test are exceeded.
 - a. The average combustion temperature measured at least every 15 minutes and averaged over the same time period of the performance test. **(40 CFR 60.768(b)(2)(i))**
 - b. All three-hour periods of operation during which the average combustion temperature was more than 28°C (82°F) below the average combustion temperature during the most recent performance test at which compliance with 40 CFR 60.762(b)(2)(iii) was determined. **(40 CFR 60.768(c)(1)(i))**

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. Report shall be postmarked or received by 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. Report shall be postmarked or received by appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**

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4. The permittee shall submit to the appropriate AQD District Office annual reports for the control system. Reports shall be received by appropriate AQD District Office by March 15 for reporting period January 1 to December 31. For enclosed combustion devices, reportable exceedances are defined under 40 CFR 60.768(c). The report shall include the following:
 - a. Value and length of time for exceedance of applicable parameters monitored under 40 CFR 60.766(b). **(40 CFR 60.767(g)(1))**
 - b. Description and duration of all periods when the gas stream is diverted from the control device through a bypass line or the indication of bypass flow as specified under 40 CFR 60.766. **(40 CFR 60.767(g)(2))**
 - c. Description and duration of all periods when the control device was not operating and length of time the control device was not operating. **(40 CFR 60.767(g)(3))**
5. 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 336.2001(5))**
6. 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 EPA's Electronic Reporting Tool (ERT) as listed on the EPA's ERT Web site (https://www3.epa.gov/ttn/chief/ert/ert_info.html) at the time of the test. The permittee shall submit the results of the performance test to the EPA via the Compliance and Emissions Data Reporting Interface (CEDRI). CEDRI can be accessed through the EPA'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 REQUIREMENTS

1. The permittee shall 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 60, Subparts A and XXX)**

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).

**FG-ENCLOSEDFLARE-WWW
FLEXIBLE GROUP CONDITIONS**

DESCRIPTION

Two enclosed flares with a combined capacity of 9,000 CFM, used in combusting landfill gas. An enclosed flare is an enclosed combustor or firebox which maintains a relatively constant limited peak temperature generally using a limited supply of combustion air. This flexible group contains the requirements of 40 CFR Part 60 Subpart WWW.

Emission Unit ID: EU-FLARE4, EU-FLARE6

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. NMOC	20 ppmv dry as hexane at 3% oxygen -OR- 98% reduction or more	Hourly	Enclosed Flare	SC V.1 SC V.2	40 CFR 60.762(b)(2)(iii)(B)

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall only burn landfill gas in EU-FLARE4 and EU-FLARE6. **(R 336.1213(3)(a)(iii))**
2. The permittee shall operate the enclosed flare at all times when the collected gas is routed to the enclosed flare. **(40 CFR 60.753(f), 40 CFR 63.1955(a))**
3. The permittee shall operate a control system such that all collected gases are vented to a control system designed and operated in accordance with 60.752(b)(2)(iii). In the event that the collection or control system is inoperable, the gas mover system shall be shut down and all valves in the collection and control system contributing to venting of the gas to the atmosphere shall be closed within one hour. **(40 CFR 60.753(e), 40 CFR 63.1955(a))**
4. The permittee shall route all collected untreated gas to the enclosed flares, or another control system designed and operated to reduce NMOC by 98 weight-percent or reduce the outlet NMOC concentration to less than 20 parts per million by volume, dry basis as hexane at 3% percent oxygen. **(40 CFR 60.752(b)(2)(iii)(B), 40 CFR 63.1955(a))**
 - a. The enclosed flare shall be operated within the parameter ranges established during the most recent performance test in compliance with 40 CFR 60.754(d). The operating parameters to be monitored are specified in 40 CFR 60.756 (below in condition VI.5.). **(40 CFR 60.752(b)(2)(iii)(B)(2), 40 CFR 63.1955(a))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

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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. The permittee shall calibrate, maintain, and operate the enclosed flare according to the manufacturer's specifications, including the following:
 - a. A temperature monitoring device equipped with a continuous recorder and having a minimum accuracy of plus or minus one percent of the temperature being measured expressed in degrees centigrade or plus or minus 0.5 degrees centigrade, whichever is greater. **(40 CFR 60.756(b)(1), 40 CFR 63.1955(a))**
 - b. A device that records flow to or bypass of the control device. The permittee shall either:
 - i. Install, calibrate, and maintain a gas flow rate measuring device that shall record the flow to the control device at least every 15 minutes; **(40 CFR 60.756(b)(2)(i), 40 CFR 63.1955(a)) or**
 - ii. Secure the bypass line valve in the closed position with a car-seal or a lock-and-key type configuration. A visual inspection of the seal or closure mechanism shall be performed at least once every month to ensure that the valve is maintained in the closed position and that the gas flow is not diverted through the bypass line. **(40 CFR 60.756(b)(2)(ii), 40 CFR 63.1955(a))**
2. Except as provided in 40 CFR 60.752(b)(2)(i)(B), the permittee shall keep readily accessible continuous records of the equipment operating parameters specified to be monitored in 40 CFR 60.756 (above in condition VI.5.), as well as up-to-date, readily accessible records for periods of operation during which the parameter boundaries established during the most recent performance test are exceeded. **(40 CFR 60.758(c))**
 - a. The following constitute exceedances that shall be recorded and reported under 40 CFR 60.757(f) (above in condition III.2.)
 - i. All three-hour periods of operation during which the average combustion temperature was more than 28 °C (82° F) below the average combustion temperature during the most recent performance test at which compliance with 40 CFR 60.752(b)(2)(iii) (above in condition III.4.) was determined. **(40 CFR 60.758(c)(1)(i))**
 - A. Three-hour block averages are calculated in the same way as they are calculated in 40 CFR Part 60, Subpart WWW, except that the data collected during the events listed below are not to be included in any average computed for 40 CFR Part 63, Subpart AAAA. **(40 CFR 63.1975)**
 - (a) Monitoring system breakdowns, repairs, calibration checks, and zero (low-level) and high-level adjustments. **(40 CFR 63.1975(a))**
 - (b) Startups. **(40 CFR 63.1975(b))**
 - (c) Shutdowns. **(40 CFR 63.1975(c))**
 - (d) Malfunctions. **(40 CFR 63.1975(d))**
3. The permittee shall keep up-to-date, readily accessible continuous records of the indication of flow to the control device or the indication of bypass flow or records of monthly inspections of car-seals or lock-and-key configurations used to seal bypass lines, specified in 40 CFR 60.756 (above in condition VI.5.). **(40 CFR 60.758(c)(2))**
4. The following information shall be recorded:

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- a. The average combustion temperature measured at least every 15 minutes and averaged over the same time period of the performance test. **(40 CFR 60.758(b)(2)(i))**
 - b. The percent reduction of NMOC determined as specified in 40 CFR 60.752(b)(2)(iii)(B) achieved by the control device. **(40 CFR 60.758(b)(2)(ii))**
5. The permittee shall keep up-to-date, readily accessible records of all control system exceedances of the operational standards in 40 CFR 60.753 (above in conditions III.2. and III.3.). **(40 CFR 60.758(e))**

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 to the appropriate AQD District Office semi-annual reports for the gas collection system. Reports shall be received by 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. For enclosed combustion devices and flares, reportable exceedances are defined under 40 CFR 60.758(c). **(40 CFR 60.757(f), 40 CFR 63.1980(a), 40 CFR 63.1955(a))**. The semi-annual report shall contain:
 - a. Value and length of time for exceedance of applicable parameters monitored in 40 CFR 60.756(b) (above in condition VI.5.). **(40 CFR 60.757(f)(1), 40 CFR 63.1980(a), 40 CFR 63.1955(a))**
 - b. Description and duration of all periods when the gas stream is diverted from the control device through a bypass line or the indication of bypass flow as specified in 40 CFR 60.756 (above in condition VI.5.b.). **(40 CFR 60.757(f)(2), 40 CFR 63.1980(a), 40 CFR 63.1955(a))**
 - c. Description and duration of all periods when the control device was not operating for a period exceeding one hour and length of time the control device was not operating. **(40 CFR 60.757(f)(3), 40 CFR 63.1980(a), 40 CFR 63.1955(a))**
5. The permittee shall submit an equipment removal report to the AQD 30 days prior to removal or cessation of operation of the enclosed flare. **(40 CFR 60.757(e))**
 - a. The equipment removal report shall contain all of the following items:
 - i. A copy of the closure report submitted in accordance with 40 CFR 60.757(d). **(40 CFR 60.757(e)(1)(i), 40 CFR 63.1955(a))**
 - ii. A copy of the initial performance test report demonstrating that the 15-year minimum control period has expired. **(40 CFR 60.757(e)(1)(ii), 40 CFR 63.1955(a))**
 - iii. Dated copies of three successive NMOC emission rate reports demonstrating that the landfill is no longer producing 50 megagrams or greater of NMOC per year. **(40 CFR 60.757(e)(1)(iii), 40 CFR 63.1955(a))**
 - b. Additional information may be requested as may be necessary to verify that all of the conditions for removal in 40 CFR 60.752(b)(2)(v) have been met. **(40 CFR 60.757(e)(2), 40 CFR 63.1955(a))**

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6. The permittee shall submit the startup, shutdown, and malfunction (SSM) report to the appropriate AQD district office and it shall be delivered or postmarked by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(40 CFR 63.10(a)(5), 40 CFR 63.10(d)(5))**

See Appendix 8-1

VIII. STACK/VENT RESTRICTION(S)

NA

IX. OTHER REQUIREMENT(S)

1. The provisions of 40 CFR Part 60, Subpart WWW apply at all times, except during periods of start-up, shutdown, or malfunction, provided that the duration of start-up, shutdown, or malfunction shall not exceed 1 hour for control devices. **(40 CFR 60.755(e), 40 CFR 63.1955(a))**
2. Compliance is determined in the same way it is determined for 40 CFR Part 60, Subpart WWW, including performance testing, monitoring of the collection system, continuous parameter monitoring, and other credible evidence. In addition, continuous parameter monitoring data collected under 40 CFR 60.756(b)(1) (above in SC VI.1) are used to demonstrate compliance with the operating conditions for the enclosed flare. The permittee shall have developed and implemented a written SSM plan according to the provision in 40 CFR 63.6(e)(3) for the enclosed flares. A copy of the SSM plan shall be maintained on site. **(40 CFR 63.1960)**
3. The permittee shall comply with all applicable provisions of 40 CFR Part 60, Subparts A and WWW “Standard of Performance for Municipal Solid Waste Landfills as they apply to EU-FLARE4, EU-FLARE6.”² **(40 CFR Part 60, Subparts A and WWW)**
4. The permittee shall comply with all applicable provisions of 40 CFR Part 63, Subparts A and AAAA “National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills as they apply to EU-FLARE 4, EU-FLARE 6.”² **(40 CFR Part 60 Subparts A and AAAA)**

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).

**FG-OPENFLARE-XXX
FLEXIBLE GROUP CONDITIONS**

DESCRIPTION

Open flare is an open combustor without enclosure or shroud. Two open flares with a combined capacity of 5,100 CFM used to control LFG generated by the landfill. EU-FLARE5 serves as a backup flare and only operates if one or more flares and/or engines are not in operation. This flexible group contains the requirements of 40 CFR Part 60 Subpart XXX.

Emission Unit: EU-FLARE3, EU-FLARE5

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

1. There shall be no visible emissions from EU-FLARE3 and EU-FLARE5 except for periods not to exceed a total of five minutes during any two consecutive hours. **(R 336.1301(1)(c), 40 CFR 60.18(c)(1))**

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall operate the flare in accordance with the parameters established in 40 CFR 60.18. **(40 CFR 60.762(b)(2)(iii)(A))**
2. The permittee shall operate the flare at all times when the collected gas is routed to it. **(40 CFR 60.763(f))**
3. The flare shall be operated with a flame present at all times. **(40 CFR 60.18(c)(2))**
4. In the event the control system is inoperable, the gas mover system shall be shut down and all valves in the collection and control system contributing to venting of the gas to the atmosphere shall be closed within one hour. **(R 336.1911, 40 CFR 60.763(e))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall install, calibrate, maintain, and operate according to the manufacturer's specifications, a heat sensing device, such as an ultraviolet beam sensor or thermocouple, at the pilot light or the flame itself to indicate the continuous presence of a flame. **(40 CFR 60.18(f)(2), 40 CFR 60.766(c)(1))**
2. The permittee shall install, calibrate, maintain, and operate according to the manufacturer's specifications, a device that records flow to or bypass of the flare (if applicable). **(40 CFR 60.766(c)(2))**

V. TESTING/SAMPLING

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

1. Within 180 days of permit issuance or five years from the last test date, whichever is later, the permittee shall verify visible emissions from EU-FLARE3 and EU-FLARE5, by testing at owner's expense, in accordance with Department requirements. Testing shall be performed using an approved EPA method listed in 40 CFR 60, Appendix A. An alternate 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

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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 District Office within 60 days following the last date of the test. **(R 336.213(3), R 336.2001, R 336.2003, R 336.2004, 40 CFR 60.18(f))**

2. The permittee shall verify visible emissions from EU-FLARE3 and EU-FLARE5 every five years from the date of the last test. **(R 336.1213(3), R 336.2001, R 336.2003, R 336.2004, 40 CFR 60.18(f))**

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 maintain records regarding the flare type (i.e., steam-assisted, air-assisted, or non-assisted), all visible emission readings, heat content determination, flow rate or bypass flow rate measurements, and exit velocity determinations made during the performance test as specified in 40 CFR 60.18. **(40 CFR 60.768(b)(4))**
2. The permittee shall keep monthly records of the operating parameters specified to be monitored in 40 CFR 60.766(c). The records shall include:
 - a. Continuous records of the indication of flow and gas flow rate to the control device. **(40 CFR 60.768(b)(4))**
 - b. The indication of bypass flow or records of monthly inspections of car-seals or lock-and-key configurations used to seal bypass lines. **(40 CFR 60.766(c)(2)(ii))**
 - c. Continuous records of the open flare pilot flame or open flare flame monitoring, and records of all periods of operations during which the pilot flame of the flare flame is absent. **(40 CFR 60.768(b)(4))**
3. The following records for the flare shall be maintained onsite:
 - a. The net heating value of the gas being combusted in the flare shall be calculated and recorded using the equation provided in Appendix 7-1. **(40 CFR 60.18(f)(3))**
 - b. The exit velocity for steam-assisted, air-assisted, or non-assisted flares as determined by the methods specified in 40 CFR 60.18(f)(4) provided in Appendix 7-1. **(40 CFR 60.18(f)(4))**

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. Report shall be postmarked or received by 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. Report shall be postmarked or received by appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**
4. The permittee shall submit to the appropriate AQD District Office annual reports for the gas collection system. Reports shall be received by appropriate AQD District Office by March 15 for reporting period January 1 to December 31. For enclosed combustion devices and flares, reportable exceedances are defined under 40 CFR 60.768(c). The report shall include the following:
 - a. Value and length of time for exceedance of applicable parameters monitored under 40 CFR 60.766(c). **(40 CFR 60.767(g)(1))**
 - b. Description and duration of all periods when the gas stream is diverted from the control device through a bypass line or the indication of bypass flow as specified under 40 CFR 60.766. **(40 CFR 60.767(g)(2))**

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- c. Description and duration of all periods when the control device or treatment system was not operating and length of time the control device or treatment system was not operating. **(40 CFR 60.767(g)(3))**
5. 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 336.2001(5))**
6. 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 EPA's Electronic Reporting Tool (ERT) as listed on the EPA's ERT Web site (https://www3.epa.gov/ttn/chief/ert/ert_info.html) at the time of the test. The permittee shall submit the results of the performance test to the EPA via the Compliance and Emissions Data Reporting Interface (CEDRI). CEDRI can be accessed through the EPA's Central Data Exchange (CDX). **(40 CFR 60.767(i))**

See Appendix 8-1

VIII. STACK/VENT RESTRICTION(S)

NA

IX. OTHER REQUIREMENT(S)

1. The permittee shall 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 60, Subparts A and XXX)**

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).

FG-OPENFLARE-WWW FLEXIBLE GROUP CONDITIONS

DESCRIPTION

Open flare is an open combustor without enclosure or shroud. Two open flares with a combined capacity of 5,100 CFM used to control LFG generated by the landfill. EU-FLARE5 serves as a backup flare and only operates if one or more flares and/or engines are not in operation. This flexible group contains the requirements of 40 CFR Part 60 Subpart WWW.

Emission Unit ID: EU-FLARE3, EU-FLARE5

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

1. There shall be no visible emissions from EU-FLARE3 and EU-FLARE5 except for periods not to exceed a total of five minutes during any 2 consecutive hours. **(R 336.1301(1)(c), 40 CFR 60.18(c)(1))**

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall operate the flare in accordance with 40 CFR 60.18 except as noted in 40 CFR 60.754(e). **(40 CFR 60.752(b)(2)(iii)(A), 40 CFR 63.1955(a))**
2. The permittee shall operate the flare at all times when the collected gas is routed to it. **(40 CFR 60.753(f), 40 CFR 63.1955(a))**
3. The flare shall be operated with no visible emissions, as determined by the methods specified in 40 CFR 60.18(f), except for periods not to exceed a total of 5 minutes during any 2 consecutive hours. **(40 CFR 60.18(c)(1))**
4. The flare shall be operated with a flame present at all times, as determined by the methods specified in 40 CFR 60.18(f). **(40 CFR 60.18(c)(2))**
5. The flare shall be used only with the net heating value of the gas being combusted of 11.2 MJ/scm (300 Btu/scf) or greater if the flare is steam-assisted or air-assisted; or with the net heating value of the gas being combusted of 7.45 MJ/scm (200 Btu/scf) or greater if the flare is non-assisted. The net heating value of the gas being combusted shall be determined by the methods specified in 40 CFR 60.18(f). **(40 CFR 60.18(c)(3))**
6. Non-assisted flares shall be designed for and operated with an exit velocity, as determined by the methods specified in 40 CFR 60.18(f)(4), less than 18.3 m/sec (60 ft/sec), except as provided in 40 CFR 60.18(c)(4)(ii) and (iii). **(40 CFR 60.18(c)(4)(i))**
 - a. Non-assisted flares designed for and operated with an exit velocity, equal to or greater than 18.3 m/sec (60 ft/sec) but less than 122 m/sec (400 ft/sec) are allowed if the net heating value of the gas being combusted is greater than 37.3 MJ/scm (1,000 Btu/scf). **(40 CFR 60.18(c)(4)(ii))**
 - b. Non-assisted flares designed for and operated with an exit velocity, as determined by the methods specified in 40 CFR 60.18(f)(4) less than the velocity, V_{max} , as determined by the method specified in 40 CFR 60.18(f)(5), and less than 122 m/sec (400 ft/sec) are allowed. **(40 CFR 60.18(c)(4)(iii))**

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7. Flares used to comply with provisions of 40 CFR Part 60, Subpart A shall be operated at all times when emissions may be vented to them. **(40 CFR 60.18(e))**
8. The permittee shall operate control system such that all collected gases are vented to a control system designed and operated in accordance with 40 CFR 60.752(b)(2)(iii). In the event the collection or control system is inoperable, the gas mover system shall be shut down and all valves in the collection and control system shall contributing to venting of the gas to the atmosphere shall be closed within one hour. **(40 CFR 60.753(e), 40 CFR 63.1955(a))**

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))**

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 install, calibrate, maintain, and operate according to the manufacturer's specifications the following equipment:
 - a. A heat sensing device, such as an ultraviolet beam sensor or thermocouple, at the pilot light or the flame itself to indicate the continuous presence of a flame. **(40 CFR 60.756(c)(1), 40 CFR 63.1955(a))**
 - b. A device that records flow to or bypass of the flare. **(40 CFR 60.756(c)(2), 40 CFR 63.1955(a))**
The owner or operator shall either:
 - i. Install, calibrate, and maintain a gas flow rate measuring device that shall record the flow to the control device at least every 15 minutes; or **(40 CFR 60.756(c)(2)(i), 40 CFR 63.1955(a))**
 - ii. Secure the bypass line valve in the closed position with a car-seal or a lock-and-key type configuration. A visual inspection of the seal or closure mechanism shall be performed at least once every month to ensure that the valve is maintained in the closed position and that the gas flow is not diverted through the bypass line. **(40 CFR 60.756(c)(2)(ii), 40 CFR 63.1955(a))**
2. Except as provided in 40 CFR 60.752(b)(2)(i)(B), the permittee shall keep up-to-date, readily accessible records for the life of the open flare of the data listed in 40 CFR 60.758(b)(4) (below in SC VI.3.) as measured during the initial performance test or compliance determination. Records of subsequent tests or monitoring shall be maintained for a minimum of five years. Records of the open flare vendor specifications shall be maintained until removal. **(40 CFR 60.758(b), 40 CFR 63.1955(a))**
3. The permittee shall maintain records regarding the flare type (i.e., steam-assisted, air-assisted, or non-assisted), all visible emission readings, heat content determination, flow rate or bypass flow rate measurements, and exit velocity determinations made during the performance test as specified in 40 CFR 60.18; continuous records of the open flare pilot flame or open flare flame monitoring and records of all periods of operations during which the pilot flame of the flare flame is absent. **(40 CFR 60.758(b)(4), 40 CFR 63.1955(a))**
4. Except as provided in 40 CFR 60.752(b)(2)(i)(B), the permittee shall keep readily accessible continuous records of the equipment operating parameters specified to be monitored in 40 CFR 60.756 (above in SC VI.1.), as well as up-to-date, readily accessible records for periods of operation during which the parameter boundaries established during the most recent performance test are exceeded. **(40 CFR 60.758(c))**
 - a. The permittee shall keep up-to-date, readily accessible continuous records of the indication of flow to the control device or the indication of bypass flow or records of monthly inspections of car-seals or lock-and-key configurations used to seal bypass lines, specified under 40 CFR 60.756. **(40 CFR 60.758(c)(2), 40 CFR 63.1955(a))**

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- b. The permittee shall keep up-to-date, readily accessible continuous records of the flame or flare pilot flame monitoring specified under 40 CFR 60.756(c) (above in SC VI.1.a.), and up-to-date, readily accessible records of all periods of operation in which the flame or flare pilot flame is absent. **(40 CFR 60.758(c)(4), 40 CFR 63.1955(c))**
5. The following records for the flare shall be maintained onsite:
 - a. Records indicating presence of flare pilot flame. **(40 CFR 60.18(f)(2))**
 - b. The net heating value of the gas being combusted in the flare shall be calculated and recorded using the equation provided in Appendix 7-1. **(40 CFR 60.18(f)(3))**
 - c. The actual exit velocity of the flare shall be calculated and recorded by dividing the volumetric flow rate (in units of standard temperature and pressure), as determined by Federal Reference Test Methods 2, 2A, 2C, or 2D as appropriate, by the unobstructed (free) cross sectional area of the flare tip. **(40 CFR 60.18(f)(4))**
 - d. The maximum permitted velocity, V_{max} , for flares complying with 40 CFR 60.18(c)(4)(iii) shall be calculated and recorded using the equation provided in Appendix 7-1. **(40 CFR 60.18(f)(5))**
 - e. The maximum permitted velocity, V_{max} , for air-assisted flares shall be calculated and recorded using the equation provided in Appendix 7-1. **(40 CFR 60.18(f)(6))**
6. 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 336.2001(5))**

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. Report shall be postmarked or received by 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. Report shall be postmarked or received by appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**
4. The permittee shall submit to the appropriate AQD District Office semiannual reports for the gas collection system. Reports shall be received by 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. For enclosed combustion devices and flares, reportable exceedances are defined under 40 CFR 60.758(c). **(40 CFR 60.757(f), 40 CFR 63.1980(a), 40 CFR 63.1955(a))**

The semiannual report shall contain:

- a. Value and length of time for exceedance of applicable parameters monitored under 40 CFR 60.756(b). **(40 CFR 60.757(f)(1), 40 CFR 63.1980(a), 40 CFR 63.1955(a))**
- b. Description and duration of all periods when the gas stream is diverted from the control device through a bypass line or the indication of bypass flow as specified under 40 CFR 60.756. **(40 CFR 60.757(f)(2), 40 CFR 63.1980(a), 40 CFR 63.1955(a))**

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- c. Description and duration of all periods when the control device was not operating for a period exceeding one hour and length of time the control device was not operating. **(40 CFR 60.757(f)(3), 40 CFR 63.1980(a), 40 CFR 63.1955(a))**
5. The permittee shall submit an equipment removal report to the AQD 30 days prior to removal or cessation of operation of the open flare. **(40 CFR 60.757(e))**
 - a. The equipment removal report shall contain all of the following items:
 - i. A copy of the closure report submitted in accordance with 40 CFR 60.757. **(40 CFR 60.757(e)(1)(i), 40 CFR 63.1955(a))**
 - ii. A copy of the initial performance test report demonstrating that the 15-year minimum control period has expired. **(40 CFR 60.757(e)(1)(ii), 40 CFR 63.1955(a))**
 - iii. Dated copies of three successive NMOC emission rate reports demonstrating that the landfill is no longer producing 50 megagrams or greater of NMOC per year. **(40 CFR 60.757(e)(1)(iii), 40 CFR 63.1955(a))**
 - iv. Additional information may be requested as may be necessary to verify that all of the conditions for removal in 40 CFR 60.752(b)(2)(v) have been met. **(40 CFR 60.757(e)(2), 40 CFR 63.1955(a))**
6. The permittee shall submit the startup, shutdown, and malfunction (SSM) report to the appropriate AQD District Office and it shall be delivered or postmarked by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(40 CFR 63.10(a)(5), 40 CFR 63.10(d)(5))**
7. 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 336.2001(5))**

See Appendix 8-1

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:

NA

IX. OTHER REQUIREMENT(S)

1. The provisions of 40 CFR Part 60, Subpart WWW apply at all times, except during periods of start-up, shutdown, or malfunction, provided that the duration of start-up, shutdown, or malfunction shall not exceed 1 hour for control devices. **(40 CFR 60.755(e), 40 CFR 63.1955(a))**
2. Compliance of 40 CFR Part 63, Subpart AAAA is determined in the same way it is determined for 40 CFR Part 60, Subpart WWW, including performance testing, monitoring of the collection system, continuous parameter monitoring, and other credible evidence. In addition, continuous parameter monitoring data collected in 40 CFR 60.756(c)(1) (above in SC VI.1.) are used to demonstrate compliance with the operating conditions for the open flare. The permittee shall have developed and implemented a written SSM for FG-OPENFLARE. A copy of the SSM plan shall be maintained on site. **(40 CFR 63.1960)**

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).

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**FG-FLARES
FLEXIBLE GROUP CONDITIONS**

DESCRIPTION

Four flares, (one open, two enclosed, and one stand-by portable open flare) with a combined capacity of 14,100 CFM, used for combusting landfill gas.

Emission Units: EU-FLARE3, EU-FLARE4, EU-FLARE5, EU-FLARE6

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. SO ₂	8.1 lb/hr ²	Hour	EU-FLARE4	SC V.1 SC V.2	R 336.2803 R 336.2804 40 CFR 52.21(c) & (d)
2. SO ₂	16.1 lb/hr ²	Hour	EU-FLARE6	SC V.1 SC V.2	R 336.2803 R 336.2804 40 CFR 52.21(c) & (d)
3. NO _x	0.06 lb/MMBtu ²	Hour	EU-FLARE4 and EU-FLARE6	SC V.2	R 336.2803 R 336.2804 R 336.2810 40 CFR 52.21(c) (d) & (j)
4. CO	0.2 lb/MMBtu ²	Hour	EU-FLARE4 and EU-FLARE6	SC V.2	R 336.2804 R 336.2810 40 CFR 52.21(d) & (j)
5. PM	1.4 lb/hr ²	Hour	EU-FLARE4	SC III.4 SC V.3	R 336.2803 R 336.2804 R 336.2810 40 CFR 52.21(c) (d) & (j)
6. PM	2.9 lb/hr ²	Hour	EU-FLARE6	SC III.4 SC V.3	R 336.2803 R 336.2804 R 336.2810 40 CFR 52.21(c) (d) & (j)
7. PM ₁₀	1.4 lb/hr ²	Hour	EU-FLARE4	SC III.4 SC V.3	R 336.2803 R 336.2804 R 336.2810 40 CFR 52.21(c) (d) & (j)

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Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
8. PM ₁₀	2.9 lb/hr ²	Hour	EU-FLARE6	SC III.4 SC V.3	R 336.2803 R 336.2804 R 336.2810 40 CFR 52.21(c) (d) & (j)
9. Visible Emissions	20% Opacity ²	6-minute average	EU-FLARE4 and EU-FLARE6	SC III.4 SC V.2	R 336.1301(1)(c) R 336.2810 40 CFR 52.21(j)
10. SO ₂	18 lb/hr	Hour	EU-FLARE4	SC V.1 SC V.2	R 336.2810
11. SO ₂	35.9 lb/hr	Hour	EU-FLARE6	SC V.1 SC V.2	R 336.2810

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall only operate the back-up flare, EU-FLARE5, if one or more of the other flares (EU-FLARE3, EU-FLARE4, and EU-FLARE6) or engines are not in operation.² **(R 336.1205)**
2. The permittee shall only burn landfill gas in EU-FLARE4 and EU-FLARE6 that has been treated according to SC III.3 and by the sulfur removal system except as provided in the approved malfunction abatement/operation and maintenance plan, required under Special Condition IV.1. **(R 336.1213(2))**
3. The permittee shall manage all landfill gas in FG-FLARES in compliance with 40 CFR 60.752(b)(2)(iii)². **(R 336.1225, 40 CFR 60.752(b)(2)(iii))**
4. The permittee shall not operate EU-FLARE4 and EU-FLARE6 unless a malfunction abatement plan (MAP) as described in Rule 911(2), for EU-FLARE4 and EU-FLARE6, has been submitted within 60 days after permit issuance, and is implemented and maintained. If at any time the MAP fails to address or inadequately addresses an event that meets the characteristics of a malfunction, the permittee shall amend the MAP within 45 days after such an event occurs. The permittee shall also amend the MAP within 45 days if new equipment is installed or upon request from the District Supervisor. The permittee shall submit the MAP and any amendments to the MAP to the AQD District Supervisor for review and approval. If the AQD does not notify the permittee within 90 days of submittal, the MAP or amended MAP shall be considered approved. Until an amended plan is approved, the permittee shall implement corrective procedures or operational changes to achieve compliance with all applicable emission limits.² **(R 336.1225, R 336.1331, R 336.1702(b), R 336.1910, R 336.1911, R 336.2803, R 336.2804, R 336.2810, 40 CFR 52.21(c), (d) and (j))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall not operate EU-FLARE4 and EU-FLARE6 unless the sulfur removal system is installed, maintained, and operated in a satisfactory manner. Proper operation shall include but is not limited to submitting an approvable malfunction abatement/operation and maintenance plan (MAP/O&M plan) for the sulfur removal system and EU-FLARE4 and EU-FLARE6 to the District Supervisor, Air Quality Division within 30 days prior to start-up of the sulfur removal system. The MAP/O&M plan shall include as a minimum the manufacturer operation and maintenance specifications for the sulfur removal system. **(R 336.1213(3), R 336.1910))**

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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 verify the hydrogen sulfide or total reduced sulfur content of the landfill gas burned in EU-FLARE4 and EU-FLARE6 on a daily basis by gas sampling. Daily gas sampling excludes holidays and weekends unless requested by the District Supervisor, Air Quality Division. If, after a year, each of the daily concentrations of the hydrogen sulfide or total reduced sulfur concentration of the landfill gas are below 269 ppm (TRS equivalent), the permittee may petition the District Supervisor, Air Quality Division to reduce the frequency of gas sampling and recording the hydrogen sulfide / total reduced sulfur concentration of the treated landfill gas to weekly. If at any time the concentration readings exceed 269 ppm (TRS equivalent), the permittee shall resume sampling and recording on a daily basis 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 concentration determined from the daily readings are maintained below 269 ppm of hydrogen sulfide/total reduced sulfur concentration in the landfill gas for one year after an exceedance, the permittee may resume weekly monitoring and recordkeeping. The permittee shall keep all records on file at the facility and make them available to the Department upon request.² (R 336.1205(1), R 336.2803, R 336.2804, R 336.2810, 40 CFR 52.21(c), (d) and (j))
2. Within 180 days of permit issuance or five years from the last test date, whichever is later, and then every five years thereafter, the permittee shall verify Visible Emissions (per a USEPA Method 9 certified visible emissions observation shall be conducted for a minimum of 15 minutes to determine the actual opacity from that emission point), NO_x, SO₂, and CO emission rates from EU-FLARE4 and EU-FLARE6, by testing at owner's expense, in accordance with Department requirements. 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. The permittee must submit 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 336.2001, R 336.2803, R 336.2804, R 336.2003, R 336.2004, 40 CFR 52.21(c) and (d))
3. Within 180 days of permit issuance or five years from the last test date, whichever is later, and then every five years thereafter, the permittee shall verify PM and PM10 emission rates from EU-FLARE4 and EU-FLARE6 by testing at the owner's expense, in accordance with the Department requirements. 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. The permittee must submit 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)
4. Testing shall be performed using an approved EPA Method listed in:

Pollutant	Test Method Reference
PM	40 CFR Part 60, Appendix A; Part 10 of the Michigan Air Pollution Control Rules
PM ₁₀	40 CFR Part 51, Appendix M
NO _x	40 CFR Part 60, Appendix A
SO ₂	40 CFR Part 60, Appendix A
CO	40 CFR Part 60, Appendix A
Visible Emissions	40 CFR Part 51, Appendix M; 40 CFR Part 60, Appendix A and B

5. The permittee shall notify the AQD Technical Programs Unit Supervisor and the District Supervisor not less than 30 days of the time and place before performance tests are 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 install, calibrate, and maintain a gas flow measuring device that shall continuously record the total actual flow of landfill gas to FG-FLARES.² (40 CFR 60.756(c)(2)(i), 40 CFR 63.1955(a))

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2. The permittee shall keep records of the landfill gas consumed in FGFLARES on a monthly basis and 12-month rolling time period basis, as determined at the end of each calendar month. All records shall be made available to the Department upon request.² **(R 336.1205)**
3. The permittee shall keep records of the date, time and reason why EU-FLARE5 is operated.² **(R 336.1205)**
4. The permittee shall keep, in a satisfactory manner, monthly SO₂ mass emission calculation records for EU-FLARE4 and EU-FLARE6. The permittee shall keep all records on file for a period of at least five years and make them available to the Department upon request. **(R336.1213(3))**
5. The permittee shall maintain a log of all maintenance activities conducted according to the malfunction abatement/preventative maintenance plan (pursuant to SC III.4). The permittee shall keep this log on file at the facility and make it available to the Department upon request. **(R 336.1213(3), R 336.1911)**

VII. REPORTING

1. The permittee shall notify the AQD district office within one week of when the frequency of the gas sampling changes for any reason. **(R 336.1201(3))**
2. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**
3. 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))**
4. 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))**
5. 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 8-1

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 Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SV-FLARE4	144 ²	50 ²	R 336.1225 R 336.2803 R 336.2804 40 CFR 52.21 (c) & (d)
2. SV-FLARE6	156 ²	60 ²	R 336.1225 R 336.2803 R 336.2804 40 CFR 52.21 (c) & (d)

IX. OTHER REQUIREMENT(S)

1. The permittee shall comply with all applicable provisions of 40 CFR Part 60 Subpart A and WWW, "Standards of Performance for Municipal Solid Waste Landfills", as they apply to FG-FLARES.² **(40 CFR Part 60 Subpart A and WWW)**

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2. The permittee shall comply with all applicable provisions of 40 CFR Part 60 Subpart A and XXX, “Standards of Performance for Municipal Solid Waste Landfills” that Commenced Construction, Reconstruction, or Modification After July 17, 2014 as they apply to FG-FLARES. **(40 CFR Part 60 Subpart A and XXX)**

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).

FG-COLDCLEANERS FLEXIBLE GROUP CONDITIONS
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DESCRIPTION

Any cold cleaner that is grandfathered or exempt from Rule 201 pursuant to Rule 281(h) or Rule 285(r)(iv). Existing cold cleaners were placed into operation prior to July 1, 1979. New cold cleaners were placed into operation on or after July 1, 1979.

Emission Unit: EU-COLDCLEANER

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

NA

II. MATERIAL LIMIT(S)

1. The permittee shall not use cleaning solvents containing more than five percent by weight of the following halogenated compounds: methylene chloride, perchloroethylene, trichloroethylene, 1,1,1-trichloroethane, carbon tetrachloride, chloroform, or any combination thereof. **(R 336.1213(2))**

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. Cleaned parts shall be drained for no less than 15 seconds or until dripping ceases. **(R 336.1611(2)(b), R 336.1707(3)(b))**
2. The permittee shall perform routine maintenance on each cold cleaner as recommended by the manufacturer. **(R 336.1213(3))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The cold cleaner must meet one of the following design requirements:
 - a. The air/vapor interface of the cold cleaner is no more than 10 square feet. **(R 336.1281(h))**
 - b. The cold cleaner is used for cleaning metal parts and the emissions are released to the general in-plant environment. **(R 336.1285(r)(iv))**
2. The cold cleaner shall be equipped with a device for draining cleaned parts. **(R 336.1611(2)(b), R 336.1707(3)(b))**
3. All new and existing cold cleaners shall be equipped with a cover and the cover shall be closed whenever parts are not being handled in the cold cleaner. **(R 336.1611(2)(a), R 336.1707(3)(a))**
4. The cover of a new cold cleaner shall be mechanically assisted if the Reid vapor pressure of the solvent is more than 0.3 psia or if the solvent is agitated or heated. **(R 336.1707(3)(a))**
5. If the Reid vapor pressure of any solvent used in a new cold cleaner is greater than 0.6 psia; or, if any solvent used in a new cold cleaner is heated above 120 degrees Fahrenheit, then the cold cleaner must comply with at least one of the following provisions:

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- a. The cold cleaner must be designed such that the ratio of the freeboard height to the width of the cleaner is equal to or greater than 0.7. **(R 336.1707(2)(a))**
- b. The solvent bath must be covered with water if the solvent is insoluble and has a specific gravity of more than 1.0. **(R 336.1707(2)(b))**
- c. The cold cleaner must be controlled by a carbon adsorption system, condensation system, or other method of equivalent control approved by the AQD. **(R 336.1707(2)(c))**

V. TESTING/SAMPLING

NA

VI. MONITORING/RECORDKEEPING

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

1. For each new cold cleaner in which the solvent is heated, the solvent temperature shall be monitored and recorded at least once each calendar week during routine operating conditions. **(R 336.1213(3))**
2. The permittee shall maintain the following information on file for each cold cleaner: **(R 336.1213(3))**
 - a. A serial number, model number, or other unique identifier for each cold cleaner.
 - b. The date the unit was installed, manufactured or that it commenced operation.
 - c. The air/vapor interface area for any unit claimed to be exempt under Rule 281(h).
 - d. The applicable Rule 201 exemption.
 - e. The Reid vapor pressure of each solvent used.
 - f. If applicable, the option chosen to comply with Rule 707(2).
3. The permittee shall maintain written operating procedures for each cold cleaner. These written procedures shall be posted in an accessible, conspicuous location near each cold cleaner. **(R 336.1611(3), R 336.1707(4))**
4. As noted in Rule 611(2)(c) and Rule 707(3)(c), if applicable, an initial demonstration that the waste solvent is a safety hazard shall be made prior to storage in non-closed containers. If the waste solvent is a safety hazard and is stored in non-closed containers, verification that the waste solvent is disposed of so that not more than 20%, by weight, is allowed to evaporate into the atmosphere shall be made on a monthly basis. **(R 336.1213(3), R 336.1611(2)(c), R 336.1707(3)(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))**

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VIII. STACK/VENT RESTRICTION(S)

NA

IX. OTHER REQUIREMENT(S)

NA

**FG-ICENGINES
FLEXIBLE GROUP CONDITIONS**

DESCRIPTION

Eight reciprocating internal combustion engines (RICE) that will only combust treated landfill gas for fuel. Each engine drives an associated generator set for producing electricity.

Emission Units: EU-ICENGINE1, EU-ICENGINE2, EU-ICENGINE3, EU-ICENGINE4, EU-ICENGINE5, EU-ICENGINE6, EU-ICENGINE7, EU-ICENGINE8

POLLUTION CONTROL EQUIPMENT

Sulfur removal system for reducing sulfur content of landfill gas prior to combustion only when the sulfur content of the landfill gas exceeds 269 ppm. 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	3.3 g/bhp-hr ²	Hour	Each engine in FG-ICENGINES	SC V.1	R 336.2804 R 336.2810 40 CFR 52.21(d) & (j)
2. CO	16.3 lbs/hr ²	Hour	Each engine in FG-ICENGINES	SC V.1	R 336.2804 40 CFR 52.21(d)
3. NO _x	0.6 g/bhp-hr ²	Hour	Each engine in FG-ICENGINES	SC V.1	R 336.2803 R 336.2804 R 336.2810 40 CFR 52.21(c),(d) & (j)
4. NO _x	3.0 lbs/hr ²	Hour	Each engine in FG-ICENGINES	SC V.1	R 336.2803 R 336.2804 R 336.2810 40 CFR 52.21(c) and (d)
5. SO ₂	1.57 lbs/hr ²	Hour	Each engine in FG-ICENGINES	SC V.1 SC V.3	R 336.2803 R 336.2804 40 CFR 52.21(c) and (d)
6. PM	0.24 g/bhp-hr ²	Hour	Each engine in FG-ICENGINES	SC V.1	R 336.2803 R 336.2804 R 336.2810 40 CFR 52.21(c) (d) & (j)
7. PM	1.2 lb/hr ²	Hour	Each engine in FG-ICENGINES	SC V.1	R 336.2803 R 336.2804 R 336.2810 40 CFR 52.21(c) (d) & (j)

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Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
8. PM ₁₀	0.24 g/bhp-hr ²	Hour	Each engine in FG-ICENGINES	SC V.1	R 336.2803 R 336.2804 R 336.2810 40 CFR 52.21(c)(d) & (j)
9. PM ₁₀	1.2 lb/hr ²	Hour	Each engine in FG-ICENGINES	SC V.1	R 336.2803 R 336.2804 R 336.2810 40 CFR 52.21(c)(d) & (j)
10. VOC	1.0 lb/hr ²	Hour	Each engine in FG-ICENGINES	SC V.1	R 336.1702(a)
11. Visible Emissions	10% Opacity ²	6-minute average	Each Engine in FG-ICENGINES	SC V.1	R 336.1301(1)(c) R 336.2810 40 CFR 52.21 (j)
12. Formaldehyde	2.07 lb/hr ¹	Hour	Each Engine in FG-ICENGINES	SC V.2	R 336.1225
13. SO ₂	3.51 lbs/hr ²	Hour	Each Engine in FG-ICENGINES	SC V.1 SC V.3	R 336.2810

II. MATERIAL LIMIT(S)

1. The total reduced sulfur (TRS)/hydrogen sulfide concentration of the landfill gas combusted in FGICENGINES shall not exceed 269 ppm.² (R 336.1205, R 336.2803, R 336.2804, 40 CFR 52.21 (c) and (d))

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall only burn landfill gas in FG-ICENGINES that has been treated in a system which complies with 40 CFR 60.752(b)(2)(iii)(C).² (R 336.1225, 40 CFR 63.6625(c))
2. At least 60 days prior to start-up of any engine in FGICENGINES, the permittee shall submit to the AQD District Supervisor, for review and approval, a malfunction abatement/preventative maintenance plan for FG-ICENGINES. After approval of the malfunction abatement/preventative maintenance plan by the AQD District Supervisor, the permittee shall not operate FG-ICENGINES unless the malfunction abatement/preventative maintenance plan, or an alternate 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

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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, R 336.2810, 40 CFR 52.21(c), (d) and (j))

3. The permittee shall not operate any engine in FG-ICENGINES unless the sulfur removal system is installed, maintained, and operated in a satisfactory manner, except as provided in the approved malfunction abatement/operation and maintenance plan. Proper operation shall include but is not limited to submitting an approvable malfunction abatement/operation and maintenance plan (MAP/O&M plan) for the sulfur removal system to the District Supervisor, Air Quality Division. The MAP/O&M plan shall include the manufacturer operation and maintenance specifications.² (R 336.1205, R 336.1225, R 336.1901, R 336.1910, R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d))

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall not operate any engine in FG-ICENGINES unless the engines air/fuel ratio controller is installed, maintained and operated in a satisfactory manner.² (R 336.1702, R 336.1910, R 336.2810(j), 40 CFR 52.21(j))
2. The permittee shall equip FG-ICENGINES with a device to monitor and record the total daily fuel usage of the engines.² (R 336.1201(3), R 336.1225)
3. The design capacity of each engine of FG-ICENGINES shall not exceed 2,233 hp, as specified by the equipment manufacturer.² (R 336.1205(1)(a), R 336.1225, R 336.1702, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d))

V. TESTING/SAMPLING

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

1. Within 180 days of permit issuance or five years from the last test date, whichever occurs later, and then every five years thereafter, the permittee shall verify Visible Emissions (per a USEPA Method 9 certified visible emissions observation shall be conducted for a minimum of 15 minutes to determine the actual opacity from that emission point), NO_x, PM, PM-10, VOC, SO₂ and CO emission rates from each engine in FG-ICENGINES at maximum routine operating conditions, by testing at owner's expense, in accordance with Department requirements. 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 within 60 days following the last date of the test as required by SC VII.4.² (R 336.2001, R 336.2803, R 336.2804, R 336.2003, R 336.2004, 40 CFR 52.21(c) and (d))
2. Within 180 days of permit issuance or five years from the last test date, whichever occurs later, and then every five years thereafter, the permittee shall verify formaldehyde emission rates from each engine in FG-ICENGINES at maximum routine operating conditions, by testing at owner's expense, in accordance with Department requirements. 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 final plan must be approved by the AQD 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, as required by SC VII.4.² (R 336.1225, R 336.2001, R 336.2003, R 336.2004)
3. The permittee shall verify the hydrogen sulfide or total reduced sulfur content of the landfill gas burned in FG-ICENGINES on a daily basis by gas sampling as described in the plan required by SC III.3. Daily gas sampling excludes holidays and weekends unless requested by the District Supervisor, Air Quality Division. If, after a year, each of the daily concentrations of the hydrogen sulfide or total reduced sulfur concentration of the landfill gas are below 269 ppm (TRS equivalent), the permittee may petition the District Supervisor, Air Quality Division to reduce the frequency of gas sampling and recording the hydrogen sulfide / total reduced sulfur concentration of the treated landfill gas to weekly. If at any time the concentration readings exceed 269 ppm (TRS equivalent), the permittee shall resume sampling and recording on a daily basis and shall review all operating and

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maintenance activities for the landfill gas collection and treatment system along with keeping records of corrective actions taken. Once the concentration determined from the daily readings are maintained below 269 ppm of hydrogen sulfide/total reduced sulfur concentration in the landfill gas for one year after an exceedance, the permittee may resume weekly monitoring and recordkeeping. The permittee shall keep all records on file at the facility and make them available to the Department upon request.² (R 336.1205(1), R 336.2803, R 336.2804, R 336.2810, 40 CFR 52.21 (c), (d) and (j))

4. Testing shall be performed using an approved EPA Method listed in:

Pollutant	Test Method Reference
PM	40 CFR Part 60, Appendix A; Part 10 of the Michigan Air Pollution Control Rules
PM ₁₀	40 CFR Part 51, Appendix M
NO _x	40 CFR Part 60, Appendix A
SO ₂	40 CFR Part 60, Appendix A
CO	40 CFR Part 60, Appendix A
VOC	40 CFR Part 60, Appendix A
Visible Emissions	40 CFR Part 51, Appendix M; 40 CFR Part 60, Appendix A and B
HAPs	40 CFR Part 63, Appendix A

An alternate method, or a modification to the approved EPA Method, may be specified in an AQD-approved Test Protocol. (R 336.1213(3), R 336.2003)

5. The permittee shall notify the AQD Technical Programs Unit Supervisor and the District Supervisor not less than 30 days of the time and place before performance tests are conducted. (R 336.1213(3))
6. The permittee shall notify the AQD district office within one week of when the frequency of the gas sampling changes for any reason. (R 336.1201(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 continuously monitor, in a satisfactory manner, the total landfill gas fuel usage of the FG-ICENGINES.² (R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d))
2. The permittee shall maintain a log of all maintenance activities conducted according to the malfunction abatement/preventative maintenance plan (pursuant to SC III.2). The permittee shall keep this log on file at the facility and make it available to the Department upon request.² (R 336.1702(a), R 336.1911, R 336.1912, R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d))
3. The permittee shall keep, in a satisfactory manner, records of the landfill gas usage for FG-ICENGINES on a daily basis. The permittee shall keep all records on file at the facility and make them available to the Department upon request.² (R 336.1225, R 336.1702, R 336.1910, R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d))
4. The permittee shall keep, in a satisfactory manner, monthly SO₂ mass emission calculation records for each engine in FG-ICENGINES. The permittee shall keep all records on file for a period of at least five years and make them available to the Department upon request.² (R 336.1213(3), R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d)).
5. The permittee shall keep, in a satisfactory manner, records of the hours of operation for each engine included in FG-ICENGINES on a daily basis. The permittee shall keep all records on file at the and make them available to the Department upon request.² (R 336.1225, R 336.1702, R 336.1910, R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d))
6. The permittee shall maintain the following record for each engine in FG-ICENGINES. The following information shall be recorded and kept on file at the facility:

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- 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; and
- 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, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d))**

7. The permittee shall maintain records of all information necessary for all notifications and reports for each engine in FG-ICENGINES, as specified in these special conditions as well as that information necessary to demonstrate compliance with the emission limits of this permit. An example of the information that may be needed includes but is not 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 and landfill gas usage;
 - c. Calculated amount of landfill gas combusted in each engine on a monthly and 12-month rolling basis, as required by SC VI.3;
 - d. Hours of operation on a monthly and 12-month rolling basis, as required by SC VI.4;
 - e. Manufacturer's data, specifications, and operating and maintenance procedures;
 - f. Maintenance activities conducted according to the PM/MAP, as required by SC VI.2;
 - g. 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, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d))**

8. 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, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d))**

VII. REPORTING

1. The permittee shall notify the AQD district office within one week of when the frequency of the gas sampling changes for any reason. **(R 336.1201(3))**
2. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**
3. 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))**
4. 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))**

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- The permittee shall submit a complete report of the stack test results to the AQD District Supervisor in an acceptable format within 60 days after the performance test has been completed. (R 336.1205, R336.1224, R 336.1225, R 336.1702, R 336.2001, R 336.2003, R 336.2004, R 336.2803, R 336.2804, R 336.2810(2), 40 CFR 52.21(j), 40 CFR 52.21(c) and (d))

See Appendix 8-1

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 Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SV-ICENG1	14 ²	60 ²	R 336.1225 R 336.2803 R 336.2804 40 CFR 52.21 (c) & (d)
2. SV-ICENG2	14 ²	60 ²	R 336.1225 R 336.2803 R 336.2804 40 CFR 52.21 (c) & (d)
3. SV-ICENG3	14 ²	60 ²	R 336.1225 R 336.2803 R 336.2804 40 CFR 52.21 (c) & (d)
4. SV-ICENG4	14 ²	60 ²	R 336.1225 R 336.2803 R 336.2804 40 CFR 52.21 (c) & (d)
5. SV-ICENG5	14 ²	60 ²	R 336.1225 R 336.2803 R 336.2804 40 CFR 52.21 (c) & (d)
6. SV-ICENG6	14 ²	60 ²	R 336.1225 R 336.2803 R 336.2804 40 CFR 52.21 (c) & (d)
7. SV-ICENG7	14 ²	60 ²	R 336.1225 R 336.2803 R 336.2804 40 CFR 52.21 (c) & (d)
8. SV-ICENG8	14 ²	60 ²	R 336.1225 R 336.2803 R 336.2804 40 CFR 52.21 (c) & (d)

IX. OTHER REQUIREMENT(S)

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

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2. 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 Subpart ZZZZ, as they apply to each engine. **(40 CFR Part 63, Subparts A and ZZZZ)**

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).

**FG-RICEMACT
FLEXIBLE GROUP CONDITIONS**

DESCRIPTION

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.

Emission Unit: EU-ICENGINE1, EU-ICENGINE2, EU-ICENGINE3, EU-ICENGINE4, EU-ICENGINE5, EU-ICENGINE6, EU-ICENGINE7, EU-ICENGINE8

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

NA

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. Each engine in FG-RICEMACT shall operate in a manner which reasonably minimizes HAP emissions. **(40 CFR 63.6625(c))**
2. Each engine in FG-RICEMACT 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. **(40 CFR 63.6625(h))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The engines in FG-RICEMACT shall equip and maintain separate individual fuel meters to monitor and record the daily fuel usage and volumetric flow rate of each fuel used. **(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), 40 CFR 63.6660)**

1. The engines in FG-RICEMACT, which fire 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. **(40 CFR 63.6625(c))**

VII. REPORTING

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**

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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 reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. The following information shall be included in this annual report: **(40 CFR 63.6650(g), 40 CFR 63.6650(b)(5))**
 - 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. **(40 CFR 63.6650(g)(1))**
 - b. The operating limits provided in the permittee's federally enforceable permit, and any deviations from these limits. **(40 CFR 63.6650(g)(2))**
 - c. Any problems or errors suspected from the fuel flow rate meters. **(40 CFR 63.6650(g)(3))**

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 Subpart ZZZZ, as they apply to each engine in FG-RICEMACT. (40 CFR Part 63, Subparts A and ZZZZ)

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).

**FG-RICENSPS
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: EU-ICENGINE1, EU-ICENGINE2, EU-ICENGINE3, EU-ICENGINE4, EU-ICENGINE5, EU-ICENGINE6, EU-ICENGINE7, EU-ICENGINE8

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. NO _x	2.0 g/hp-hr ²	Hour	Each engine in FG-RICENSPS	SC V.1	40 CFR 60.4233(e)
2. CO	5.0 g/hp-hr ²	Hour	Each engine in FG-RICENSPS	SC V.1	40 CFR 60.4233(e)
3. VOC	1.0 g/hp-hr ²	Hour	Each engine in FG-RICENSPS	SC V.1	40 CFR 60.4233(e)

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall operate and maintain each engine in FG-RICENSPS 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 FG-RICENSPS 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 FGRICENSPS with non-resettable hours meters to track the operating hours. **(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 conduct an initial performance test for each engine in FG-RICENSPS within one year after startup of the engine and 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), unless the engine(s) have been certified by the manufacturer in accordance with 40 CFR Part 60 Subpart JJJJ and the permittee maintains the engine as required by 40 CFR

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60.4243(a)(1). If a performance test is required, the performance tests shall be conducted according to 40 CFR 60.4244. No less than 30 days prior to any 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.² **(40 CFR 60.4243, 40 CFR 60.4244, 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 of the time and place before performance tests are 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 FG-RICENSPS 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 monitor emissions and operating information, including monitoring and recording the hours of operation of each engine in FG-RICENSPS, in accordance with the federal Standards of Performance for New Stationary Sources as specified in 40 CFR Part 60 Subparts A and JJJJ. The permittee shall keep records of all source emissions data and operating information for each engine in FG-RICENSPS on file at the facility and make the records available upon request.² **(40 CFR 60.4245, 40 CFR Subparts A & JJJJ)**

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 initial notification as required by 40 CFR 60.7(a)(1) for each engine in FG-RICENSPS if the engine(s) installed is/are not certified by an engine manufacturer to meet the emission standards in 40 CFR 60.4231. The notification shall include the information below, as specified in 40 CFR 60.4245 (c)(1) through (5):²
 - a. Name and address of the owner or operator; **(40 CFR 60.4245(c)(1))**
 - b. The address of the affected source; **(40 CFR 60.4245(c)(2))**
 - c. Engine information including make, model, engine family, serial number, model year, maximum engine power, and engine displacement; **(40 CFR 60.4245(c)(3))**
 - d. Emission control equipment; and **(40 CFR 60.4245(c)(4))**
 - e. Fuel used. **(40 CFR 60.4245(c)(5))**
 - f. The permittee shall submit the initial notification to the AQD District Supervisor in an acceptable format within 30 days of commencing construction of any engine in FGRICENSPS. **(40 CFR Part 60 Subpart JJJJ)**
5. The permittee shall submit two complete test protocols to the AQD, one to the Technical Programs Unit Supervisor and one to the District Supervisor for approval at least 30 days prior to the anticipated test date. The protocol shall describe the test method(s) and the maximum routine operating conditions, including targets for

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key operational parameters associated with air pollution control equipment to be monitored and recorded during testing.² (R 336.1205, R 336.2001(3))

See Appendix 8-1

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, Subpart A and Subpart JJJJ, as they apply to each engine in FG-RICENSPS.² **(40 CFR Part 60 Subparts A and JJJJ)**

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).

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. 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
SNCR	Selective Non-Catalytic Reduction	TAC	Toxic Air Contaminant
SRN	State Registration Number	Temp	Temperature
TEQ	Toxicity Equivalence Quotient	THC	Total Hydrocarbons
USEPA/EPA	United States Environmental Protection Agency	tpy	Tons per year
VE	Visible Emissions	µg	Microgram
		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.

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Appendix 2-1. Schedule of Compliance

The permittee certified in this ROP application that this stationary source, Pine Tree Acres Landfill, is in compliance with all applicable requirements of this ROP.

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

Specific testing requirement plans, procedures, and averaging times are detailed in the appropriate Source-Wide, Emission Unit and/or Flexible Group Special Conditions. Therefore, this appendix is not applicable.

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-N5984-2013. 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-N5984-2013a is being reissued as Source-Wide PTI No. MI-PTI-N5984-2019.

Permit to Install Number	ROP Revision Application Number	Description of Equipment or Change	Corresponding Emission Unit(s) or Flexible Group(s)
160-14	201600056	Conditions of PTI 160-14 were incorporated into MI-ROP-N5984-2013a. These are the conditions for the reciprocating internal combustion engines (1-8), flare 3 (open flare), flares 4 and 6 (enclosed flares), and flare 5 (back-up only, open flare).	FG-ICENGINES FG-RICEMACT FG-RICENSPS FG-FLARES

Appendix 7-1. 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 FG-ACTIVECOLLECTION and FG-OPENFLARES.

Calculation used to determine NMOC emissions from any nonproductive area

The following shall be used to determine if any nonproductive area of the landfill may be excluded from control, provided that the total of all excluded areas can be shown to contribute less than one percent of the total amount of NMOC emissions from the landfill. The amount, location, and age of the material shall be documented and provided to the District Supervisor upon request.

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A separate NMOC emissions estimate shall be made for each section proposed for exclusion, and the sum of all such sections shall be compared to the NMOC emissions estimate for the entire landfill. Emissions from each section shall be computed using the following equation: **(40 CFR 60.759(a)(3)(ii), 40 CFR 60.769(a)(3)(iii), 40 CFR 63.1955(a))**

$Q_i = 2 k L_o M_i (e^{-kt_i}) (C_{NMOC}) (3.6 \times 10^{-9})$ where,

Q_i = NMOC emission rate from the i th section, megagrams per year

k = methane generation rate constant, year⁻¹

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

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

t_i = age of the solid waste in the i th section, years

C_{NMOC} = concentration of non-methane organic compounds, parts per million by volume

3.6×10^{-9} = conversion factor

The values for k and C_{NMOC} determined in field testing shall be used if field testing has been performed in determining the NMOC emission rate or the radii of influence (this distance from the well center to a point in the landfill where the pressure gradient applied by the blower or compressor approaches zero). If field testing has not been performed, the default values for k , L_o and C_{NMOC} provided in 40 CFR 60.754(a)(1) and 40 CFR 60.764(a)(1) or the alternative values from 40 CFR 60.754(a)(5) and 40 CFR 60.764(a)(5) shall be used. The mass of nondegradable solid waste contained within the given section may be subtracted from the total mass of the section when estimating emissions provided the nature, location, age, and amount of the nondegradable material is documented as provided in 40 CFR 60.759(a)(3)(i) and 40 CFR 60.769(a)(3)(i). **(40 CFR 60.759(a)(3)(iii), 40 CFR 60.769(a)(3)(iii), 40 CFR 63.1955(a))**

Net Heating Value of the gas being combusted in the flare:

The net heating value of the gas being combusted in the flare shall be calculated and recorded using the equation provided in 40 CFR 60.18(f)(3). **(40 CFR 60.18(f)(3))**

$$H_T = K \sum_{i=1}^n C_i H_i$$

WHERE:

HT=Net heating value of the sample,

MJ/scm; where the net enthalpy per mole of offgas is based on combustion at 25 °C and 760 mm Hg, but the standard temperature for determining the volume corresponding to one mole is 20 °C;

$$K = \text{Constant} \cdot \left(\frac{1}{\text{ppm}} \right) \left(\frac{\text{g mole}}{\text{scm}} \right) \left(\frac{\text{MJ}}{\text{kcal}} \right)$$

where the standard temperature for $\left(\frac{\text{g mole}}{\text{scm}} \right)$ is 20°C;

C_i = Concentration of sample component i in ppm on a wet basis, as measured for organics by Reference Method 18 and measured for hydrogen and carbon monoxide by ASTM D1946–77 or 90 (Reapproved 1994) (Incorporated by reference as specified in 40 CFR 60.17); and

H_i = Net heat of combustion of sample component i , kcal/g mole at 25 °C and 760 mm Hg. The heats of combustion may be determined using ASTM D2382–76 or 88 or D4809–95 (incorporated by reference as specified in 40 CFR 60.17) if published values are not available or cannot be calculated.

Section 1 – Pine Tree Acres, Inc.

ROP No: MI-ROP-N5984-~~2019~~

Expiration Date: ~~July 30, 2024~~

PTI No: MI-PTI-N5984-~~2019~~

Calculation for V_{max} steam-assisted and non-assisted flares

The maximum permitted velocity, V_{max} , for flares complying with 40 CFR 60.18(c)(4)(iii) shall be calculated and recorded using the equation provided in 40 CFR 60.18(f)(5). **(40 CFR 60.18(f)(5))**

$$\text{Log}_{10} (V_{max}) = (H_T + 28.8) / 31.7$$

V_{max} = Maximum permitted velocity, M/sec

28.8 = Constant

31.7 = Constant

H_T = The net heating value as determined in 60.18(f)(3).

Calculation for V_{max} for air-assisted flares

The maximum permitted velocity, V_{max} , for air-assisted flares shall be calculated and recorded using the equation provided in 40 CFR 60.18(f)(6). **(40 CFR 60.18(f)(6))**

$$V_{max} = 8.706 + 0.7084 (H_T)$$

V_{max} = Maximum permitted velocity, m/sec

8.706 = Constant

0.7084 = Constant

H_T = The net heating value as determined in 60.18(f)(3).

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.

Section 2 – Sumpter Energy Associates, LLC

ROP No: MI-ROP-N5984-~~2019~~

Expiration Date: ~~July 30, 2024~~

PTI No: MI-PTI-N5984-~~2019~~

SECTION 2 – SUMPTER ENERGY ASSOCIATES, 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

4. 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))**
5. 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))**
6. 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))**
9. 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.
10. 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))**

Section 2 – Sumpter Energy Associates, LLC

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11. 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))**
12. The permittee shall pay fees consistent with the fee schedule and requirements pursuant to Section 5522 of Act 451. **(R 336.1213(1)(g))**
13. This ROP does not convey any property rights or any exclusive privilege. **(R 336.1213(1)(h))**

Equipment & Design

10. 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)**
11. 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

13. 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.

14. 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

16. 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)**
17. 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))**
18. 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))**

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Monitoring/Recordkeeping

18. 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.
19. 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

22. 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 states 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))**
23. 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))**
24. 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))**
25. 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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26. 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.
27. 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))**
28. 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))**
29. 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

27. 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.

28. 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))**

Section 2 – Sumpter Energy Associates, LLC

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- e. The ability of the USEPA to obtain information from a source pursuant to Section 114 of the CAA. **(R 336.1213(6)(b)(iv))**
- 29. The permit shield shall not apply to provisions incorporated into this ROP through procedures for any of the following:
 - f. Operational flexibility changes made pursuant to Rule 215. **(R 336.1215(5))**
 - g. Administrative Amendments made pursuant to Rule 216(1)(a)(i)-(iv). **(R 336.1216(1)(b)(iii))**
 - h. 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))**
 - i. Minor Permit Modifications made pursuant to Rule 216(2). **(R 336.1216(2)(f))**
 - j. State-Only Modifications made pursuant to Rule 216(4) until the changes have been approved by the department. **(R 336.1216(4)(e))**
- 34. 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

- 35. 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)**
- 36. 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))**
- 37. 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))**
- 38. 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

- 35. 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))**

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Renewals

38. 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

39. 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.
40. 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

42. 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).
43. 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.
44. 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.
45. 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

47. 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))**

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Permit to Install (PTI)

48. 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))**
49. 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)**
50. 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)**
51. 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).

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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.

SOURCE-WIDE CONDITIONS

POLLUTION CONTROL EQUIPMENT

Sulfur/Total Reduced Sulfur removal system

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))

NA

VI. MONITORING/RECORDKEEPING

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

NA

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))

See Appendix 8-2

VIII. STACK/VENT RESTRICTION(S)

NA

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IX. OTHER REQUIREMENT(S)

1. The operational restrictions and testing requirements in SC II.1, SC III.3 and SC V.3 under FG-ICENGINES at Pine Trees Acres (section 1) also applies to the landfill gas supplied to FG-ENGINES at the facility operated by Sumpter Energy (section 2). **(R 336.1213(3), R 336.2803, R 336.2804, 40 CFR 52.21 (c) & (d))**

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).

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C. EMISSION UNIT 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
EU-ENGINE1	Reciprocating internal combustion engine. Landfill gas fired internal combustion engines (ICE) manufactured by Caterpillar Inc. (Model No. 3516) and rated at 1138 HP and 8.6 MMBtu/hr	07/24/01	FG-ENGINES FG-RICEMACT
EU-ENGINE2	Reciprocating internal combustion engine. Landfill gas fired internal combustion engines (ICE) manufactured by Caterpillar Inc. (Model No. 3516) and rated at 1138 HP and 8.6 MMBtu/hr	07/24/01	FG-ENGINES FG-RICEMACT
EU-ENGINE3	Reciprocating internal combustion engine. Landfill gas fired internal combustion engines (ICE) manufactured by Caterpillar Inc. (Model No. 3516) and rated at 1138 HP and 8.6 MMBtu/hr	07/24/01	FG-ENGINES FG-RICEMACT
EU-ENGINE4	Reciprocating internal combustion engine. Landfill gas fired internal combustion engines (ICE) manufactured by Caterpillar Inc. (Model No. 3516) and rated at 1138 HP and 8.6 MMBtu/hr	07/24/01	FG-ENGINES FG-RICEMACT
EU-ENGINE5	Reciprocating internal combustion engine. Landfill gas fired internal combustion engines (ICE) manufactured by Caterpillar Inc. (Model No. 3516) and rated at 1138 HP and 8.6 MMBtu/hr	07/24/01	FG-ENGINES FG-RICEMACT
EU-ENGINE6	Reciprocating internal combustion engine. Landfill gas fired internal combustion engines (ICE) manufactured by Caterpillar Inc. (Model No. 3516) and rated at 1138 HP and 8.6 MMBtu/hr	07/24/01	FG-ENGINES FG-RICEMACT
EU-ENGINE7	Reciprocating internal combustion engine. Landfill gas fired internal combustion engines (ICE) manufactured by Caterpillar Inc. (Model No. 3516) and rated at 1138 HP and 8.6 MMBtu/hr	07/24/01	FG-ENGINES FG-RICEMACT

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Emission Unit ID	Emission Unit Description (Including Process Equipment & Control Device(s))	Installation Date/ Modification Date	Flexible Group ID
EU-ICENGINE8	Spark ignition, lean burn, reciprocating internal combustion engine (Caterpillar G3520C, 2,233 bhp at 100% load) for combusting treated landfill gas to produce electricity (1.6-megawatt gross electrical output). The engine will drive an associated generator set to produce the electricity.	03/02/10	FG-ICENGINE2 FG-RICEMACT
EU-ICENGINE9	Spark ignition, lean burn, reciprocating internal combustion engine (Caterpillar G3520C, 2,233 bhp at 100% load) for combusting treated landfill gas to produce electricity (1.6-megawatt gross electrical output). The engine will drive an associated generator set to produce the electricity.	03/02/10	FG-ICENGINE2 FG-RICEMACT
EU-ICENGINE10 EUENGINE10	Spark ignition, lean burn, reciprocating internal combustion engine (Caterpillar G3520C, 2,242 bhp at 100% load) for combusting treated landfill gas to produce electricity (1.6-megawatt gross electrical output). The engine will drive an associated generator set to produce the electricity. This emission unit, and any replacement of this unit as applicable under R 336.1285(a)(vi), is for a Caterpillar G3520C <u>reciprocating</u> internal combustion engine <u>rated at 2,242 bhp fueled with treated landfill gas to produce electricity, greater than 500hp fueled with treated landfill/digester gas to produce electricity. The engine is subject to the New Source Performance Standard for spark ignition engines (40 CFR Part 60 Subpart JJJ) that meet the following definition: 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.</u>	TBD	FG-RICEMACT10 FGRICENSPS10 FGRICEMACTNEW

**~~EU-ICENGINE10~~EUENGINE10
EMISSION UNIT CONDITIONS**

DESCRIPTION

~~Spark ignition, lean burn, reciprocating internal combustion engine (Caterpillar G3520C, 2,242 bhp at 100% load) for combusting treated landfill gas to produce electricity (1.6-megawatt gross electrical output). The engine will drive an associated generator set to produce the electricity. This emission unit, and any replacement of this unit as applicable under R 336.1285(a)(vi), is for a Caterpillar G3520C internal combustion engine greater than 500hp fueled with treated landfill/digester gas to produce electricity.~~

~~The engine is subject to the New Source Performance Standard for spark ignition engines (40 CFR Part 60 Subpart JJJJ) that meet the following definition: 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.~~

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 gas to produce electricity.

Flexible Group ID: FG-RICEMACT10 FGRICEMACTNEW, FGRICENSPS10

POLLUTION CONTROL EQUIPMENT

~~Electronic air-to-fuel ratio controller~~NA

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. NO _x	3.00 lb/hr ²	Hourly	EU- ICENGINE10 <u>EUENGINE10</u>	SC V.1, <u>SC VI.5</u>	R 336.1205(1)(a) & (3), R336.2803, R336.2804 40 CFR 52.21(c) & (d)
2. NO _x	2.0 g/bhp-hr ² or 150 ppmvd corrected to 15% O ₂	Hourly	EU-ICENGINE10	SC-V.3	40 CFR Part 60 Subpart JJJJ 40 CFR 60.4233(e) and Table 4
3. CO	16.3 lb/hr ²	Hourly	EUENGINE10 <u>EU- ICENGINE10</u>	SC V.1, <u>SC VI.5</u>	R 336.1205(1)(a) & (3), R336.2804 40 CFR 52.21(d)
4. CO	5.0 g/bhp-hr ² or 610 ppmvd corrected to 15% O ₂	Hourly	EU-ICENGINE10	SC-V.3	40 CFR Part 60 Subpart JJJJ 40 CFR 60.4233(e) and Table 4
5. VOC	4.84 lb/hr ²	Hourly	EU- ICENGINE10 <u>EUENGINE10</u>	SC V.1 <u>SC VI.5</u>	R.336.1205(1)(a) & (3), R 336.1702(a)

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Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
6. VOC	1.0 g/bhp-hr² or 80 ppmvd corrected to 15% O₂	Hourly	EU-ICENGINE10	SC V.3	40 CFR Part 60 Subpart JJJJ 40 CFR 60.4233(e) and Table 4
7. Formaldehyde	2.08 lb/hr ¹	Hourly	EU- ICENGINE10 EUENGINE10	SC V.2 SC VI.5	R 336.1225(1) ¹
8. SO ₂	4.71 lb/hr ²	Monthly Average (based on the calculation in Appendix 7- 2)Hourly	EU- ICENGINE10 EUENGINE10	SC V.1 SC VI.3 SC V.4 SC VI.5	40 CFR 52.21(c) & (d)R 336.1205(1)(a) & (3) R 336.2803 R 336.2804

II. MATERIAL LIMIT(S)

NA

Material	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
4. Treated Landfill Gas as specified in SC III.1	321.7 MMscf² per year	12-month rolling time period as determined at the end of each calendar month	EU-ICENGINE10	SC VI.4	R 336.1205(1)(a) & (3) R 336.1225 R 336.1702(a)

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall only burn landfill gas in ~~EU-ICENGINE10~~EUENGINE10. ~~The landfill gas must be treated in a system which complies with 40 CFR 60.752(b)(2)(iii)(C).² (R 336.1225, R 336.1331, R 336.1702), 40 CFR 60.752(b)(2)(iii)(C))~~
2. No later than 60 days prior to startup, the permittee shall submit to the AQD District Supervisor, for review and approval, a malfunction abatement/preventative maintenance plan for ~~EU-ICENGINE10~~EUENGINE10. After approval of the malfunction abatement/preventative maintenance plan by the AQD District Supervisor, the permittee shall not operate ~~EU-ICENGINE10~~EUENGINE10 unless the malfunction abatement/preventative maintenance plan, or an alternate 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.

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~~f. For the exhaust system, include the design flow rate of the system and the method with which the exit velocity will be monitored, including a description of how the monitoring device will be operated and maintained~~

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, 40 CFR 52.21(c) & (d))~~

~~3. The permittee shall operate and maintain EU-ICENGINE10 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))~~

~~4. 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 EU-ICENGINE10 and shall, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions.² (40 CFR 60.4243(b))~~

~~5. EU-ICENGINE10 shall operate in a manner which reasonably minimizes HAP emissions.² (40 CFR 63.6625(c))~~

~~6. EU-ICENGINE10 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 the engine, not to exceed 30 minutes.² (40 CFR 63.6625(h))~~

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall not operate ~~EU-ICENGINE10~~EUENGINE10 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 ~~EU-ICENGINE10~~EUENGINE10 shall not exceed 2,242 hp, ~~(engine work output)~~ as specified by the equipment manufacturer.² (R 336.1205(1)(a), R 336.1225, R 336.1702, ~~R 336.2803, R 336.2804~~ 40 CFR 52.21(e) & (d))

3. The permittee shall equip and maintain ~~EU-ICENGINE10~~EUENGINE10 with a device to monitor and record the daily fuel usage.² (R 336.1205, R 336.1225, R 336.1702)

4. The permittee shall equip and maintain ~~EU-ICENGINE10~~EUENGINE10 with non-resettable hours meters to track the operating hours.² ~~(40 CFR 60.4243~~R 336.1205(1)(a) & (3))

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. ~~(R 336.1213(3)(b)(ii)~~R 336.1201(3))

1. Within 180 days after initial startup of ~~EU-ICENGINE10~~each engine and within every five years from the date of completion of the most recent stack test, thereafter, the permittee shall verify NOx, CO, SO₂, and VOC emission rates, from ~~EU-ICENGINE10~~EUENGINE10 ~~at maximum routine operating conditions~~, 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:

<u>Pollutant</u>	<u>Test Method Reference</u>
<u>NOx</u>	<u>40 CFR Part 60, Appendix A</u>
<u>CO</u>	<u>40 CFR Part 60, Appendix A</u>
<u>VOC (Includes formaldehyde)</u>	<u>40 CFR Part 60, Appendix A; or Method 320 of Appendix A of 40 CFR Part 63</u>
<u>SO₂</u>	<u>40 CFR Part 60, Appendix A</u>

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An alternate 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 any 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.² **(R 336.1205, R 336.1702(a), R 336.2001, R 336.2003, R 336.2004, R 336.2803 R 336.3804 40 CFR 52.21(e) & (d))**

~~2. 2.~~ Within 180 days after initial startup of each engine in EUENGINE10 EU-ICENGINE10 and within every five years from the date of completion of the most recent stack test, thereafter, the permittee shall verify formaldehyde emission rates from each engine in EU-ICENGINE10 EUENGINE10 at maximum routine operating conditions, 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 alternate 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 final plan must be approved by the AQD 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.² **(R 336.1225, R 336.2001, R 336.2003, R 336.2004)**

~~3. Except as provided in 40 CFR 60.4243(b), the permittee shall conduct an initial performance test for EU-ICENGINE10 within one year after startup of the engine and 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), unless the engine(s) have been certified by the manufacturer in accordance with 40 CFR Part 60 Subpart JJJJ and the permittee maintains the engine as required by 40 CFR 60.4243(a)(1). If a performance test is required, the performance tests shall be conducted according to 40 CFR 60.4244. No less than 30 days prior to any 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.² **(40 CFR 60.8, 40 CFR 60.4243, 40 CFR 60.4244, 40 CFR 60.4245, 40 CFR Part 60 Subpart JJJJ)**~~

43. The permittee shall verify the hydrogen sulfide (H₂S) or total reduced sulfur (TRS) content of the treated landfill gas burned in EU-ICENGINE10 on a monthly basis by gas testing at owner's expense, in accordance with Department requirements. No less than 60 days prior to the initial test, the permittee shall submit a complete test plan to the AQD District Office. The AQD must approve the final plan prior to the first test. Thereafter, the permittee shall submit a test plan upon the request of the AQD District Supervisor. If at any time the H₂S (TRS equivalent) concentration readings exceed 770 ppm, the permittee shall conduct sampling and recording on a weekly basis 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 concentration determined from the weekly readings are maintained below 770 ppm of H₂S/TRS concentration in the landfill gas for one month after an exceedance, the permittee may resume monthly monitoring and recordkeeping. 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), 40 CFR 52.21 (c) & (d))**

~~5. Testing shall be performed using an approved EPA Method listed in:~~

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

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Pollutant	Test Method Reference
HAPs	40 CFR Part 63, Appendix A

~~An alternate method, or a modification to the approved EPA Method, may be specified in an AQD approved Test Protocol. (R 336.1213(3), R 336.2003)~~

- ~~6. The permittee shall notify the AQD Technical Programs Unit Supervisor and the District Supervisor not less than 30 days of the time and place before performance tests are conducted. (R 336.1213(3))~~

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years.² ~~(R 336.1213(3)(b)(ii))~~ R 336.1201(3)

- ~~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, R 336.2803, R 336.2804) 40 CFR 52.21(c) & (d)~~
- ~~2. The permittee shall continuously monitor, in a satisfactory manner, the total landfill gas fuel usage for EU-ICENGINE10 EUENGINE10, on a daily basis, and the hours of operation for EU-ICENGINE10.² (40 CFR 52.21(c) & (d), 40 CFR Part 60 Subpart JJJJ) (R 336.1205, R 336.1225)~~
- ~~3. The permittee shall maintain a log of all maintenance activities conducted according to the malfunction abatement/preventative maintenance plan (pursuant to SC III.2). The permittee shall keep this log on file at the facility and make it available to the Department upon request.² (R 336.1702(a), R 336.1911, R 336.1912, 40 CFR 52.21(c) & (d))~~
- ~~4. The permittee shall keep, in a satisfactory manner, records of the landfill gas usage for EU-ICENGINE10 and the hours of operation for EU-ICENGINE10 on a daily basis, as required by SC VI.2. The permittee shall keep all records on file at the facility and make them available to the Department upon request.² (R 336.1225, R 336.1702, R 336.1910, 40 CFR 52.21(c) & (d), 40 CFR Part 60 Subpart JJJJ, 40 CFR 63.6625(c))~~
- ~~53. The permittee shall calculate and record the SO₂ emission rates from EU-ICENGINE10 EUENGINE10 using the equation in Appendix 7-2A, or other method as approved by the AQD District Supervisor. The calculations shall utilize, at a minimum, weekly gas sampling data collected SC V.3, monthly gas testing data collected (SC V.4), the actual monthly gas usage, hours of operation, and the average ratio of total sulfur to sulfur as H₂S from the most recent laboratory test. All records shall be kept on file at the facility and make them available to the Department upon request.² (R 336.1205(3)), R 336.2803, R 336.2804) 40 CFR 52.21 (c) & (d)~~
- ~~6. The permittee shall monitor emissions and operating information, including monitoring and recording the hours of operation of EU-ICENGINE10, in accordance with the federal Standards of Performance for New Stationary Sources as specified in 40 CFR Part 60 Subparts A and JJJJ. The permittee shall keep records of all source emissions data and operating information for EU-ICENGINE 10 on file at the facility and make the records available upon request.² (40 CFR Subparts A & JJJJ, 40 CFR 60.4245))~~
- ~~7. The permittee shall monitor and record, on a monthly basis, the average Btu content of the landfill gas burned in EU-ICENGINE10. The permittee shall keep all records on file at the facility and make them available to the Department upon request.² (R 336.1702(a), 40 CFR 52.21(c) & (d))~~
- ~~84. The permittee shall maintain the following record for EU-ICENGINE10 EUENGINE10. 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 and model year;
 - d. Maximum engine power;
 - e. Engine serial number;
 - f. Engine specification sheet;
 - g. Date of initial startup of the engine; and~~

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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)~~

95. The permittee shall maintain records of all information necessary for all notifications and reports for EU-ICENGINE10, 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 and landfill gas usage;
- c. Calculated amount of landfill gas combusted in the engine on a monthly and 12-month rolling basis;
- d. Hours of operation on a monthly and 12-month rolling basis;
- ~~d-e. Monthly average Btu content of the landfill gas burned.~~
- e-f. Manufacturer's data, specifications, and operating and maintenance procedures;
- f-g. Maintenance activities conducted according to the PM/MAP;
- g-h. All calculations necessary to show compliance with the limits contained in this permit.

All of the above information shall be kept on file and 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)~~

VII. REPORTING

1. Within 30 days after completion of the installation, construction, reconstruction, relocation, or modification authorized by this Permit to Install, the permittee or the authorized agent pursuant to Rule 204, shall notify the AQD District Supervisor, in writing, of the completion of the activity. Completion of the installation, construction, reconstruction, relocation, or modification is considered to occur not later than commencement of trial operation of EUENGINE10. (R 336.1201(7)(a))
2. 7. The permittee shall notify the AQD district office within one week of when the frequency of the gas sampling changes for any reason. (R 336.1201(3))
3. The permittee shall notify 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. (R 336.1205, R336.1702(a), R 336.1911)
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 initial notification as required by 40 CFR 60.7(a)(1) for EU-ICENGINE10 if the engine(s) installed is/are not certified by an engine manufacturer to meet the emission standards in 40 CFR 60.4231. The notification shall include the information below, as specified in 40 CFR 60.4245 (c)(1) through (5):~~
 - a. ~~Name and address of the owner or operator; (40 CFR 60.4245(c)(1))~~
 - b. ~~The address of the affected source; (40 CFR 60.4245(c)(2))~~

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- ~~c. Engine information including make, model, engine family, serial number, model year, maximum engine power, and engine displacement; (40 CFR 60.4245(c)(3))~~
- ~~d. Emission control equipment; and (40 CFR 60.4245(c)(4))~~
- ~~e. Fuel used. (40 CFR 60.4245(c)(5))~~

~~The permittee shall submit the initial notification to the AQD District Supervisor in an acceptable format within 30 days of commencing construction of EU-ICENGINE10.² (40 CFR Part 60 Subpart JJJJ)~~

- ~~5. 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 no later than January 31.² (40 CFR 63.6650(g), 40 CFR 63.6650(b)(5)) 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))~~~~

- ~~6. At least seven (7) days prior to startup of EU-ICENGINE10, the permittee shall notify the AQD District Supervisor that the stack installation has been completed and certify that the stack meets the parameters as specified in SC VIII.1 to the satisfaction of the AQD. The permittee shall submit the exhaust fan design specifications, if applicable, for EU-ICENGINE10 exhaust stack along with the certification/demonstration that the stack for EU-ICENGINE10 meets the parameters specified in SC VIII.1.² (R 336.1201(3), R 336.1225, 40 CFR 52.21(c) & (d))~~

~~7. The permittee shall notify the AQD district office within one week of when the frequency of the gas sampling changes for any reason. (R 336.1201(3))~~

- ~~8. 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)

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 Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SV-ENG10 <u>SVENGINE10</u>	16.0 ²	80.095 ²	R 336.1225 <u>R 336.2803, R 336.2804</u> 40 CFR 52.21(c) & (d)

IX. OTHER REQUIREMENT(S)

NA

- ~~1. The permittee shall comply with all applicable provisions of the New Source Performance Standards, as specified in 40 CFR Part 60, Subpart A and Subpart JJJJ, as they apply to EUICENGINE10. (40 CFR Part 60 Subparts~~

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~~A and JJJJ)~~

~~2. The permittee shall comply with all applicable provisions of the National Emission Standards for Hazardous Air Pollutants, as specified in 40 CFR, Part 63, Subpart A and Subpart ZZZZ. (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).~~

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D. FLEXIBLE GROUP 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
FG-ENGINES	Seven reciprocating internal combustion engines (RICE) that will only combust treated landfill gas for fuel. Each engine drives an associated generator set for producing electricity.	EU-ENGINE1 EU-ENGINE2 EU-ENGINE3 EU-ENGINE4 EU-ENGINE5 EU-ENGINE6 EU-ENGINE7
FG-ICENGINE2	Two reciprocating internal combustion engines (RICE) that will only combust treated landfill gas for fuel. Each engine drives an associated generator set for producing electricity.	EU-ICENGINE8 EU-ICENGINE9
FG-RICEMACT	All existing, new and reconstructed engines located at a Major Source of HAPS, > 500 HP, non-emergency, firing Landfill/Digester Gas. New and reconstructed engines commenced construction or reconstruction on or after December 19, 2002, and the compliance date for these engines is upon start-up.	EU-ENGINE1 EU-ENGINE2 EU-ENGINE3 EU-ENGINE4 EU-ENGINE5 EU-ENGINE6 EU-ENGINE7 EU-ICENGINE8 EU-ICENGINE9
FG-RICEMACT10	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	EU-ICENGINE10
<u>FGRICENSPS10</u>	<u>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.</u>	<u>EUENGINE10</u>
<u>FGRICEMACTNEW</u>	<u>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.</u>	<u>EUENGINE10</u>

**FG-ENGINES
FLEXIBLE GROUP CONDITIONS**

DESCRIPTION

Seven reciprocating internal combustion engines (RICE) that will only combust treated landfill gas for fuel. Each engine drives an associated generator set for producing electricity.

Emission Units: EU-ENGINE1, EU-ENGINE2, EU-ENGINE3, EU-ENGINE4, EU-ENGINE5, EU-ENGINE6, EU-ENGINE7

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. NO _x	35.2 lbs/hr ²	Hour	FG-ENGINES	SC V.1	R 336.1201(3)
2. NO _x	154.2 tpy ²	12-month rolling time period as determined at the end of each calendar month	FG-ENGINES	SC V.1	R 336.1201(3)
3. CO	51.1 lbs/hr ²	Hour	FG-ENGINES	SC V.1	R 336.1201(3)
4. CO	223.8 tpy ²	12-month rolling time period as determined at the end of each calendar month	FG-ENGINES	SC V.1	R 336.1201(3)
5. HCl	0.7 lbs/hr ¹	Hour	FG-ENGINES	SC V.1	R 336.1224(1) R 336.1225
6. HCl	3.0 tpy ¹	12-month rolling time period as determined at the end of each calendar month	FG-ENGINES	SC V.1	R 336.1224(1) R 336.1225
7. NMOC	8.8 lbs/hr ²	Hour	FG-ENGINES	SC V.1	R 336.1702(a)
8. NMOC	38.5 tpy ²	12-month rolling time period as determined at the end of each calendar month	FG-ENGINES	SC V.1	R 336.1702(a)

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

- The permittee shall only burn landfill gas in FG-ENGINES that has been treated in a system which complies with 40 CFR 60.752(b)(2)(iii)(C). (R 336.1213(2))

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2. Within 60 days of permit issuance, the permittee shall not operate FG-ENGINES unless the preventative maintenance/malfunction abatement plan (PM/MAP) or an alternate 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 PM/MAP to be inadequate, the AQD District Supervisor may request modification of the plan to address those inadequacies. **(R 336.1213(2), R 336.1911)**

3. Based on each engine's kilowatt output, the permittee shall adjust the engine's air/fuel ratio, as needed, to ensure that the engine operates at its maximum design output based on the fuel available to burn. **(R 336.1213(2))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall not operate any engine in FG-ENGINES unless that engine's air/fuel ratio controller is installed, maintained and operated in a satisfactory manner. **(R 336.1213(2))**
2. The permittee shall equip each engine in FG-ENGINES with a device to monitor and record the hours of operation for each engine. **(R 336.1213(2))**
3. The permittee shall equip FG-ENGINES with a device to monitor and record the total daily fuel usage of the engines. **(R 336.1213(2))**

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 verify NO_x, CO, HCl and NMOC emission rates from each engine in FG-ENGINES by testing at owner's expense, in accordance with the Department requirements. Testing shall be performed using an approved EPA Method listed in:

Pollutant	Test Method Reference
NO _x	40 CFR Part 60, Appendix A
CO	40 CFR Part 60, Appendix A
HCl	40 CFR Part 60, Appendix A
NMOC	40 CFR Part 60, Appendix A

An alternate 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

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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.

The permittee must submit 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)**

- ~~2. The permittee shall determine, by sampling on an annual basis, the chlorine compounds present in the landfill gas (LFG) stream influent to FG ENGINES. Sampling shall be done by Method 18, or alternate method as approved by the AQD District Supervisor. No less than 30 days prior to testing, the permittee shall submit a complete sampling plan to the AQD Technical Programs Unit and District Office. The AQD must approve the final plan prior to sampling, 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 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)**~~
3. Within 180 days of permit issuance or five years from the last test date, whichever is later, and then every five years thereafter, the permittee shall verify the NO_x, CO, HCl and NMOC emission rates from each engine in FG-ENGINES. **(R 336.1213(3), R 336.2001, R 336.2003, R 336.2004)**
4. The permittee shall notify the AQD Technical Programs Unit Supervisor and the District Supervisor not less than 30 days of the time and place before performance tests are conducted. **(R 336.1213(3))**

See Appendix 7-2

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 continuously monitor and record the following parameters:
 - a. Electrical output (KW) of each generator driven by each internal combustion engine.
 - b. Hours of operation of each generator driven by each internal combustion engine.²
 - c. Total flow of landfill gas to FG-ENGINES (HCl compliance).

The permittee shall use the equations and emission factors as specified in Appendix 7-2 to calculate the emissions of CO, NO_x, HCl, and NMOC for each engine. Records of the monitored parameters and calculations shall be kept on file and made available to the Department upon request.² **(R 336.1224, R 336.1225, R 336.1702(a), 40 CFR 52.21(c) & (d))**

- ~~2. The permittee shall measure and record the heating value of the landfill gas used as fuel in the ICes on a weekly basis (for HCl compliance). **(R 336.1213(3))**~~
- ~~3. The permittee shall keep a written record of the chlorinated compound content of the LFG as determined in the most recent sampling and analysis. **(R 336.1213(3))**~~
- ~~4. The permittee shall monitor and record the temperature of the air/fuel mixture at the after cooler outlet a minimum of once per day, excluding holidays and weekends, when an engine operator is not scheduled or called in, to be on site. A list of excluded holidays shall be maintained on site and be made available to the Air Quality Division upon request. **(R 336.1213(3))**~~
- ~~5. The permittee shall record and report as a deviation any air/fuel mixture temperature reading greater than five degrees Fahrenheit in excess of the maximum air/fuel mixture temperature observed during the performance test in which compliance with the NO_x emission limit was established. **(R 336.1213(3))**~~
6. The permittee shall maintain a monthly log of all maintenance activities conducted on each engine in FG-ENGINES, including but not limited to the following: daily maintenance activities, top-end repairs, major overhauls, and engine replacements. **(R 336.1213(3))**

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7. The permittee shall maintain the following record for FG-ENGINES. 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 and model year;
 - d. Maximum engine power;
 - e. Engine serial number;
 - f. Engine specification sheet;
 - g. Date of initial startup of the engine; and
 - 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. **(R 336.1213(3), R 336.1911)**

8. The permittee shall maintain records of all information necessary for all notifications and reports for FG-ENGINES, 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/sampling required under the special conditions of this permit;
 - b. Monitoring data for the hours of operation and landfill gas usage;
 - c. Calculated amount of landfill gas combusted in the engines on a monthly and 12-month rolling basis;
 - d. Hours of operation on a monthly and 12-month rolling basis;
 - e. Manufacturer's data, specifications, and operating and maintenance procedures;
 - f. Maintenance activities conducted according to the PM/MAP;
 - g. All calculations necessary to show compliance with the limits contained in this permit.

All of the above information shall be kept on file and stored in a format acceptable to the AQD District Supervisor. **(R 336.1213(3))**

See Appendix 7-2

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))**

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:

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Stack & Vent ID	Maximum Exhaust Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SV-ICE1	12 ²	23 ²	R 336.1225, 40 CFR 52.21(c) & (d)
2. SV-ICE2	12 ²	23 ²	R 336.1225, 40 CFR 52.21(c) & (d)
3. SV-ICE3	12 ²	23 ²	R 336.1225, 40 CFR 52.21(c) & (d)
4. SV-ICE4	12 ²	23 ²	R 336.1225, 40 CFR 52.21(c) & (d)
5. SV-ICE5	12 ²	23 ²	R 336.1225, 40 CFR 52.21(c) & (d)
6. SV-ICE6	12 ²	23 ²	R 336.1225, 40 CFR 52.21(c) & (d)
7. SV-ICE7	12 ²	23 ²	R 336.1225, 40 CFR 52.21(c) & (d)

IX. OTHER REQUIREMENT(S)

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

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).

**FG-ICENGINE2
FLEXIBLE GROUP CONDITIONS**

DESCRIPTION

Two reciprocating internal combustion engines (RICE) that will only combust treated landfill gas for fuel. Each engine drives an associated generator set for producing electricity.

Emission Unit: EU-ICENGINE8, EU-ICENGINE9

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. CO	3.3 g/bhp-hr ²	Hour	Each engine in FG-ICENGINE2	SC V.1 SC V.2	R 336.2804 R 336.2810 40 CFR 52.21(d) & (j) 40 CFR Part 60 Subpart JJJJ
2. CO	16.3 lbs/hr ²	Hour	Each engine in FG-ICENGINE2	SC V.1	R 336.2804 40 CFR 52.21(d) & (j)
3. NO _x	0.6 g/bhp-hr ²	Hour	Each engine in FG-ICENGINE2	SC V.1 SC V.2	40 CFR Part 60 Subpart JJJJ
4. NO _x	3.0 lbs/hr ²	Hour	Each engine in FG-ICENGINE2	SC V.1	R 336.2803 R 336.2804 40 CFR 52.21(c) & (d)
5. SO ₂	7.5 lbs/hr ²	Hour	FG-ICENGINE2	SC V.1 SC V.3	R 336.1205(3) R 336.2803 R 336.2804 40 CFR 52.21(c) & (d)
6. VOC	1.0 g/bhp-hr ²	Hour	Each engine in FG-ICENGINE2	SC V.2	40 CFR Part 60 Subpart JJJJ R 336.1702(b)

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

- The permittee shall only burn landfill gas in FG-ICENGINE2 that has been treated in a system which complies with 40 CFR 60.752(b)(2)(iii)(C).² (R 336.1225, R 336.1331, R 336.1702(b), 40 CFR 63.6625(c))

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2. The permittee shall not operate FG-ICENGINE2 unless the malfunction abatement/preventative maintenance plan, or an alternate 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, R 336.1910, R 336.1911, R 336.1912, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d))

3. The permittee shall operate each of the stationary reciprocating internal combustion engines (RICE) in a manner which reasonably minimizes HAP emissions.² (40 CFR 63.6625(c))
4. Based on each engine's kilowatt output, the permittee shall adjust the engine's air/fuel ratio, as needed, to ensure that the engine operates at its maximum design output based on the fuel available to burn.² (R 336.1702, R 336.1910, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d))
5. The permittee shall not operate FG-ICENGINE2 unless the sulfur monitoring and emission curtailment plan on file, or an alternate plan approved by the AQD District Supervisor, is implemented and maintained. (R 336.1213(3))

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall not operate any engine in FG-ICENGINE2 unless that engine's air/fuel ratio controller is installed, maintained and operated in a satisfactory manner.² (R 336.1702, R 336.1910)
2. The permittee shall equip each engine in FG-ICENGINE2 with a device to monitor and record the hours of operation for each engine.² (40 CFR Part 60, Subpart JJJJ)
3. The permittee shall equip FG-ICENGINE2 with a device to monitor and record the total daily fuel usage of the engines.² (R 336.1201(3), R 336.1225, 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))

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1. Except as provided in 40 CFR 60.4243(b), the permittee shall conduct an initial performance test for each engine in FG-ICENGINE2 within one year after startup of the engine and 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), unless the engines have been certified by the manufacturer as required by 40 CFR Part 60, Subpart JJJJ and the permittee maintains the engine as required by 40 CFR 60.4243(a)(1). If a performance test is required, the performance test(s) shall be conducted according to 40 CFR 60.4244. No less than 30 days prior to testing, a complete test plan shall be submitted to the AQD. The final plan must be approved by the AQD prior to testing.² **(40 CFR 60.4243, 40 CFR 60.4244, 40 CFR Part 60, Subpart JJJJ)**
2. The permittee shall verify NO_x, SO₂, VOC, and CO emission rates from each engine in FG-ICENGINE2, by testing at owner's expense, in accordance with Department requirements. 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.² **(R 336.1213(3), R 336.2001, R 336.2803, R 336.2804, R 336.2003, R 336.2004, 40 CFR 52.21(c) & (d))**
3. ~~The permittee shall verify the hydrogen sulfide or total reduced sulfur content of the treated landfill gas burned in FG-ICENGINE2 on an annual basis by gas sampling. In addition, as outlined in the sulfur monitoring and emission curtailment plan, gas sampling shall be verified on a weekly basis whenever the monthly hydrogen sulfide or total reduced sulfur content level indicates a concentration of 500 ppmv or greater, and on a daily basis whenever a hydrogen sulfide or total reduced sulfur content concentration of 600 ppmv is observed. Once daily monitoring is triggered, the permittee will perform monitoring at least once per day (excluding weekends and holidays) until the measured hydrogen sulfide or total reduced sulfur content returns to a value of less than 600 ppmv. If after a year, each of the monthly concentrations of the hydrogen sulfide or total reduced sulfur concentration of the landfill gas are below 500 ppm (TRS equivalent), the permittee may petition the District Supervisor, Air Quality Division to reduce the frequency of gas sampling and recording the hydrogen sulfide/total reduced sulfur concentration of the treated landfill gas to once each calendar quarter. If, after two calendar years of quarterly sampling, each of the quarterly concentrations of the hydrogen sulfide or total reduced sulfur concentration of the landfill gas are below 500 ppm (TRS equivalent), the permittee may petition the District Supervisor, Air Quality Division to reduce the frequency of gas sampling and recording the hydrogen sulfide/total reduced sulfur concentration of the treated landfill gas to once each calendar year. If at any time the concentration readings exceed 500 ppm (TRS equivalent), the permittee shall review all operating and maintenance activities for the landfill gas collection and treatment system along with keeping records of corrective actions. The permittee shall notify the Department at least seven (7) days prior to sampling. The permittee shall keep all records on file at the facility for a period of at least five years and make them available to the Department upon request. (R 336.1213(3))~~The permittee shall verify the hydrogen sulfide or total reduced sulfur content of the treated landfill gas burned in FG-ICENGINE2 on a monthly basis by gas sampling. In addition, as outlined in the sulfur monitoring and emission curtailment plan, gas sampling shall be verified on a weekly basis whenever the monthly hydrogen sulfide or total reduced sulfur content level indicates a concentration of 500 ppmv or greater, and on a daily basis whenever a hydrogen sulfide or total reduced sulfur content concentration of 600 ppmv is observed. Once daily monitoring is triggered, the permittee will perform monitoring at least once per day (excluding weekends and holidays) until the measured hydrogen sulfide or total reduced sulfur content returns to a value of less than 600 ppmv. If after a year, each of the monthly concentrations of the hydrogen sulfide or total reduced sulfur concentration of the landfill gas are below 500 ppm (TRS equivalent), the permittee may petition the District Supervisor, Air Quality Division to reduce the frequency of gas sampling and recording the hydrogen sulfide/total reduced sulfur concentration of the treated landfill gas to once each calendar quarter. If, after two calendar years of quarterly sampling, each of the quarterly concentrations of the hydrogen sulfide or total reduced sulfur concentration of the landfill gas are below 500 ppm (TRS equivalent), the permittee may petition the District Supervisor, Air Quality Division to reduce the frequency of gas sampling and recording the hydrogen sulfide/total reduced sulfur concentration of the treated landfill gas to once each calendar year. If at any time the concentration readings exceed 500 ppm (TRS equivalent), the permittee shall review all operating and maintenance activities for the landfill gas collection and treatment system along with keeping records of corrective actions. The permittee shall notify the Department at least seven (7) days prior to sampling. The permittee shall keep all records on file at the facility for a period of at least five years and make them available to the Department upon request. **(R 336.1213(3))**The permittee shall operate FG-ICENGINE2 with an approved Sulfur Monitoring and Emission

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~~Curtailment Plan (SMECP), approved by the AQD District Supervisor. The permittee shall adhere to the monitoring, sampling and curtailment procedures as outlined in the approved SMECP. If the plan fails to address or inadequately addresses sulfur monitoring or emission curtailment, the owner or operator shall revise the plan within 45 days after a sampling event or emission release occurs in excess of the requirements of the SMECP. (R 336.1213(3))~~

4. Testing shall be performed using an approved EPA Method listed in:

Pollutant	Test Method Reference
NO _x	40 CFR Part 60, Appendix A
SO ₂	40 CFR Part 60, Appendix A
VOC	40 CFR Part 60, Appendix A
CO	40 CFR Part 60, Appendix A

An alternate method, or a modification to the approved EPA Method, may be specified in an AQD-approved Test Protocol. (R 336.1213(3), R 336.2001, R 336.2003, R 336.2004)

5. Within 180 days of permit issuance or five years from the last test date, whichever occurs later, and then every five years thereafter, the permittee shall verify the CO, NO_x, SO₂, and VOC emission rates from each engine in FG-ICENGINE2. (R 336.1213(3), R 336.2001, R 336.2003, R 336.2004)
6. The permittee shall notify the AQD Technical Programs Unit Supervisor and the District Supervisor not less than 30 days of the time and place before performance tests are 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 continuously monitor, in a satisfactory manner, the total landfill gas fuel usage of the engines and the hours of operation for each engine in FG-ICENGINE2.² (R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d), 40 CFR 63.6625(c), 40 CFR Part 60 Subpart JJJJ)
2. The permittee shall maintain a log of all maintenance activities conducted according to the malfunction abatement/preventative maintenance plan (pursuant to SC III.2). The permittee shall keep this log on file at the facility and make it available to the Department upon request.² (R 336.1702, R 336.1911, R 336.1912, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d))
3. The permittee shall keep, in a satisfactory manner, records of the total landfill gas usage of the engines and the hours of operation for each engine in FG-ICENGINE2 on a daily basis, as required by SC VI.1. The permittee shall keep all records on file at the facility and make them available to the Department upon request.² (R 336.1225, R 336.1702, R 336.1910, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d), 40 CFR 63.6655(c), 40 CFR Part 60 Subpart JJJJ)
4. The permittee shall keep, in a satisfactory manner, monthly SO₂ mass emission calculation records for each engine in FG-ICENGINE2. The SO₂ emission calculations shall be based on the most recent landfill gas sulfur content sampling results (per the sampling required under SC V.3) and the monthly landfill gas usage of the engines. The permittee shall keep all records on file and make them available to the Department upon request.² (R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d))
5. The permittee shall monitor emissions and operating information, including monitoring and recording the hours of operation of each engine in FG-ICENGINE2, in accordance with the federal Standards of Performance for New Stationary Sources as specified in 40 CFR Part 60, Subparts A and JJJJ. The permittee shall keep records of all source emissions data and operating information for each engine in FG-ICENGINE 2 on file at the facility and make the records available upon request.² (40 CFR Part 60, Subparts A & JJJJ, 40 CFR 60.4245)
6. The permittee shall continuously monitor and record, in a satisfactory manner, the kilowatt output from each engine in FG-ICENGINE2.² (R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d))

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7. The permittee shall calculate and keep records of the daily gas usage for each engine on a monthly basis using the kilowatt output from each engine. All daily gas usage calculations for each engine in FG-ICENGINE2 shall be done at the end of each calendar month and made available by the 15th of the following calendar month. The permittee shall keep all records on file at the facility and make them available to the Department upon request.² **(R 336.1702, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d))**
8. The permittee shall monitor and record, on a monthly basis, the average Btu content of the landfill gas burned in FG-ICENGINE2. The permittee shall keep all records on file at the facility and make them available to the Department upon request.² **(R 336.1702, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d))**

VII. REPORTING

1. The results of the ~~monthly~~ sulfur monitoring completed as required per FG-ICENGINE2 Condition V.3 shall be submitted to the appropriate AQD District Office, along with SO₂ emission calculations, within 7 days of the monitoring event. Results obtained by LFG sample laboratory analysis shall be submitted within 30-days of the LFG sampling event, along with SO₂ emissions calculations.
2. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**
3. 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))**
4. 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))**
5. 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 reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(40 CFR 63.6650(g), 40 CFR 63.6650(b)(5))** The following information shall be included in this annual report:²
 - a. The permittee shall report the fuel flow rate and the heating value that was used in the permittee's calculations. **(40 CFR 63.6650(g)(1))**
 - b. The permittee shall report the operating limits provided in the permittee's federally enforceable permit, and any deviations from these limits. **(40 CFR 63.6650(g)(2))**
 - c. The permittee shall report any problems or errors suspected from the fuel flow rate meters. **(40 CFR 63.6650(g)(3))**
6. The permittee shall submit any performance test and sampling 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)

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

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Stack & Vent ID	Maximum Exhaust Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SV-ICENGINE8	16 ²	40 ²	R 336.1225 R 336.2803 R 336.2804 40 CFR 52.21 (c) & (d)
2. SV-ICENGINE9	16 ²	40 ²	R 336.1225 R 336.2803 R 336.2804 40 CFR 52.21 (c) & (d)

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, Subpart A and Subpart JJJJ, as they apply to FG-ICENGINE 2.² **(40 CFR Part 60, Subparts A and JJJJ)**
2. The permittee shall comply with all applicable provisions of the National Emission Standards for Hazardous Air Pollutants, as specified in 40 CFR, Part 63, Subpart A and Subpart ZZZZ, as they apply to FG-ICENGINE 2.² **(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).

**FG-RICEMACT
FLEXIBLE GROUP CONDITIONS**

DESCRIPTION

All existing, new and reconstructed engines located at a Major Source of HAPS, > 500 HP, non-emergency, firing Landfill/Digester Gas. New and reconstructed engines commenced construction or reconstruction on or after December 19, 2002, and the compliance date for these engines is upon start-up.

Emission Unit: EU-ENGINE1, EU-ENGINE2, EU-ENGINE3, EU-ENGINE4, EU-ENGINE5, EU-ENGINE6, EU-ENGINE7, EU-ICENGINE8, EU-ICENGINE9

POLLUTION CONTROL EQUIPMENT

Air-to-fuel ratio controller on each engine.

NA

I. EMISSION LIMIT(S)

NA

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. Each engine in FG-RICEMACT shall operate in a manner which reasonably minimizes HAP emissions. **(40 CFR 63.6625(c))**
2. Each engine in FG-RICEMACT 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. **(40 CFR 63.6625(h))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The engines in FG-RICEMACT shall be equipped with and maintain separate individual fuel meters to monitor and record the daily fuel usage and volumetric flow rate of each fuel used. **(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. The engines in FG-RICEMACT, which fire 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. **(40 CFR 63.6625(c))**

VII. REPORTING

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**

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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 January 31 for the previous calendar year. The following information shall be included in this annual report: **(40 CFR 63.6650(g), 40 CFR 63.6650(b)(5))**
 - 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. **(40 CFR 63.6650(g)(1))**
 - b. The operating limits provided in the permittee's federally enforceable permit, and any deviations from these limits. **(40 CFR 63.6650(g)(2))**
 - c. Any problems or errors suspected from the fuel flow rate meters. **(40 CFR 63.6650(g)(3))**

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 Subpart ZZZZ, as they apply to each engine in FGRICEMACT. **(40 CFR Part 63, Subparts A and ZZZZ)**

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).

FGRICENSPS10
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, 2010.

Emission Unit: EUENGINE10

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

<u>Pollutant</u>	<u>Limit</u>	<u>Time Period/ Operating Scenario</u>	<u>Equipment</u>	<u>Monitoring/ Testing Method</u>	<u>Underlying Applicable Requirements</u>
<u>1. NOx</u>	<u>2.0 g/hp-hr or 150 ppmvd at 15% O₂</u>	<u>Hourly</u>	<u>EUENGINE10</u>	<u>SC V.1</u>	<u>40 CFR 60.4233(e) Table 1 to Subpart JJJJ of Part 60</u>
<u>2. CO</u>	<u>5.0 g/hp-hr or 610 ppmvd at 15% O₂</u>	<u>Hourly</u>	<u>EUENGINE10</u>	<u>SC V.1</u>	<u>40 CFR 60.4233(e) Table 1 to Subpart JJJJ of Part 60</u>
<u>3. VOC*</u>	<u>1.0 g/hp-hr or 80 ppmvd at 15% O₂</u>	<u>Hourly</u>	<u>EUENGINE10</u>	<u>SC V.1</u>	<u>40 CFR 60.4233(e) Table 1 to Subpart JJJJ of Part 60</u>

*per the NSPS, formaldehyde is not included

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall operate and maintain EUENGINE10 such that it meets the emission limits established, over the entire life of the engine. (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 EUENGINE10 and shall, to the extent practicable, maintain and operate each engine in a manner consistent with good air pollution control practice for minimizing emissions. (40 CFR 60.4243(b))

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall equip and maintain EUENGINE10 with non-resettable hours meters to track the operating hours. (40 CFR 60.4243)

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. (R 336.1201(3))

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1. The permittee shall conduct an initial performance test shall, except as provided in 40 CFR 60.4243(b), for EUENGINE10 within one year after startup of the engine and 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). If a performance test is required, the performance tests shall be conducted according to 40 CFR 60.4244. No less than 30 days prior to any 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. (40 CFR 60.8, 40 CFR 60.4243, 40 CFR 4244, 40 CFR 60.4245, 40 CFR Part 60 Subpart JJJJ)

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. (R 336.1201)

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 EUENGINE10 and shall, to the extent practicable, maintain and operate each engine in a manner consistent with good air pollution control practice for minimizing emissions (40 CFR 60.4243(b))

VII. REPORTING

1. The permittee shall submit an initial notification as required by 40 CFR 60.7(a)(1) for EUENGINE10 if the engine(s) installed is/are not certified by an engine manufacturer to meet the emission standards in 40 CFR 60.4231. The notification shall include the information below, as specified in 40 CFR 60.4245 (c)(1) through (5):

- a) Name and address of the owner or operator. (40 CFR 60.4245(c)(1))
- b) The address of the affected source. (40 CFR 60.4245(c)(2))
- c) Engine information including make, model, engine family, serial number, model year, maximum engine power, and engine displacement. (40 CFR 60.4245(c)(3))
- d) Emission control equipment. (40 CFR 60.4245(c)(4))
- e) Fuel used. (40 CFR 60.4245(c)(5))

The permittee shall submit the initial notification to the AQD District Supervisor in an acceptable format within 30 days of commencing construction of any engine in FGRICENSPS. (40 CFR Part 60 Subpart JJJJ)

VIII. STACK/VENT RESTRICTION(S)

NA

IX. OTHER REQUIREMENT(S)

1. The permittee shall comply with the provisions of the New Source Performance Standards, as specified in 40 CFR Part 60, Subpart A and Subpart JJJJ, as they apply to each engine in FGRICENSPS10. (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).

FGRICEMACTNEW
FLEXIBLE GROUP CONDITIONS

DESCRIPTION

40 CFR Part 63, Subpart ZZZZ - National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (RICE), located at a major source of HAP emissions, new and reconstructed spark ignition (SI) RICE greater than 500 bhp and combusts landfill gas equivalent to 10% or more of the gross heat input on an annual basis. Construction or reconstruction of the RICE commenced on or after December 19, 2002.

Emission Unit: EUENGINE10

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

NA

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee must operate any engine in FGRICEMACTNEW in a manner which reasonably minimizes HAP emissions. (40 CFR 63.6625(c))
2. At all times, the permittee must operate and maintain any engine in FGRICEMACTNEW including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. The general duty to minimize emissions does not require any further efforts to reduce emissions if levels required by this standard have been achieved. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Administrator which may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source. (40 CFR 63.6605(b))

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee must monitor and record the fuel usage daily with separate fuel meters to measure the volumetric flow rate of each fuel. (40 CFR 63.6625(c))

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. (R 336.1201(3))

NA

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. (R 336.1201)

1. The permittee shall complete all required records 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. (R 336.1201(3))

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2. A permittee that is operating an engine in FGRICEMACTNEW which fires landfill gas equivalent to 10 percent or more of the gross heat input on an annual basis must keep records of the daily fuel usage monitors. The permittee shall keep all records on file and make them available to the Department upon request. (40 CFR 63.6655(c))
3. The permittee's records must be in a form suitable and readily available for expeditious review according to 40 CFR 63.10(b)(1). (40 CFR 63.6660(a))
4. As specified in 40 CFR 63.10(b)(1), the permittee must keep each record for 5-years following the date of each occurrence, measurement, maintenance, corrective action, report, or record. (40 CFR 63.6660(b))
5. The permittee must keep each record readily accessible in hard copy or electronic form for at least 5 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record, according to 40 CFR 63.10(b)(1). (40 CFR 63.6660(c))

VII. REPORTING

1. The permittee must submit an annual report in accordance with Table 7 of 40 CFR 63, Subpart ZZZZ to the appropriate AQD District Office by no later than March 15. The following information shall be included in this annual report: (40 CFR 63.6650(g))
 - a) The fuel flow rate of each fuel and the heating values that were used in the calculations. The permittee must demonstrate that the percentage of heat input provided by landfill gas is equivalent to 10 percent or more of the total fuel consumption on an annual basis. (40 CFR 63.6650(g)(1))
 - b) The operating limits provided in the permittee's federally enforceable permit, and any deviations from these limits. (40 CFR 63.6650(g)(2))
 - c) Any problems or errors suspected from the fuel flow rate meters. (40 CFR 63.6650(g)(3))
2. The permittee is required to submit an Initial Notification but are otherwise not affected by the requirements of this subpart, in accordance with 40 CFR 63.6590(b). The notification should include the information in 40 CFR 63.9(b)(2)(i) through (v), and a statement that the stationary RICE has no additional requirements and explain the basis of the exclusion (for example, that it operates exclusively as an emergency stationary RICE if it has a site rating of more than 500 brake HP located at a major source of HAP emissions). (40 CFR 63.6645(f))

VIII. STACK/VENT RESTRICTION(S)

NA

IX. OTHER REQUIREMENT(S)

1. The permittee shall comply with all applicable requirements of the National Emission Standards for Hazardous Air Pollutants, as specified in 40 CFR Part 63, Subparts A and ZZZZ for Stationary Reciprocating Internal Combustion Engines. (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).

**FG-RICEMACT10
FLEXIBLE GROUP CONDITIONS**

DESCRIPTION

~~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.~~

~~Emission Unit ID: EU-ICENGINE10~~

POLLUTION CONTROL EQUIPMENT

~~Air to fuel ratio controller on each engine.~~

NA

I. EMISSION LIMITS

NA

II. MATERIAL LIMITS

NA

III. PROCESS/OPERATIONAL RESTRICTIONS

- ~~1. Each engine in FG-RICEMACT10 shall operate in a manner which reasonably minimizes HAP emissions.² (40 CFR 63.6625(c))~~
- ~~2. Each engine in FG-RICEMACT10 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 PARAMETERS

- ~~1. The permittee shall equip and maintain separate fuel meters for the engine(s) in FG-RICEMACT10 to monitor and record the daily fuel usage and volumetric flow rate of each fuel used.² (40 CFR 63.6625(c))~~

V. TESTING/SAMPLING

~~Records shall be maintained on file for a period of five years. (R 336.1201(3))~~

NA

VI. MONITORING/RECORDKEEPING

~~Records shall be maintained on file for a period of five years.² (R 336.1201(3), 40 CFR 63.6660)~~

- ~~1. The engines in FG-RICEMACT10, which fire 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))~~

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))~~

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- ~~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 no later than January 31.² (40 CFR 63.6650(g), 40 CFR 63.6650(b)(5)) 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))~~

VIII. STACK/VENT RESTRICTIONS

NA

IX. OTHER REQUIREMENTS

- ~~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 Subpart ZZZZ, as they apply to each engine in FG-RICEMACT.² (40 CFR Part 63 Subparts A and ZZZZ)~~

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).

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. 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
SNCR	Selective Non-Catalytic Reduction	TAC	Toxic Air Contaminant
SRN	State Registration Number	Temp	Temperature
TEQ	Toxicity Equivalence Quotient	THC	Total Hydrocarbons
USEPA/EPA	United States Environmental Protection Agency	tpy	Tons per year
VE	Visible Emissions	µg	Microgram
		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.

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Appendix 2-2. Schedule of Compliance

The permittee certified in this ROP application that this stationary source is in compliance with all applicable requirements of this ROP.

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

Specific testing requirement plans, procedures, and averaging times are detailed in the appropriate Source-Wide, Emission Unit and/or Flexible Group Special Conditions. 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-N8004-2013. 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-N8004-2013 is being reissued as Source-Wide PTI No. MI-PTI-N5984-2019.

Permit to Install Number	ROP Revision Application Number/ Issuance Date	Description of Equipment or Change	Corresponding Emission Unit(s) or Flexible Group(s)
105-1668-22	201700155	Spark ignition, lean burn, reciprocating internal combustion engine (Caterpillar G3520C, 2,242 bhp at 100% load) for combusting treated landfill gas to produce electricity (1.6 megawatt gross electrical output). The engine will drive an associated generator set to produce the electricity. 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 gas to produce electricity.	EU-ICENGINE 10EUENGINE10

Appendix 7-2. Emission Calculations

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The permittee shall use the following calculations in conjunction with monitoring, testing or recordkeeping data to determine compliance with the applicable requirements referenced in EU-ICENGINE 10 and FG-ENGINES.

I. Procedures for Calculating Emissions for EU-ICENGINE 10:

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 EUCENGINE10. The permittee shall use emission factors contained in the most recent AP-42 (Compilation of Air Pollutant Emission Factors) or the most recent FIRE (Factor Information Retrieval) database if vendor or stack testing data is not available. If emission factors from other sources are used, the permittee shall obtain the approval of the AQD District Supervisor before using the emission factors to calculate emissions. The permittee shall document the source of each emission factor used in the calculations.

Calculation for Monthly SO₂ Emissions:

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

SO₂ Emissions (tons per month)

$$= \frac{\text{Monthly H}_2\text{S Gas Sample (ppmv)}}{1,000,000} \times \frac{1.1733 \text{ mols Sulfur}}{\text{ft}^3} \times \frac{34.065 \text{ grams}}{\text{mol Sulfur}} \times \frac{\text{pound}}{453.59 \text{ grams}} \times \frac{\text{ton}}{2,000 \text{ pounds}} \times \frac{1.88 \text{ SO}_2}{\text{H}_2\text{S}}$$

× Average ratio of total sulfur to sulfur as H₂S × Actual Monthly Landfill Gas Usage (ft³/month)

Calculation for hourly SO₂ Emissions:

The monthly calculation along with the daily hours of operation shall be used to calculate the hourly SO₂ emissions, as a monthly average.

II. Nitrogen Oxide (NO_x), Carbon Monoxide (CO), and Non-Methane Organic Compound (NMOC) for FG-ENGINES:

The permittee shall calculate emissions using the emission factors and equations listed below or an alternative method approved by the District Supervisor. The emission factors shall be established and updated through stack testing and approved by the District Supervisor.

Internal Combustion Engine horsepower (EGICE HP) = generator output (kW) / (0.746kW/HP * 93.9/100)

Pounds per hour (lb/Hr) = EGICE HP * lb/454g * X g/HP*Hr, where X is a factor from table below.

Ton per month (ton/mo) = lb/Hr * Hours of operation/month * Ton/2000 lbs

Pollutant	X
CO	2.9g/HP*Hr
NO _x	2.0g/HP*Hr
NMOC	0.2g/HP*Hr

Section 2 – Sumpter Energy Associates, LLC

ROP No: MI-ROP-N5984-2019

Expiration Date: ~~July 30, 2024~~

PTI No: MI-PTI-N5984-2019

III. Hydrogen chloride (HCl) for FG-ENGINES:

Present in the landfill gas are numerous chlorinated compounds. The permittee shall calculate the emissions using the emission factor and equation listed below or an alternative method approved by the District Supervisor. The emission factor shall be established and updated through stack testing and approved by the District Supervisor.

The following equations provide an example of how HCl emissions can be calculated using the measured landfill gas lower heating value to calculate the flow rate of gas entering the seven (7) ICEs:

Notes:

A heat input of 151,090 Btu/min (LHV) is required to operate the engines at 100% load = 9.0654 MMBtu/hr.

800 kilowatts (gross) of electricity are generated at 100% load; therefore, one kilowatt hour of power generation at 100% load requires a heat input of 11,331.75 Btu (LHV).

$151,090 \text{ Btu/Min} * 60 \text{ min/hr} / 800 = 11,331.75 \text{ Btu/kWhr}$

LFG = landfill gas

LHV = lower heating value

LFG LHV = landfill gas lower heating value, measured and recorded on a weekly basis

cf = cubic foot

kWhr = kilowatt hour

$\text{LFG consumed (cf)} = \text{total gross kWhr (units 1-7)} * (11,331.75 \text{ LHV Btu/kWhr}) / (\text{LFG LHV})$

$\text{Total LFG flow (cf)} = \text{cf of LFG consumed} / (\text{total engine hours} * 7 \text{ engines})$

Total HCl emitted per hour:

$\text{Pound(s) HCl /Hr} = (5.1\text{lbHCl/MMft}^3) * (\text{Total LFG flow})$

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.

Appendix E
PTI 68-22

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

June 6, 2022

PERMIT TO INSTALL

68-22

ISSUED TO

Sumpter Energy Associates, LLC

LOCATED AT

36450 29 Mile Road
Lenox Township, Michigan 48062

IN THE COUNTY OF

Macomb

STATE REGISTRATION NUMBER

N5984

The Air Quality Division has approved this Permit to Install, pursuant to the delegation of authority from the Michigan Department of Environment, Great Lakes, and Energy. This permit is hereby issued in accordance with and subject to Section 5505(1) of Article II, Chapter I, Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. Pursuant to Air Pollution Control Rule 336.1201(1), this permit constitutes the permittee's authority to install the identified emission unit(s) in accordance with all administrative rules of the Department and the attached conditions. Operation of the emission unit(s) identified in this Permit to Install is allowed pursuant to Rule 336.1201(6).

DATE OF RECEIPT OF ALL INFORMATION REQUIRED BY RULE 203: May 31, 2022	
DATE PERMIT TO INSTALL APPROVED: June 6, 2022	SIGNATURE:
DATE PERMIT VOIDED:	SIGNATURE:
DATE PERMIT REVOKED:	SIGNATURE:

PERMIT TO INSTALL

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COMMON ACRONYMS

AQD	Air Quality Division
BACT	Best Available Control Technology
CAA	Clean Air Act
CAM	Compliance Assurance Monitoring
CEMS	Continuous Emission Monitoring System
CFR	Code of Federal Regulations
COMS	Continuous Opacity Monitoring System
Department/department/EGLE	Michigan Department of Environment, Great Lakes, and Energy
EU	Emission Unit
FG	Flexible Group
GACS	Gallons of Applied Coating Solids
GC	General Condition
GHGs	Greenhouse Gases
HVLP	High Volume Low Pressure*
ID	Identification
IRSL	Initial Risk Screening Level
ITSL	Initial Threshold Screening Level
LAER	Lowest Achievable Emission Rate
MACT	Maximum Achievable Control Technology
MAERS	Michigan Air Emissions Reporting System
MAP	Malfunction Abatement Plan
MDEQ	Michigan Department of Environmental Quality
MSDS	Material Safety Data Sheet
NA	Not Applicable
NAAQS	National Ambient Air Quality Standards
NESHAP	National Emission Standard for Hazardous Air Pollutants
NSPS	New Source Performance Standards
NSR	New Source Review
PS	Performance Specification
PSD	Prevention of Significant Deterioration
PTE	Permanent Total Enclosure
PTI	Permit to Install
RACT	Reasonable Available Control Technology
ROP	Renewable Operating Permit
SC	Special Condition
SCR	Selective Catalytic Reduction
SNCR	Selective Non-Catalytic Reduction
SRN	State Registration Number
TBD	To Be Determined
TEQ	Toxicity Equivalence Quotient
USEPA/EPA	United States Environmental Protection Agency
VE	Visible Emissions

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

POLLUTANT / MEASUREMENT ABBREVIATIONS

acfm	Actual cubic feet per minute
BTU	British Thermal Unit
°C	Degrees Celsius
CO	Carbon Monoxide
CO ₂ e	Carbon Dioxide Equivalent
dscf	Dry standard cubic foot
dscm	Dry standard cubic meter
°F	Degrees Fahrenheit
gr	Grains
HAP	Hazardous Air Pollutant
Hg	Mercury
hr	Hour
HP	Horsepower
H ₂ S	Hydrogen Sulfide
kW	Kilowatt
lb	Pound
m	Meter
mg	Milligram
mm	Millimeter
MM	Million
MW	Megawatts
NMOC	Non-Methane Organic Compounds
NO _x	Oxides of Nitrogen
ng	Nanogram
PM	Particulate Matter
PM10	Particulate Matter equal to or less than 10 microns in diameter
PM2.5	Particulate Matter equal to or less than 2.5 microns in diameter
pph	Pounds per hour
ppm	Parts per million
ppmv	Parts per million by volume
ppmw	Parts per million by weight
psia	Pounds per square inch absolute
psig	Pounds per square inch gauge
scf	Standard cubic feet
sec	Seconds
SO ₂	Sulfur Dioxide
TAC	Toxic Air Contaminant
Temp	Temperature
THC	Total Hydrocarbons
tpy	Tons per year
µg	Microgram
µm	Micrometer or Micron
VOC	Volatile Organic Compounds
yr	Year

GENERAL CONDITIONS

1. The process or process equipment covered by this permit shall not be reconstructed, relocated, or modified, unless a Permit to Install authorizing such action is issued by the Department, except to the extent such action is exempt from the Permit to Install requirements by any applicable rule. **(R 336.1201(1))**
2. If the installation, construction, reconstruction, relocation, or modification of the equipment for which this permit has been approved has not commenced within 18 months, or has been interrupted for 18 months, this permit shall become void unless otherwise authorized by the Department. Furthermore, the permittee or the designated authorized agent shall notify the Department via the Supervisor, Permit Section, Air Quality Division, Michigan Department of Environment, Great Lakes, and Energy, P.O. Box 30260, Lansing, Michigan 48909-7760, if it is decided not to pursue the installation, construction, reconstruction, relocation, or modification of the equipment allowed by this Permit to Install. **(R 336.1201(4))**
3. If this Permit to Install is issued for a process or process equipment located at a stationary source that is not subject to the Renewable Operating Permit program requirements pursuant to Rule 210 (R 336.1210), operation of the process or process equipment is allowed by this permit if the equipment performs in accordance with the terms and conditions of this Permit to Install. **(R 336.1201(6)(b))**
4. The Department may, after notice and opportunity for a hearing, revoke this Permit to Install if evidence indicates the process or process equipment is not performing in accordance with the terms and conditions of this permit or is violating the Department's rules or the Clean Air Act. **(R 336.1201(8), Section 5510 of Act 451, PA 1994)**
5. The terms and conditions of this Permit to Install 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 this Permit to Install. If the new owner or operator submits a written request to the Department pursuant to Rule 219 and the Department approves the request, this permit 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 and shall be sent to the District Supervisor, Air Quality Division, Michigan Department of Environment, Great Lakes, and Energy. **(R 336.1219)**
6. Operation of this equipment shall not result in the emission of an air contaminant which causes injurious effects to human health or safety, animal life, plant life of significant economic value, or property, or which causes unreasonable interference with the comfortable enjoyment of life and property. **(R 336.1901)**
7. 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 Department. The notice shall be provided not later than two business days after start-up, shutdown, or discovery of the abnormal condition or malfunction. Written reports, if required, must be filed with the Department within 10 days after the start-up or shutdown occurred, within 10 days after the abnormal condition or malfunction has been corrected, or within 30 days of discovery of the abnormal condition or malfunction, whichever is first. The written reports shall include all of the information required in Rule 912(5). **(R 336.1912)**
8. Approval of this permit does not exempt the permittee from complying with any future applicable requirements which may be promulgated under Part 55 of 1994 PA 451, as amended or the Federal Clean Air Act.
9. Approval of this permit does not obviate the necessity of obtaining such permits or approvals from other units of government as required by law.
10. Operation of this equipment may be subject to other requirements of Part 55 of 1994 PA 451, as amended and the rules promulgated thereunder.

11. Except as provided in subrules (2) and (3) or unless the special conditions of the Permit to Install include an alternate opacity limit established pursuant to subrule (4) of Rule 301, the permittee shall not cause or permit to be discharged into the outer air from a process or process equipment a visible emission of density greater than the most stringent of the following. The grading of visible emissions shall be determined in accordance with Rule 303 (R 336.1303). **(R 336.1301)**
 - a) A six-minute average of 20 percent opacity, except for one six-minute average per hour of not more than 27 percent opacity.
 - b) A visible emission limit specified by an applicable federal new source performance standard.
 - c) A visible emission limit specified as a condition of this Permit to Install.
12. 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). **(R 336.1370)**
13. The Department may require the permittee to conduct acceptable performance tests, at the permittee's expense, in accordance with Rule 1001 and Rule 1003, under any of the conditions listed in Rule 1001. **(R 336.2001)**

EMISSION UNIT SPECIAL CONDITIONS

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
EUENGINE10	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 gas to produce electricity.	TBD	FGRICENSPS10, FGRICEMACTNEW

Changes to the equipment described in this table are subject to the requirements of R 336.1201, except as allowed by R 336.1278 to R 336.1291.

**EUENGINE10
 EMISSION UNIT CONDITIONS**

DESCRIPTION

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 gas to produce electricity.

Flexible Group ID: FGRICEMACT, FGRICENSPS

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Monitoring / Testing Method	Underlying Applicable Requirements
1. NOx	3.0 pph	Hourly	EUENGINE10	SC V.1, SC VI.5	R 336.1205(1)(a) & (3), R 336.2803, R 336.2804
2. CO	16.3 pph	Hourly	EUENGINE10	SC V.1, SC VI.5	R 336.1205(1)(a) & (3), R 336.2804
3. VOC (Includes formaldehyde)	4.84 pph	Hourly	EUENGINE10	SC V.1, SC VI.5	R 336.1205(1)(a) & (3), R 336.1702(a)
4. SO ₂	4.71 pph	Hourly	EUENGINE10	SC V.1, SC VI.3, SC VI.5	R 336.1205(1)(a) & (3), R 336.2803, R 336.2804
5. Formaldehyde	2.08 pph	Hourly	EUENGINE10	SC V.2, SC VI.5	R 336.1225(1) ¹

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall only burn landfill gas in EUENGINE10. (R 336.1225, R 336.1331, R 336.1702)
2. No later than 60 days prior to startup, the permittee shall submit to the AQD District Supervisor, for review and approval, a malfunction abatement/preventative maintenance plan for EUENGINE10. After approval of the malfunction abatement/preventative maintenance plan by the AQD District Supervisor, the permittee shall not operate EUENGINE10 unless the malfunction abatement/preventative maintenance plan, or an alternate

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. **(R 336.1910, R 336.1911)**

IV. DESIGN/EQUIPMENT PARAMETER(S)

- 1. The permittee shall not operate EUENGINE10 unless an air-to-fuel ratio controller is installed, maintained and operated in a satisfactory manner. **(R 336.1702, R 336.1910)**
- 2. The design capacity of EUENGINE10 shall not exceed 2,242 hp, as specified by the equipment manufacturer. **(R 336.1205(1)(a), R 336.1225, R 336.1702, R 336.2803, R 336.2804)**
- 3. The permittee shall equip and maintain EUENGINE10 with a device to monitor and record the daily fuel usage. **(R 336.1205, R 336.1225, R 336.1702)**
- 4. The permittee shall equip and maintain EUENGINE10 with non-resettable hours meters to continuously monitor and record the operating hours. **(R 336.1205(1)(a) & (3))**

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

- 1. Within 180 days after initial startup of each engine and within every 5 years from the date of completion of the most recent stack test, the permittee shall verify NOx, CO, VOC, and SO₂ emission rates from EUENGINE10, 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
VOC (Includes formaldehyde)	40 CFR Part 60, Appendix A; or Method 320 of Appendix A of 40 CFR Part 63
SO ₂	40 CFR Part 60, Appendix A

An alternate 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. **(R 336.1205, R 336.1702, R 336.2001, R 336.2003, R 336.2004, R 336.2803, R 336.2804)**

2. Within 180 days after initial startup of each engine in EUENGINE10 and within every 5 years from the date of completion of the most recent stack test, the permittee shall verify formaldehyde emission rates from each engine in EUENGINE10, 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 alternate 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. **(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 EUENGINE10 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 770 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 770 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. **(R 336.1205(3), R 336.1225, R 336.2001, R 336.2003, R 336.2004)**

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

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. **(R 336.1205, R 336.1225, R 336.1702, R 336.2803, R 336.2804)**
2. The permittee shall continuously monitor and record, in a satisfactory manner, the landfill gas usage for EUENGINE10, on a daily basis. **(R 336.1205, R 336.1225)**
3. The permittee shall calculate and record the SO₂ emission rates from EUENGINE10 using the equation in Appendix A. The calculations shall utilize, at a minimum, weekly gas sampling data collected SC V.3, the monthly gas usage, monthly hours of operation, and the ratio of total sulfur to sulfur as H₂S from the most recent laboratory test. All records shall be kept on file at the facility and make them available to the Department upon request. **(R 336.1205(3)), R 336.2803, R 336.2804)**
4. The permittee shall maintain the following record for EUENGINE10. 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. **(R 336.1205, R 336.1225, R 336.1301, R 336.1331, R 336.1702, R 336.1910, R 336.1911)**

5. The permittee shall maintain records of all information necessary for all notifications and reports for EUENGINE10, 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 Btu 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. **(R 336.1205, R 336.1225, R 336.1301, R 336.1331, R 336.1702(a), R 336.1910, R 336.1911)**

VII. REPORTING

1. Within 30 days after completion of the installation, construction, reconstruction, relocation, or modification authorized by this Permit to Install, the permittee or the authorized agent pursuant to Rule 204, shall notify the AQD District Supervisor, in writing, of the completion of the activity. Completion of the installation, construction, reconstruction, relocation, or modification is considered to occur not later than commencement of trial operation of EUENGINE10. **(R 336.1201(7)(a))**
2. The permittee shall notify the AQD district office within 30 days of when the frequency of the gas sampling changes for any reason. **(R 336.1201(3))**
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. **(R 336.1205, R 336.1702(a), R 336.1911)**

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. SVENGINE10	16.0	80.0	R 336.1225, R 336.2803, R 336.2804

IX. OTHER REQUIREMENT(S)

NA

Footnotes:

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

FLEXIBLE GROUP SPECIAL CONDITIONS

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
FGRICENSPS10	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.	EUENGINE10
FGRICEMACTNEW	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.	EUENGINE10

**FGRICENSPS10
 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, 2010.

Emission Unit: EUENGINE10

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Monitoring / Testing Method	Underlying Applicable Requirements
1. NOx	2.0 g/hp-hr or 150 ppmvd at 15% O ₂	Hourly	EUENGINE10	SC V.1	40 CFR 60.4233(e) Table 1 to Subpart JJJJ of Part 60
2. CO	5.0 g/hp-hr or 610 ppmvd at 15% O ₂	Hourly	EUENGINE10	SC V.1	40 CFR 60.4233(e) Table 1 to Subpart JJJJ of Part 60
3. VOC*	1.0 g/hp-hr or 80 ppmvd at 15% O ₂	Hourly	EUENGINE10	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)

1. The permittee shall operate and maintain EUENGINE10 such that it meets the emission limits established, over the entire life of the engine. **(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 EUENGINE10 and shall, to the extent practicable, maintain and operate each engine in a manner consistent with good air pollution control practice for minimizing emissions. **(40 CFR 60.4243(b))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall equip and maintain EUENGINE10 with non-resettable hours meters to track the operating hours. **(40 CFR 60.4243)**

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. The permittee shall conduct an initial performance test shall, except as provided in 40 CFR 60.4243(b), for EUENGINE10 within one year after startup of the engine and 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). If a performance test is required, the performance tests shall be conducted according to 40 CFR 60.4244. No less than 30 days prior to any 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. **(40 CFR 60.8, 40 CFR 60.4243, 40 CFR 60.4244, 40 CFR 60.4245, 40 CFR Part 60 Subpart JJJJ)**

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

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 EUENGINE10 and shall, to the extent practicable, maintain and operate each engine in a manner consistent with good air pollution control practice for minimizing emissions. **(40 CFR 60.4243(b))**

VII. REPORTING

1. The permittee shall submit an initial notification as required by 40 CFR 60.7(a)(1) for EUENGINE10 if the engine(s) installed is/are not certified by an engine manufacturer to meet the emission standards in 40 CFR 60.4231. The notification shall include the information below, as specified in 40 CFR 60.4245 (c)(1) through (5):
 - a) Name and address of the owner or operator. **(40 CFR 60.4245(c)(1))**
 - b) The address of the affected source. **(40 CFR 60.4245(c)(2))**
 - c) Engine information including make, model, engine family, serial number, model year, maximum engine power, and engine displacement. **(40 CFR 60.4245(c)(3))**
 - d) Emission control equipment. **(40 CFR 60.4245(c)(4))**
 - e) Fuel used. **(40 CFR 60.4245(c)(5))**

The permittee shall submit the initial notification to the AQD District Supervisor in an acceptable format within 30 days of commencing construction of any engine in FGRICENSPS. **(40 CFR Part 60 Subpart JJJJ)**

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, Subpart A and Subpart JJJJ, as they apply to each engine in FGRICENSPS10. **(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).

FGRICEMACTNEW FLEXIBLE GROUP CONDITIONS
--

DESCRIPTION

40 CFR Part 63, Subpart ZZZZ - National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (RICE), located at a major source of HAP emissions, new and reconstructed spark ignition (SI) RICE greater than 500 bhp and combusts landfill gas equivalent to 10% or more of the gross heat input on an annual basis. Construction or reconstruction of the RICE commenced on or after December 19, 2002.

Emission Unit: EUENGINE10

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

NA

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee must operate any engine in FGRICEMACTNEW in a manner which reasonably minimizes HAP emissions. **(40 CFR 63.6625(c))**
2. At all times, the permittee must operate and maintain any engine in FGRICEMACTNEW including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. The general duty to minimize emissions does not require any further efforts to reduce emissions if levels required by this standard have been achieved. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Administrator which may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source. **(40 CFR 63.6605(b))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee must monitor and record the fuel usage daily with separate fuel meters to measure the volumetric flow rate of each fuel. **(40 CFR 63.6625(c))**

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

NA

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. The permittee shall complete all required records 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. **(R 336.1201(3))**

2. A permittee that is operating an engine in FGRICEMACTNEW which fires landfill gas equivalent to 10 percent or more of the gross heat input on an annual basis must keep records of the daily fuel usage monitors. The permittee shall keep all records on file and make them available to the Department upon request. **(40 CFR 63.6655(c))**
3. The permittee's records must be in a form suitable and readily available for expeditious review according to 40 CFR 63.10(b)(1). **(40 CFR 63.6660(a))**
4. As specified in 40 CFR 63.10(b)(1), the permittee must keep each record for 5-years following the date of each occurrence, measurement, maintenance, corrective action, report, or record. **(40 CFR 63.6660(b))**
5. The permittee must keep each record readily accessible in hard copy or electronic form for at least 5 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record, according to 40 CFR 63.10(b)(1). **(40 CFR 63.6660(c))**

VII. REPORTING

1. The permittee must submit an annual report in accordance with Table 7 of 40 CFR 63, Subpart ZZZZ to the appropriate AQD District Office by no later than March 15. The following information shall be included in this annual report: **(40 CFR 63.6650(g))**
 - a) The fuel flow rate of each fuel and the heating values that were used in the calculations. The permittee must demonstrate that the percentage of heat input provided by landfill gas is equivalent to 10 percent or more of the total fuel consumption on an annual basis. **(40 CFR 63.6650(g)(1))**
 - b) The operating limits provided in the permittee's federally enforceable permit, and any deviations from these limits. **(40 CFR 63.6650(g)(2))**
 - c) Any problems or errors suspected from the fuel flow rate meters. **(40 CFR 63.6650(g)(3))**
2. The permittee is required to submit an Initial Notification but are otherwise not affected by the requirements of this subpart, in accordance with 40 CFR 63.6590(b). The notification should include the information in 40 CFR 63.9(b)(2)(i) through (v), and a statement that the stationary RICE has no additional requirements and explain the basis of the exclusion (for example, that it operates exclusively as an emergency stationary RICE if it has a site rating of more than 500 brake HP located at a major source of HAP emissions). **(40 CFR 63.6645(f))**

VIII. STACK/VENT RESTRICTION(S)

NA

IX. OTHER REQUIREMENT(S)

1. The permittee shall comply with all applicable requirements of the National Emission Standards for Hazardous Air Pollutants, as specified in 40 CFR Part 63, Subparts A and ZZZZ for Stationary Reciprocating Internal Combustion Engines. **(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).

APPENDIX A 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 EUENGINE10. The permittee shall use emission factors contained in the most recent AP-42 (Compilation of Air Pollutant Emission Factors) or the most recent FIRE (Factor Information Retrieval) database if vendor or stack testing data is not available. If emission factors from other sources are used, the permittee shall obtain the approval of the AQD District Supervisor before using the emission factors to calculate emissions. The permittee shall document the source of each emission factor used in the calculations.

Calculation for Monthly SO₂ Emissions using gas sampling:

The following calculation for SO₂ emissions shall utilize the monthly average of the weekly (or daily, if required) H₂S concentration measurements from gas sample 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. **Note:** The TRS to H₂S ratio must be used in the calculation when a Draeger Tube or other sampling method does not measure the total sulfur in the gas.

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

$\frac{385 \text{ ft}^3}{\text{mol}}$

Where:

X = ppm sulfur content, as H₂S

Ratio TRS to H₂S = Determined from most recent laboratory test

Appendix F

Email Correspondence

Werkheiser, Edward

From: Tyler Wilson <tyler.wilson@impactcandt.com>
Sent: Monday, October 4, 2021 11:45 AM
To: Robert Sorensen
Cc: Robert Harvey
Subject: FW: Application PTI 51-20 for Sumpter Energy Associates

Hi Rob,

Please see e-mail chain below regarding your inquiry about removal of the chlorine sampling permit condition at PTA.

Thank you,

Tyler J. Wilson | *Senior Project Manager*

NEW WORK MOBILE: (734) 357-8046

Tyler.Wilson@ImpactCandT.com

37660 Hills Tech Drive, Farmington Hills, MI 48331

<https://impactcandt.com>



From: Joseph, Robert (EGLE) <JosephR4@michigan.gov>
Sent: Thursday, May 7, 2020 5:46 PM
To: Tyler Wilson <tyler.wilson@impactcandt.com>
Cc: Emily Zambuto <Emily.Zambuto@ariaenergy.com>
Subject: RE: Application PTI 51-20 for Sumpter Energy Associates

Hello Tyler/Emily,

I hope you both are well. The district office will always err on the side of caution regarding testing which is why the district office initially chose to leave the annual Cl compounds test in the renewal ROP. In hindsight, the condition should have been removed given that Cl is tested every 5 years as part of the state's ROP renewal program—a condition which was not included in the previous ROP.

After further discussion and consideration, the AQD agreed with the facility that removal is appropriate given the new testing format (taken from the stack) as well as the lack of total Cl compounds test available.

Given that I currently have oversight of the facility an ROP modification should not be necessary, however, should one become necessary in the future I will let you know. I will make note of it in our database and include this email in the file.

Sincerely,

Robert Joseph
Environmental Engineer
Michigan Department of Environment, Great Lakes, and Energy
Air Quality Division
Warren District Office
586-506-9564 | JosephR4@michigan.gov
[Follow Us](#) | Michigan.gov/EGLE

From: Tyler Wilson <tyler.wilson@impactcandt.com>
Sent: Thursday, May 7, 2020 9:34 AM
To: Joseph, Robert (EGLE) <JosephR4@michigan.gov>
Cc: Emily Zambuto <Emily.Zambuto@ariaenergy.com>
Subject: RE: Application PTI 51-20 for Sumpter Energy Associates

CAUTION: This is an External email. Please send suspicious emails to abuse@michigan.gov

Hi Robert,

I hope all is well with you.

This is great news! Yes, we would like to proceed the way you recommended, rather than submitting an ROP modification request. We appreciate your assistance. Please let us know if you need anything else on our end.

Thank you,

Tyler J. Wilson | *Senior Project Manager*

Office: (734) 464-3880 • Mobile: (586) 531-3555

Tyler.Wilson@ImpactCandT.com

37660 Hills Tech Drive, Farmington Hills, MI 48331

<https://impactcandt.com/>



From: Joseph, Robert (EGLE) <JosephR4@michigan.gov>
Sent: Thursday, May 7, 2020 9:31 AM
To: Tyler Wilson <tyler.wilson@impactcandt.com>

Cc: Emily Zambuto <Emily.Zambuto@ariaenergy.com>

Subject: RE: Application PTI 51-20 for Sumpter Energy Associates

Hello Tyler,

To simplify the process rather than issuing the whole ROP again for both PTA and Sumpter Energy, I can make a note of the change in the AQD database noting that the condition is now obsolete.

The facility will not be held accountable for the condition during the ROP's remaining four years and it will not appear in the next renewal. Please let me know if the facility would like to do this or if they would rather submit the ROP modification request.

Sincerely,

Robert Joseph
Environmental Engineer
Michigan Department of Environment, Great Lakes, and Energy
Air Quality Division
Warren District Office
586-506-9564 | JosephR4@michigan.gov
[Follow Us](#) | Michigan.gov/EGLE

From: Brown, Ambrosia (EGLE) <BrownA39@michigan.gov>

Sent: Wednesday, May 6, 2020 5:56 PM

To: Tyler Wilson <tyler.wilson@impactcandt.com>; Dennis.Plaster@ariaenergy.com

Cc: Joseph, Robert (EGLE) <JosephR4@michigan.gov>; Zhu, Joyce (EGLE) <ZHUIJ@michigan.gov>; Mitchell, Mark (EGLE) <MITCHELLM7@michigan.gov>; Zambuto@ariaenergy.com; 'Emily Zambuto (Emily.Zambuto@ariaenergy.com)' <Emily.Zambuto@ariaenergy.com>

Subject: RE: Application PTI 51-20 for Sumpter Energy Associates

Thank you for your official request to withdraw the application. I believe this would be considered a minor modification under Rule 216(2) as it is to remove an obsolete condition but please work with your district inspector (Robert) on how to fill out the ROP modification request.

Ambrosia Brown, P.E.

Environmental Engineer

Air Quality Division - Permit Section

Michigan Department of Environment, Great Lakes, and Energy (EGLE)

517-284-6788 | BrownA39@Michigan.gov

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From: Tyler Wilson <tyler.wilson@impactcandt.com>

Sent: Wednesday, May 6, 2020 2:23 PM

To: Brown, Ambrosia (EGLE) <BrownA39@michigan.gov>; Dennis.Plaster@ariaenergy.com

Cc: Joseph, Robert (EGLE) <JosephR4@michigan.gov>; Zhu, Joyce (EGLE) <ZHUIJ@michigan.gov>; Mitchell, Mark (EGLE)

<MITCHELLM7@michigan.gov>; Zambuto@ariaenergy.com; 'Emily Zambuto (Emily.Zambuto@ariaenergy.com)'
<Emily.Zambuto@ariaenergy.com>

Subject: RE: Application PTI 51-20 for Sumpter Energy Associates

CAUTION: This is an External email. Please send suspicious emails to abuse@michigan.gov

Thank you for the reply, Ambrosia!

Please withdraw the PTI application. We will move forward with removal of this condition from the ROP.

I am currently reviewing Tables 2-1 a-d: Permit Revision Summary Tables in the "Life After ROP" guidance document. I'm not completely sure which "type of change" the removal of the annual chlorine compounds sampling would fall under. Any input would be greatly appreciated.

Thank you,

Tyler J. Wilson | *Senior Project Manager*

Office: (734) 464-3880 • Mobile: (586) 531-3555

Tyler.Wilson@ImpactCandT.com

37660 Hills Tech Drive, Farmington Hills, MI 48331

<https://impactcandt.com/>



From: Brown, Ambrosia (EGLE) <BrownA39@michigan.gov>

Sent: Friday, May 1, 2020 4:31 PM

To: Dennis.Plaster@ariaenergy.com

Cc: Joseph, Robert (EGLE) <JosephR4@michigan.gov>; Zhu, Joyce (EGLE) <ZHUIJ@michigan.gov>; Mitchell, Mark (EGLE) <MITCHELLM7@michigan.gov>; Tyler Wilson <tyler.wilson@impactcandt.com>; Zambuto@ariaenergy.com

Subject: Application PTI 51-20 for Sumpter Energy Associates

Mr. Plaster,

I am sending this email in regards to your pending Permit to Install (PTI) application requesting to remove the Chlorine fuel sampling requirement. I researched the origins of the permit condition in your ROP. It does not appear to have originated from a PTI permit. It appears to have been originally added to demonstrate compliance with the HCl limit prior to the addition of your current stack testing requirement for HCl. Therefore the original condition is no longer needed. Discussing this with your district inspector, we agreed that because the condition did not come from a PTI, it is NOT necessary to obtain a PTI to make this change in your ROP. You can request to make this change to your ROP now through the District without having to go through the PTI process.

We have already logged in the PTI application, so if you no longer want to proceed with the process, please respond to this email requesting to withdraw your application. If you wish to continue with the PTI process, please let me know that too. Thank you.

Ambrosia Brown, P.E.

Environmental Engineer

Air Quality Division - Permit Section

Michigan Department of Environment, Great Lakes, and Energy (EGLE)

517-284-6788 | Browna39@Michigan.gov

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Appendix G
Summary of Daily H2S Results (2021-2023)

Sumpter Energy Associates Pine Tree Acres Phase II Monthly LFG Sulfur Content Data (2021)

Date:	Actual Time Test 1	H₂S Test 1 (ppm)	Actual Time Test 2	H₂S Test 2 (ppm)	Actual Time Test 3	H₂S Test 3 (ppm)	Measured 3-Test Avg (ppm)	Measured H₂S Conc. Adjusted
January 1, 2021	10:30	223	10:32	225	10:35	227	225	225
January 2, 2021	10:30	223	10:32	225	10:35	227	225	225
January 3, 2021	10:30	217	10:32	219	10:34	221	219	219
January 4, 2021	8:00	166	8:02	166	8:05	167	166	166
January 5, 2021	8:30	172	8:32	173	8:35	174	173	173
January 6, 2021	7:00	150	7:02	150	7:05	151	150	150
January 7, 2021	7:30	155	7:32	155	7:35	155	155	155
January 8, 2021	8:00	140	8:02	141	8:05	140	140	140
January 9, 2021	9:30	262	9:32	263	9:35	263	263	263
January 10, 2021	9:30	167	9:32	167	9:35	168	167	167
January 11, 2021	10:30	188	10:32	189	10:35	190	189	189
January 12, 2021	8:30	196	8:32	196	8:35	196	196	196
January 13, 2021	9:00	202	9:02	202	9:05	205	203	203
January 14, 2021	8:30	207	8:33	208	8:35	210	208	208
January 15, 2021	8:00	211	8:02	212	8:05	212	212	212
January 16, 2021	10:00	212	10:02	212	10:05	212	212	212
January 17, 2021								
January 18, 2021	8:00	152	8:02	152	8:05	153	152	152
January 19, 2021	8:00	151	8:02	150	8:05	153	151	151
January 20, 2021	8:15	143	8:17	144	8:20	144	144	144
January 21, 2021	8:00	208	8:02	208	8:05	209	208	208
January 22, 2021	8:00	144	8:02	144	8:05	145	144	144
January 23, 2021								
January 24, 2021	10:00	195	10:02	198	10:04	199	197	197
January 25, 2021	8:00	180	8:02	182	8:05	0	121	121
January 26, 2021	8:00	199	8:02	198	8:05	200	199	199
January 27, 2021	7:00	121	7:02	123	7:05	124	123	123
January 28, 2021	8:30	122	8:32	122	8:35	122	122	122
January 29, 2021	8:00	150	8:02	151	8:05	150	150	150
January 30, 2021	10:00	160	10:02	159	10:05	159	159	159
January 31, 2021								
February 1, 2021	08:00	148	8:02	149	8:05	150	149	149
February 2, 2021	8:00	155	8:02	156	8:05	155	155	155
February 3, 2021	8:00	155	8:02	154	8:05	153	154	154
February 4, 2021	7:00	162	7:02	162	7:05	163	162	162
February 5, 2021	7:00	200	7:02	201	7:05	201	201	201
February 6, 2021	9:00	218	9:03	219	9:05	220	219	219
February 7, 2021								
February 8, 2021	8:00	200	8:02	200	8:05	201	200	200
February 9, 2021	6:00	205	6:02	203	6:05	205	204	204
February 10, 2021	8:00	211	8:02	211	8:05	211	211	211
February 11, 2021								
February 12, 2021	7:30	152	7:32	153	7:35	152	152	152
February 13, 2021	8:30	200	8:32	201	8:35	201	201	201
February 14, 2021								
February 15, 2021	8:30	140	8:32	141	8:35	142	141	141
February 16, 2021	9:00	155	9:02	156	9:05	156	156	156
February 17, 2021	8:00	198	8:02	197	8:05	196	197	197
February 18, 2021	8:00	162	8:02	163	8:05	164	163	163
February 19, 2021	8:00	163	8:02	163	8:05	163	163	163
February 20, 2021	9:00	156	9:02	157	9:05	158	157	157
February 21, 2021								
February 22, 2021	8:00	182	8:02	183	8:05	183	183	183

Date:	Actual Time Test 1	H ₂ S Test 1 (ppm)	Actual Time Test 2	H ₂ S Test 2 (ppm)	Actual Time Test 3	H ₂ S Test 3 (ppm)	Measured 3-Test Avg (ppm)	Measured H ₂ S Conc. Adjusted
April 18, 2021	10:20	235	10:22	237	10:24	240	237	237
April 19, 2021	7:00	251	7:02	252	7:05	252	252	252
April 20, 2021	8:00	233	8:02	233	8:05	234	233	233
April 21, 2021	8:00	227	8:02	228	8:05	229	228	228
April 22, 2021	7:30	230	7:32	230	7:35	231	230	230
April 23, 2021	7:00	235	7:02	236	7:05	236	236	236
April 24, 2021	9:30	221	9:32	222	9:35	222	222	222
April 25, 2021								
April 26, 2021	8:00	225	8:03	225	8:05	225	225	225
April 27, 2021	8:00	236	8:03	235	8:05	236	236	236
April 28, 2021	7:00	230	7:02	231	7:05	233	231	231
April 29, 2021								
April 30, 2021	8:00	222	8:02	223	8:05	222	222	222
May 1, 2021	8:00	221	8:01	220	8:05	221	221	221
May 2, 2021								
May 3, 2021	7:00	233	7:02	234	7:02	233	233	233
May 4, 2021	8:00	218	8:02	218	8:05	219	218	218
May 5, 2021	7:00	210	7:02	211	7:05	211	211	211
May 6, 2021	7:30	219	7:32	219	7:35	220	219	219
May 7, 2021	6:00	226	6:02	227	6:05	228	227	227
May 8, 2021	8:30	241	8:32	240	8:35	240	240	240
May 9, 2021								
May 10, 2021	8:00	231	8:02	230	8:05	231	231	231
May 11, 2021	8:00	233	8:02	233	8:05	233	233	233
May 12, 2021	8:20	221	8:23	222	8:25	223	222	222
May 13, 2021	8:00	228	8:02	228	8:05	228	228	228
May 14, 2021	8:15	227	8:17	228	8:20	229	228	228
May 15, 2021								
May 16, 2021	10:00	219	10:03	221	10:05	223	221	221
May 17, 2021	8:00	233	8:02	234	8:04	236	234	234
May 18, 2021	8:00	222	8:02	225	8:04	228	225	225
May 19, 2021								
May 20, 2021	8:00	218	8:02	219	8:05	218	218	218
May 21, 2021	8:00	215	8:02	215	8:05	215	215	215
May 22, 2021	10:00	212	10:02	212	10:05	212	212	212
May 23, 2021								
May 24, 2021	8:00	238	8:02	238	8:05	238	238	238
May 25, 2021	8:00	224	8:02	225	8:05	224	224	224
May 26, 2021	8:00	220	8:02	220	8:05	221	220	220
May 27, 2021	7:00	205	7:05	206	7:07	206	206	206
May 28, 2021	7:30	240	7:02	241	7:05	240	240	240
May 29, 2021	9:00	225	9:02	226	9:05	227	226	226
May 30, 2021	11:00	237	11:02	238	11:05	239	238	238
May 31, 2021								
June 1, 2021	8:02	238	8:05	239	8:07	239	239	239
June 2, 2021	8:00	228	8:02	229	8:05	230	229	229
June 3, 2021	8:00	234	8:02	235	8:05	235	235	235
June 4, 2021	7:30	241	7:32	240	7:35	241	241	241
June 5, 2021	10:00	239	10:02	238	10:05	238	238	238
June 6, 2021								
June 7, 2021	6:30	230	6:31	231	6:35	232	231	231
June 8, 2021	7:45	223	7:47	225	7:50	225	224	224
June 9, 2021	7:30	217	7:32	216	7:35	217	217	217
June 10, 2021	8:00	223	8:02	225	8:05	226	225	225

Date:	Actual Time Test 1	H ₂ S Test 1 (ppm)	Actual Time Test 2	H ₂ S Test 2 (ppm)	Actual Time Test 3	H ₂ S Test 3 (ppm)	Measured 3-Test Avg (ppm)	Measured H ₂ S Conc. Adjusted
June 11, 2021	9:00	236	9:02	237	9:05	238	237	237
June 12, 2021								
June 13, 2021	11:45	227	11:47	227	11:50	227	227	227
June 14, 2021	8:30	238	8:32	238	8:35	238	238	238
June 15, 2021	8:30	229	8:32	229	8:35	229	229	229
June 16, 2021	10:00	221	10:02	221	10:05	221	221	221
June 17, 2021	8:00	232	8:02	233	8:05	234	233	233
June 18, 2021								
June 19, 2021	7:00	235	7:02	236	7:05	236	236	236
June 20, 2021								
June 21, 2021	8:30	243	8:32	244	8:35	245	244	244
June 22, 2021								
June 23, 2021	8:30	218	8:32	219	8:35	220	219	219
June 24, 2021	8:00	231	8:02	230	8:05	230	230	230
June 25, 2021	8:02	226	8:05	227	8:07	227	227	227
June 26, 2021	9:30	240	9:32	241	9:35	240	240	240
June 27, 2021								
June 28, 2021	8:00	234	8:02	235	8:05	236	235	235
June 29, 2021	7:00	236	8:02	241	8:05	242	240	240
June 30, 2021	7:00	254	7:02	255	7:05	255	255	255
July 1, 2021	8:00	247	8:02	248	8:05	249	248	248
July 2, 2021	8:00	238	8:02	238	8:05	239	238	238
July 3, 2021								
July 4, 2021	7:00	228	7:02	231	7:05	233	231	231
July 5, 2021								
July 6, 2021	8:00	243	8:02	245	8:04	249	246	246
July 7, 2021	8:32	236	8:34	237	8:37	238	237	237
July 8, 2021	7:00	239	7:02	242	7:05	242	241	241
July 9, 2021	7:30	244	7:32	245	7:35	246	245	245
July 10, 2021	9:00	247	9:02	247	9:05	248	247	247
July 11, 2021								
July 12, 2021	6:30	238	6:32	238	6:35	239	238	238
July 13, 2021	8:00	244	8:02	243	8:05	244	244	244
July 14, 2021	8:00	241	8:02	242	8:05	244	242	242
July 15, 2021	7:00	253	7:02	252	7:05	252	252	252
July 16, 2021	8:00	255	8:02	256	8:05	255	255	255
July 17, 2021								
July 18, 2021								
July 19, 2021	8:00	281	8:02	280	8:05	280	280	280
July 20, 2021	8:00	278	8:02	280	8:05	281	280	280
July 21, 2021	8:00	255	8:03	254	8:05	253	254	254
July 22, 2021	8:00	245	8:02	243	8:05	241	243	243
July 23, 2021	8:00	237	8:02	238	8:05	239	238	238
July 24, 2021								
July 25, 2021								
July 26, 2021	8:00	161	8:02	162	8:05	163	162	162
July 27, 2021	8:00	150	8:02	151	8:05	151	151	151
July 28, 2021	8:00	161	8:03	160	8:05	161	161	161
July 29, 2021	8:00	281	8:02	280	8:05	280	280	280
July 30, 2021	8:00	248	8:02	248	8:05	247	248	248
July 31, 2021								
August 1, 2021	8:00	146	8:02	146	8:05	147	146	146
August 2, 2021	8:00	238	8:02	241	8:05	244	241	239
August 3, 2021	8:00	250	8:02	252	8:05	251	251	251

Date:	Actual Time Test 1	H ₂ S Test 1 (ppm)	Actual Time Test 2	H ₂ S Test 2 (ppm)	Actual Time Test 3	H ₂ S Test 3 (ppm)	Measured 3-Test Avg (ppm)	Measured H ₂ S Conc. Adjusted
September 27, 2021	7:30	258	7:32	259	7:35	259	259	259
September 28, 2021	8:00	261	8:03	261	8:05	262	261	261
September 29, 2021	9:00	247	9:02	249	9:05	249	248	248
September 30, 2021	8:00	250	8:02	249	8:05	251	250	250
October 1, 2021	8:00	261	8:02	260	8:05	260	260	260
October 2, 2021								
October 3, 2021								
October 4, 2021	8:00	251	8:03	250	8:05	251	251	251
October 5, 2021	8:00	218	8:03	218	8:05	220	219	219
October 6, 2021								
October 7, 2021	8:00	221	8:03	222	8:05	333	259	259
October 8, 2021	8:00	231	8:02	231	8:05	232	231	231
October 9, 2021								
October 10, 2021								
October 11, 2021	8:00	241	8:02	242	8:02	242	242	242
October 12, 2021	8:00	236	8:02	237	8:05	238	237	237
October 13, 2021	7:30	251	7:32	251	7:35	252	251	251
October 14, 2021	7:30	249	7:30	249	7:30	250	249	249
October 15, 2021	8:00	264	8:02	265	8:05	263	264	264
October 16, 2021								
October 17, 2021								
October 18, 2021	8:00	220	8:02	221	8:05	222	221	221
October 19, 2021	8:00	217	8:02	217	8:05	216	217	217
October 20, 2021	8:00	227	8:02	226	8:05	225	226	226
October 21, 2021	8:00	218	8:02	218	8:05	220	219	219
October 22, 2021	8:00	215	8:02	215	8:05	216	215	215
October 23, 2021								
October 24, 2021								
October 25, 2021	8:30	318	8:32	318	8:35	317	318	318
October 26, 2021	8:00	317	8:02	316	8:05	315	316	316
October 27, 2021	8:00	315	8:02	317	8:05	318	317	317
October 28, 2021	8:00	333	8:02	333	8:05	332	333	333
October 29, 2021	9:00	306	9:02	309	9:05	311	309	309
October 30, 2021								
October 31, 2021								
November 1, 2021	8:00	211	8:02	212	8:05	212	212	212
November 2, 2021	8:00	343	8:02	342	8:05	341	342	239
November 3, 2021	8:00	331	8:02	332	8:05	333	332	332
November 4, 2021	7:00	323	7:02	323	7:05	324	323	323
November 5, 2021	7:00	332	7:02	332	7:05	333	332	332
November 6, 2021								
November 7, 2021								
November 8, 2021	8:00	329	8:02	328	8:05	329	329	329
November 9, 2021	8:00	319	8:02	320	8:05	320	320	320
November 10, 2021	8:00	326	8:02	325	8:05	324	325	325
November 11, 2021	8:00	328	8:03	328	8:05	327	328	328
November 12, 2021	8:00	324	8:02	324	8:05	325	324	324
November 13, 2021								
November 14, 2021								
November 15, 2021	8:00	306	8:02	304	8:05	303	304	304
November 16, 2021	8:00	310	8:02	311	8:05	311	311	311
November 17, 2021	8:00	331	8:02	331	8:05	332	331	331
November 18, 2021	8:00	317	8:02	316	8:05	316	316	316
November 19, 2021	8:00	297	8:02	298	8:05	298	298	298

Date:	Actual Time Test 1	H ₂ S Test 1 (ppm)	Actual Time Test 2	H ₂ S Test 2 (ppm)	Actual Time Test 3	H ₂ S Test 3 (ppm)	Measured 3-Test Avg (ppm)	Measured H ₂ S Conc. Adjusted
November 20, 2021								
November 21, 2021								
November 22, 2021	7:00	321	7:02	320	7:05	319	320	320
November 23, 2021	8:00	297	8:02	296	8:05	296	296	296
November 24, 2021	9:00	290	9:02	290	9:05	289	290	290
November 25, 2021								
November 26, 2021								
November 27, 2021								
November 28, 2021								
November 29, 2021	8:00	271	8:02	272	8:05	270	271	271
November 30, 2021	8:00	267	8:02	269	8:05	270	269	269
December 1, 2021	8:00	281	8:02	280	8:05	279	280	280
December 2, 2021	8:00	315	8:02	316	8:05	316	316	316
December 3, 2021	8:00	269	8:02	270	8:04	270	270	270
December 4, 2021								
December 5, 2021								
December 6, 2021	7:00	318	7:02	317	7:05	317	317	317
December 7, 2021	8:00	301	8:02	304	8:05	307	304	304
December 8, 2021	8:00	299	8:02	299	8:05	302	300	300
December 9, 2021	8:00	308	8:02	310	8:05	312	310	310
December 10, 2021	8:00	267	8:02	268	8:05	267	267	267
December 11, 2021								
December 12, 2021								
December 13, 2021	8:00	271	8:02	269	8:05	267	269	269
December 14, 2021	8:10	251	8:12	248	8:15	246	248	248
December 15, 2021	8:25	288	8:26	286	8:30	283	286	286
December 16, 2021	7:00	291	7:02	292	7:05	290	291	291
December 17, 2021	8:00	311	8:02	311	8:05	311	311	311
December 18, 2021								
December 19, 2021								
December 20, 2021	8:00	273	8:02	273	8:05	274	273	273
December 21, 2021	8:00	280	8:02	278	8:05	278	279	279
December 22, 2021	7:40	271	7:42	272	7:45	272	272	272
December 23, 2021	8:00	267	8:02	267	8:05	268	267	267
December 24, 2021	Christmas Holiday							
December 25, 2021								
December 26, 2021								
December 27, 2021								
December 28, 2021	8:00	256	8:02	254	8:05	253	254	254
December 29, 2021	8:20	263	8:22	264	8:25	265	264	264
December 30, 2021								
December 31, 2021								
							CY 2021 MAX	333
							CY 2021 AVG	235

Sumpter Energy Associates Pine Tree Acres Phase II Monthly LFG Sulfur Content Data (2022)

Date:	Actual Time Test 1	H₂S Test 1 (ppm)	Actual Time Test 2	H₂S Test 2 (ppm)	Actual Time Test 3	H₂S Test 3 (ppm)	Measured 3-Test Avg (ppm)	Measured H₂S Conc. Adjusted
January 1, 2022	8:00	270	8:02	269	8:05	270	270	270
January 2, 2022								
January 3, 2022	8:00	281	8:02	281	8:05	282	281	281
January 4, 2022	7:00	270	7:02	270	7:05	271	270	270
January 5, 2022	7:00	305	7:02	305	7:05	305	305	305
January 6, 2022	6:45	309	6:47	310	6:50	310	310	310
January 7, 2022	7:00	299	7:02	298	7:05	297	298	298
January 8, 2022								
January 9, 2022								
January 10, 2022	7:00	301	7:02	301	7:05	300	301	301
January 11, 2022	7:00	244	7:02	244	7:05	244	244	244
January 12, 2022	7:00	318	7:02	318	7:05	318	318	318
January 13, 2022	7:00	294	7:02	294	7:05	294	294	294
January 14, 2022	8:00	294	8:02	295	8:05	295	295	295
January 15, 2022								
January 16, 2022								
January 17, 2022	7:00	308	7:02	308	7:05	308	308	308
January 18, 2022	7:00	278	7:02	278	7:05	278	278	278
January 19, 2022	7:00	272	7:02	273	7:05	273	273	273
January 20, 2022	7:00	244	7:02	246	7:05	248	246	246
January 21, 2022	7:00	277	7:02	277	7:05	277	277	277
January 22, 2022								
January 23, 2022								
January 24, 2022	8:45	291	8:47	290	8:50	288	290	290
January 25, 2022	7:30	220	7:32	220	7:35	220	220	220
January 26, 2022	7:00	229	7:02	229	7:05	229	229	229
January 27, 2022	7:00	267	7:05	266	7:05	267	267	267
January 28, 2022	7:00	223	7:02	223	7:05	224	223	223
January 29, 2022								
January 30, 2022								
January 31, 2022	7:00	230	7:02	230	7:05	230	230	230
February 1, 2022	8:00	236	8:02	236	8:05	236	236	236
February 2, 2022	7:00	250	7:02	250	7:05	250	250	239
February 3, 2022	8:50	239	8:52	241	8:54	243	241	241
February 4, 2022	8:00	240	8:02	241	8:05	240	240	240
February 5, 2022								
February 6, 2022								
February 7, 2022	6:50	173	6:52	173	6:55	174	173	173
February 8, 2022	7:00	191	7:02	191	7:05	192	191	191
February 9, 2022	7:00	218	7:02	218	7:05	219	218	218
February 10, 2022	7:00	220	7:03	220	7:05	220	220	220
February 11, 2022	7:00	255	7:02	255	7:05	256	255	255
February 12, 2022								
February 13, 2022								
February 14, 2022	8:00	202	8:02	202	8:05	202	202	202
February 15, 2022	7:00	194	7:03	195	7:05	195	195	195
February 16, 2022	8:00	238	8:02	238	8:05	139	205	205
February 17, 2022	8:00	237	8:03	236	8:05	238	237	237
February 18, 2022	7:00	189	7:02	190	7:05	191	190	190
February 19, 2022								
February 20, 2022								
February 21, 2022	7:00	251	7:02	251	7:05	250	251	251
February 22, 2022	7:00	276	7:03	276	7:05	276	276	276
February 23, 2022	8:00	212	8:02	211	8:05	212	212	212
February 24, 2022	7:05	240	7:07	242	7:09	245	242	242
February 25, 2022	7:55	255	7:58	255	8:00	255	255	255

Date:	Actual Time Test 1	H ₂ S Test 1 (ppm)	Actual Time Test 2	H ₂ S Test 2 (ppm)	Actual Time Test 3	H ₂ S Test 3 (ppm)	Measured 3-Test Avg (ppm)	Measured H ₂ S Conc. Adjusted
August 15, 2022	7:45	326	7:48	325	7:50	326	326	326
August 16, 2022	7:00	313	7:02	313	7:05	313	313	313
August 17, 2022	9:30	319	9:32	319	9:35	320	319	319
August 18, 2022	7:30	328	7:32	328	7:35	328	328	328
August 19, 2022	8:00	309	8:02	310	8:05	311	310	310
August 20, 2022								
August 21, 2022								
August 22, 2022	7:30	318	7:32	319	7:35	319	319	319
August 23, 2022	7:20	325	7:22	326	7:25	326	326	326
August 24, 2022	7:35	345	7:37	346	7:40	347	346	346
August 25, 2022	8:00	341	8:02	340	8:05	339	340	340
August 26, 2022	8:00	318	8:02	319	8:20	319	319	319
August 27, 2022								
August 28, 2022								
August 29, 2022	8:00	316	8:02	316	8:05	315	316	316
August 30, 2022	8:00	343	8:03	343	8:05	342	343	343
August 31, 2022	8:25	335	8:28	336	8:30	337	336	336
September 1, 2022	8:00	351	8:02	351	8:05	351	351	351
September 2, 2022	8:00	320	8:02	321	8:05	322	321	321
September 3, 2022								
September 4, 2022								
September 5, 2022	8:00	326	8:02	327	8:05	329	327	327
September 6, 2022	8:00	317	8:02	318	8:05	319	318	318
September 7, 2022	8:00	327	8:02	328	8:05	329	328	328
September 8, 2022	7:30	307	7:32	308	7:35	308	308	308
September 9, 2022	8:00	303	8:02	304	8:05	303	303	303
September 10, 2022								
September 11, 2022								
September 12, 2022	8:00	308	8:02	309	8:05	308	308	308
September 13, 2022	7:00	306	7:02	306	7:05	306	306	306
September 14, 2022	8:00	205	8:02	205	8:05	205	205	205
September 15, 2022	7:00	311	7:02	311	7:05	310	311	311
September 16, 2022	8:00	314	8:02	314	8:05	314	314	314
September 17, 2022								
September 18, 2022								
September 19, 2022	7:45	299	7:47	299	7:51	300	299	299
September 20, 2022	7:45	296	7:47	295	7:55	294	295	295
September 21, 2022	7:45	303	7:47	308	7:52	311	307	307
September 22, 2022	7:45	291	7:47	290	7:50	289	290	290
September 23, 2022	8:00	285	8:02	286	8:05	287	286	286
September 24, 2022								
September 25, 2022								
September 26, 2022	7:15	340	7:18	339	7:22	341	340	340
September 27, 2022	7:50	314	7:52	313	8:00	315	314	314
September 28, 2022	7:35	274	7:38	277	7:45	276	276	276
September 29, 2022	8:00	279	8:03	280	8:05	282	280	280
September 30, 2022	8:00	303	8:02	302	8:06	306	304	304
October 1, 2022	8:00	299	8:02	300	8:06	305	301	301
October 2, 2022								
October 3, 2022	7:00	304	7:02	305	7:05	306	305	305
October 4, 2022	7:30	327	7:32	327	7:35	327	327	327
October 5, 2022	8:00	251	8:02	251	8:05	253	252	252
October 6, 2022	7:00	310	7:02	310	7:05	312	311	311
October 7, 2022	8:00	308	8:02	308	8:05	308	308	308
October 8, 2022								
October 9, 2022								
October 10, 2022	8:00	305	8:02	305	8:05	305	305	305

Date:	Actual Time Test 1	H ₂ S Test 1 (ppm)	Actual Time Test 2	H ₂ S Test 2 (ppm)	Actual Time Test 3	H ₂ S Test 3 (ppm)	Measured 3-Test Avg (ppm)	Measured H ₂ S Conc. Adjusted
October 11, 2022	8:00	309	8:02	308	8:05	308	308	308
October 12, 2022	8:00	315	8:03	316	8:05	317	316	316
October 13, 2022	8:00	334	8:02	334	8:05	336	335	335
October 14, 2022	8:00	307	8:02	308	8:05	308	308	308
October 15, 2022								
October 16, 2022								
October 17, 2022	8:00	299	8:02	299	8:05	299	299	299
October 18, 2022	8:00	267	8:02	268	8:05	269	268	268
October 19, 2022	8:00	274	8:02	274	8:05	274	274	274
October 20, 2022	8:00	318	8:02	318	8:05	318	318	318
October 21, 2022	8:00	281	8:03	281	8:05	281	281	281
October 22, 2022								
October 23, 2022								
October 24, 2022	8:00	284	8:02	284	8:05	285	284	284
October 25, 2022	8:00	354	8:02	354	8:05	355	354	354
October 26, 2022	8:00	367	8:02	368	8:05	369	368	368
October 27, 2022	8:00	283	8:02	283	8:05	283	283	283
October 28, 2022	8:00	323	8:02	323	8:05	323	323	323
October 29, 2022								
October 30, 2022								
October 31, 2022	8:00	353	8:02	353	8:05	353	353	353
November 1, 2022	8:00	326	8:02	326	8:05	327	326	326
November 2, 2022	8:00	322	8:02	324	8:05	325	324	324
November 3, 2022	8:00	318	8:02	320	8:05	321	320	320
November 4, 2022	8:00	358	8:02	359	8:05	359	359	359
November 5, 2022								
November 6, 2022								
November 7, 2022	8:00	298	8:02	299	8:02	299	299	299
November 8, 2022	8:00	315	8:02	315	8:05	315	315	315
November 9, 2022	8:00	326	8:02	326	8:05	328	327	327
November 10, 2022	8:00	343	8:03	344	8:05	344	344	344
November 11, 2022	8:00	387	8:02	386	8:05	385	386	386
November 12, 2022								
November 13, 2022								
November 14, 2022	8:00	311	8:02	311	8:05	310	311	311
November 15, 2022	8:00	309	8:02	310	8:05	310	310	310
November 16, 2022	8:00	299	8:03	299	8:08	299	299	299
November 17, 2022	8:00	352	8:02	350	8:05	349	350	350
November 18, 2022	8:00	381	8:02	382	8:05	381	381	381
November 19, 2022								
November 20, 2022								
November 21, 2022	8:00	374	8:02	374	8:05	375	374	374
November 22, 2022	8:00	306	8:03	306	8:05	306	306	306
November 23, 2022	7:45	379	7:48	379	7:50	378	379	379
November 24, 2022								
November 25, 2022	8:05	420	8:07	422	8:10	424	422	422
November 26, 2022								
November 27, 2022								
November 28, 2022	7:15	382	7:17	382	7:20	382	382	382
November 29, 2022	8:00	389	8:02	389	8:05	390	389	389
November 30, 2022	7:30	400	7:37	401	7:40	401	401	401
December 1, 2022	8:00	389	8:02	389	8:05	390	389	389
December 2, 2022	8:00	394	8:02	394	8:05	396	395	395
December 3, 2022								
December 4, 2022								
December 5, 2022	7:00	399	7:02	400	7:05	402	400	400
December 6, 2022	7:00	413	7:02	414	7:05	414	414	414

Date:	Actual Time Test 1	H ₂ S Test 1 (ppm)	Actual Time Test 2	H ₂ S Test 2 (ppm)	Actual Time Test 3	H ₂ S Test 3 (ppm)	Measured 3-Test Avg (ppm)	Measured H ₂ S Conc. Adjusted
December 7, 2022	7:15	430	7:17	431	7:20	433	431	431
December 8, 2022	7:00	401	7:02	401	7:05	404	402	402
December 9, 2022	8:00	413	8:02	415	8:05	416	415	415
December 10, 2022								
December 11, 2022								
December 12, 2022	7:00	411	7:02	410	7:05	411	411	411
December 13, 2022	7:00	407	7:02	410	7:05	411	409	409
December 14, 2022	7:00	399	7:02	399	7:05	401	400	400
December 15, 2022	7:00	405	7:02	407	7:05	409	407	407
December 16, 2022	8:00	400	8:02	400	8:05	403	401	401
December 17, 2022								
December 18, 2022								
December 19, 2022	7:00	389	7:02	391	7:05	392	391	391
December 20, 2022	7:00	461	7:02	462	7:05	462	462	462
December 21, 2022	7:00	453	7:02	454	7:05	453	453	453
December 22, 2022	7:00	385	7:02	385	7:05	385	385	385
December 23, 2022	8:00	405	8:03	403	8:05	404	404	404
December 24, 2022								
December 25, 2022								
December 26, 2022	7:00	469	7:02	467	7:05	467	468	468
December 27, 2022	7:00	419	7:02	420	7:05	422	420	420
December 28, 2022	7:00	423	7:02	425	7:05	425	424	424
December 29, 2022	7:00	451	7:02	451	7:05	453	452	452
December 30, 2022	8:00	421	8:02	422	8:05	423	422	422
December 31, 2022								
							CY 2022 MAX	468
							CY 2022 AVG	294

Sumpter Energy Associates Pine Tree Acres Phase II Monthly LFG Sulfur Content Data (2023)

Date:	Actual Time Test 1	H₂S Test 1 (ppm)	Actual Time Test 2	H₂S Test 2 (ppm)	Actual Time Test 3	H₂S Test 3 (ppm)	Measured 3-Test Avg (ppm)	Measured H₂S Conc. Adjusted
January 1, 2023	8:00	398	8:02	399	8:02	402	400	400
January 2, 2023	8:00	389	8:02	390	8:05	392	390	390
January 3, 2023	7:00	395	7:02	395	7:05	398	396	396
January 4, 2023	7:00	389	7:02	390	7:05	392	390	390
January 5, 2023	7:00	401	7:02	402	7:05	402	402	402
January 6, 2023	8:00	389	8:02	390	8:05	390	390	390
January 7, 2023								
January 8, 2023								
January 9, 2023	7:00	399	7:03	399	7:05	401	400	400
January 10, 2023	7:00	451	7:02	451	7:05	451	451	451
January 11, 2023	7:40	403	7:42	403	7:45	403	403	403
January 12, 2023	7:00	411	7:03	411	7:05	411	411	411
January 13, 2023	8:00	379	8:02	378	8:05	377	378	378
January 14, 2023								
January 15, 2023								
January 16, 2023	7:00	391	7:02	391	7:05	393	392	392
January 17, 2023	7:10	401	7:12	403	7:15	403	402	402
January 18, 2023	7:00	381	7:02	381	7:05	381	381	381
January 19, 2023	7:00	399	7:02	399	7:05	399	399	399
January 20, 2023	7:00	400	7:02	402	7:05	403	402	402
January 21, 2023								
January 22, 2023								
January 23, 2023	7:00	413	7:02	414	7:05	414	414	414
January 24, 2023	7:00	409	7:02	410	7:05	411	410	410
January 25, 2023	7:00	401	7:02	401	7:05	403	402	402
January 26, 2023	7:00	398	7:02	398	7:05	398	398	398
January 27, 2023	8:00	405	8:02	403	8:05	403	404	404
January 28, 2023								
January 29, 2023								
January 30, 2023	7:10	401	7:12	401	7:15	403	402	402
January 31, 2023	7:00	330	7:02	331	7:05	333	331	331
February 1, 2023	8:00	363	8:02	363	8:05	364	363	363
February 2, 2023	7:00	375	7:02	376	7:05	376	376	379
February 3, 2023	8:00	211	8:02	211	8:05	212	211	215
February 4, 2023								
February 5, 2023								
February 6, 2023	7:00	401	7:02	402	7:05	403	402	404
February 7, 2023	7:30	311	7:32	312	7:35	312	312	314
February 8, 2023	7:00	314	7:02	315	7:05	315	315	319
February 9, 2023	7:00	389	7:02	389	7:05	390	389	391
February 10, 2023	8:00	379	8:02	380	8:05	381	380	383
February 11, 2023								
February 12, 2023								
February 13, 2023	7:00	389	7:02	389	8:05	391	390	392
February 14, 2023	7:00	401	7:03	401	7:05	402	401	403
February 15, 2023	7:10	345	7:12	347	7:15	348	347	350
February 16, 2023	7:15	382	7:17	385	7:19	389	385	387
February 17, 2023	8:00	322	8:02	325	8:05	325	324	327
February 18, 2023								
February 19, 2023								
February 20, 2023	7:05	339	7:07	340	7:10	340	340	343
February 21, 2023	7:30	361	7:32	361	7:35	363	362	366
February 22, 2023	7:00	389	7:02	390	7:05	390	390	392

Date:	Actual Time Test 1	H ₂ S Test 1 (ppm)	Actual Time Test 2	H ₂ S Test 2 (ppm)	Actual Time Test 3	H ₂ S Test 3 (ppm)	Measured 3-Test Avg (ppm)	Measured H ₂ S Conc. Adjusted
February 23, 2023	9:00	367	9:02	367	9:05	369	368	371
February 24, 2023	8:00	270	8:02	272	8:05	275	272	275
February 25, 2023								
February 26, 2023								
February 27, 2023	7:00	305	7:02	307	7:05	308	307	309
February 28, 2023	7:00	299	7:02	299	7:05	301	300	304
March 1, 2023	8:00	312	8:02	312	8:05	314	313	315
March 2, 2023	7:00	289	7:02	289	7:05	289	289	292
March 3, 2023	8:00	315	8:02	315	8:05	315	315	318
March 4, 2023								
March 5, 2023								
March 6, 2023	7:00	401	7:02	402	7:05	402	402	404
March 7, 2023	7:00	399	7:02	400	7:05	402	400	404
March 8, 2023	7:00	288	7:02	290	7:05	291	290	293
March 9, 2023	7:00	401	7:02	401	7:05	402	401	404
March 10, 2023	8:00	330	8:02	330	8:05	330	330	333
March 11, 2023								
March 12, 2023								
March 13, 2023	7:30	401	7:32	401	7:35	405	402	405
March 14, 2023	7:00	395	7:02	398	7:05	399	397	401
March 15, 2023	8:00	321	8:03	322	8:05	321	321	325
March 16, 2023	8:00	340	8:02	341	8:05	341	341	344
March 17, 2023	8:00	353	8:03	353	8:05	353	353	356
March 18, 2023								
March 19, 2023								
March 20, 2023	7:30	325	7:32	327	7:35	328	327	329
March 21, 2023	6:30	389	6:32	389	6:35	391	390	391
March 22, 2023	7:00	356	7:02	361	7:05	361	359	361
March 23, 2023	7:00	345	7:02	347	7:05	347	346	349
March 24, 2023	8:00	329	8:02	331	8:05	332	331	305
March 25, 2023								
March 26, 2023								
March 27, 2023	8:20	330	8:22	332	8:24	335	332	333
March 28, 2023	8:00	325	8:02	324	8:05	324	324	325
March 29, 2023	8:00	340	8:02	342	8:05	341	341	344
March 30, 2023	8:00	389	8:02	390	8:05	391	390	392
March 31, 2023	8:00	365	8:02	365	8:05	365	365	367
April 1, 2023	8:00	357	8:02	356	8:05	356	356	358
April 2, 2023								
April 3, 2023	8:00	389	8:03	391	8:05	392	390	394
April 4, 2023	8:00	330	8:02	332	8:05	333	332	333
April 5, 2023	8:00	338	8:02	340	8:05	342	340	341
April 6, 2023	8:00	321	8:02	323	8:05	324	323	326
April 7, 2023	8:00	357	8:02	356	8:05	356	356	371
April 8, 2023								
April 9, 2023								
April 10, 2023	7:30	401	7:32	404	7:35	404	403	406
April 11, 2023	8:00	379	8:02	381	8:05	382	381	382
April 12, 2023	8:00	423	8:02	424	8:05	423	423	425
April 13, 2023	8:00	413	8:02	415	8:05	416	415	417
April 14, 2023	8:00	417	8:03	417	8:05	417	417	418
April 15, 2023								
April 16, 2023								
April 17, 2023	8:00	399	8:02	401	8:05	401	400	404

Date:	Actual Time Test 1	H ₂ S Test 1 (ppm)	Actual Time Test 2	H ₂ S Test 2 (ppm)	Actual Time Test 3	H ₂ S Test 3 (ppm)	Measured 3-Test Avg (ppm)	Measured H ₂ S Conc. Adjusted
June 11, 2023								
June 12, 2023	8:00	337	8:02	339	8:05	339	338	340
June 13, 2023	8:00	353	8:02	354	8:05	354	354	356
June 14, 2023	8:00	345	8:02	345	8:05	348	346	348
June 15, 2023	7:00	360	7:02	360	7:05	360	360	363
June 16, 2023	8:00	330	8:02	331	8:05	332	331	333
June 17, 2023								
June 18, 2023								
June 19, 2023	8:00	331	8:02	333	8:05	333	332	334
June 20, 2023	8:00	356	8:02	356	8:05	356	356	358
June 21, 2023	8:00	303	8:02	305	8:05	305	304	306
June 22, 2023	8:00	323	8:02	323	8:05	325	324	325
June 23, 2023	8:00	325	8:02	325	8:05	325	325	328
June 24, 2023								
June 25, 2023								
June 26, 2023	8:00	315	8:02	315	8:05	318	316	319
June 27, 2023	8:00	325	8:02	325	8:05	325	325	328
June 28, 2023	8:00	325	8:02	325	8:05	330	327	330
June 29, 2023	8:00	345	8:02	345	8:05	345	345	347
June 30, 2023	8:00	357	8:02	357	8:05	360	358	360
July 1, 2023	8:00	345	8:02	345	8:05	345	345	347
July 2, 2023								
July 3, 2023	8:00	320	8:02	321	8:05	321	321	322
July 4, 2023	4th of JULY HOLIDAY							
July 5, 2023	8:00	307	8:02	309	8:05	310	309	310
July 6, 2023	8:00	349	8:02	350	8:05	350	350	353
July 7, 2023	8:00	340	8:02	342	8:05	342	341	344
July 8, 2023								
July 9, 2023								
July 10, 2023	7:30	337	7:32	339	7:35	340	339	340
July 11, 2023	7:30	359	7:32	360	7:35	360	360	360
July 12, 2023								
July 13, 2023	8:00	355	8:02	356	8:05	357	356	357
July 14, 2023	8:00	366	8:02	367	8:05	369	367	369
July 15, 2023								
July 16, 2023								
July 17, 2023	8:00	362	8:02	362	8:05	364	363	364
July 18, 2023	8:00	360	8:02	360	8:05	360	360	361
July 19, 2023	8:00	370	8:02	370	8:05	371	370	371
July 20, 2023	8:00	368	8:02	369	8:05	369	369	371
July 21, 2023	8:00	356	8:02	356	8:05	358	357	358
July 22, 2023								
July 23, 2023								
July 24, 2023	8:15	330	8:17	332	8:20	332	331	331
July 25, 2023								
July 26, 2023	8:00	330	8:02	333	8:05	333	332	334
July 27, 2023	8:00	324	8:02	324	8:05	325	324	325
July 28, 2023	8:00	320	8:02	320	8:05	320	320	321
July 29, 2023								
July 30, 2023								
July 31, 2023	8:00	305	8:02	305	8:05	305	305	306
August 1, 2023	8:00	311	8:12	311	8:05	311	311	311
August 2, 2023	8:00	335	8:02	335	8:05	335	335	338
August 3, 2023	8:00	341	8:02	341	8:05	341	341	344

Date:	Actual Time Test 1	H ₂ S Test 1 (ppm)	Actual Time Test 2	H ₂ S Test 2 (ppm)	Actual Time Test 3	H ₂ S Test 3 (ppm)	Measured 3-Test Avg (ppm)	Measured H ₂ S Conc. Adjusted
August 4, 2023	8:00	348	8:02	350	8:05	350	349	350
August 5, 2023								
August 6, 2023								
August 7, 2023	8:00	343	8:02	344	8:05	345	344	344
August 8, 2023	8:00	345	8:02	346	8:05	348	346	348
August 9, 2023	8:00	337	8:02	339	8:05	339	338	340
August 10, 2023	8:00	341	8:02	342	8:05	342	342	343
August 11, 2023	8:00	401	8:02	403	8:05	403	402	402
August 12, 2023								
August 13, 2023								
August 14, 2023	8:00	397	8:02	398	8:05	399	398	399
August 15, 2023	8:00	412	8:02	413	8:05	412	412	413
August 16, 2023	8:00	352	8:02	352	8:05	353	352	352
August 17, 2023	8:00	349	8:02	349	8:05	349	349	352
August 18, 2023	8:00	345	8:02	347	8:05	347	346	347
August 19, 2023								
August 20, 2023								
August 21, 2023	8:00	295	8:02	295	8:05	297	296	296
August 22, 2023	8:00	301	8:02	302	8:05	304	302	302
August 23, 2023	8:00	322	8:02	322	8:05	322	322	322
August 24, 2023	8:00	337	8:02	337	8:05	340	338	339
August 25, 2023	8:00	325	8:02	326	8:05	327	326	326
August 26, 2023								
August 27, 2023								
August 28, 2023	8:00	300	8:02	303	8:05	303	302	303
August 29, 2023	8:00	315	8:02	316	8:05	318	316	316
August 30, 2023	8:00	311	8:02	311	8:05	313	312	314
August 31, 2023	8:00	325	8:02	325	8:05	326	325	326
September 1, 2023	8:00	315	8:02	317	8:05	319	317	317
September 2, 2023								
September 3, 2023								
September 4, 2023	LABOR DAY HOLIDAY							
September 5, 2023	8:00	381	8:02	383	8:05	383	382	384
September 6, 2023						CY 2023 - To Date Max		451
September 7, 2023						CY 2023 - To Date Max		360



SUMPTER ENERGY ASSOCIATES

**EUCENGINE8 AND EUCENGINE9
MALFUNCTION ABATEMENT/PREVENTATIVE MAINTENANCE PLAN**

**State Registration No. (SRN) N5984
Permit No. MI-ROP-N5984-2019**

**Facility Address:
36450 29 Mile Road
Lenox, MI 48048**

Sumpter Energy Associates

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1.0 Purpose

The purpose of this Malfunction Abatement/Preventative Maintenance Plan is to establish appropriate process monitoring, malfunction response and preventative maintenance procedures to maintain compliance with applicable air pollutant emission limits for the two (2) landfill gas (LFG) fueled engines that will be operated at the Sumpter Energy Associates (Sumpter Energy) Pine Tree Acres location. This revision is being made to update corporate changes and operational employee titles. There are NO technical changes being made to this plan.

This plan has been developed in accordance with the requirements of Permit to Install No. 103-09, Condition III.2. that specifies:

No later than 60 days after issuance of this permit, the permittee shall submit to the AQD District Supervisor, for review and approval, a malfunction abatement/preventative maintenance plan for FGICENGINE2. After approval of the malfunction abatement/preventative maintenance plan by the AQD District Supervisor, the permittee shall not operate FGICENGINE2 unless the malfunction abatement/preventative maintenance plan, or an alternate 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.*

The above requirements are also applicable with the existing ROP. A copy of the most recent Engine Malfunction Abatement/ Preventative Maintenance Plan is maintained on file at the Sumpter Energy facility.

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2.0 Facility and General Process Information

Sumpter Energy operates two (2) Caterpillar (CAT®) G3520C reciprocating internal combustion (IC) engines that are fueled with LFG and connected to electricity generators (IC engine/generator). The emission units are identified in the permit as EUCENGINE8 and EUCENGINE9.

The LFG generated at the Pine Tree Acres Landfill (which is the source of the fuel used by Sumpter Energy) is collected using a system of wells, gas headers and blowers, which have been installed and are operated by the landfill owner. The LFG is dewatered, filtered and compressed (treated) by the landfill owner before being supplied as fuel to the IC engine/generator sets. The electricity generated is distributed to the local grid.

3.0 IC Engine/Generator Malfunction Abatement

The CAT® G3520C engine is designed to fire low-pressure, lean fuel mixtures (e.g., LFG). The engine is equipped with an air-to-fuel ratio controller that monitors engine performance parameters and automatically adjusts the air-to-fuel ratio and ignition timing to maintain efficient fuel combustion. This is performed through software provided by Caterpillar.

The engine/generator sets are not equipped with add-on emission control devices. Therefore, the units maintain compliance with applicable air pollutant emission limits through the proper operation of the engine and efficient fuel combustion, which:

- Reduces the formation of carbon monoxide (CO) and nitrogen oxide (NO_x) emissions.
- Destroys methane and nonmethane organic compounds (NMOC) in the LFG fuel (nonmethane hydrocarbons may be classified as volatile organic compounds and/or hazardous air pollutants).

Malfunction Abatement for the CAT® G3520C IC engine consists of monitoring critical engine parameters to ensure proper operation. The engine is equipped with numerous sensors that monitor critical operation parameters. An engine control module (ECM) processes the data and adjusts operating variables (ignition timing, air/fuel ratio, engine speed), activate alarms to warn of an out-of-range variable or shuts down the engine.

3.1 Engine Oil / Engine Coolant Temperature

Engine oil and engine coolant conditions do not directly influence air pollutant emissions. However, maintaining proper engine oil/coolant temperature and pressure is critical to the operation of the engine and preventing early or catastrophic mechanical failure.

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The engine is equipped with sensors to monitor the engine oil temperature and oil pressure before and after the oil filter. Notification alarms are activated based on out-of-range conditions (e.g., high oil temperature, low or high oil pressure). An automatic shutdown will occur if the variable exceeds a critical setpoint.

Engine coolant temperature is monitored to assure proper circulation of coolant and cooling of the engine block. Notification alarms are activated based on out-of-range conditions (high or low coolant temperature). An automatic shutdown will occur if the coolant temperature exceeds its critical setpoint temperature.

Abnormal engine operations or shutdowns are logged by the ECM. The cause of the problem is investigated and corrected by the operators and the engine is restarted.

3.2 Air / Fuel Ratio Control

Maintaining proper air/fuel ratio results in efficient fuel combustion and limits the formation of CO and NO_x. The engine is equipped with an inlet gas quality monitor that continuously monitors the inlet LFG fuel for methane (fuel value) and oxygen content. The Engine Control Module (ECM) software monitors the fuel gas conditions, engine load and engine speed and automatically adjusts the air/fuel mix valve (raptor valve position) to achieve the desired air/fuel mix setting. This programming is set by the manufacturer.

If the monitored LFG oxygen level increases, or the methane content decreases, beyond preset values the engine automatically shuts down if the desired air/fuel mix ratio cannot be obtained. This prevents excess emissions.

Abnormal fuel conditions and/or engine shutdown is logged by the ECM. The cause of the excess oxygen or decreased methane is investigated (this is typically caused from landfill wellfield maintenance or adjustments) and corrected by the operators and the engines are restarted.

3.3 Daily Inspections

The operator performs daily visual inspections of the engines and logs the following information in a daily log:

- Coolant system level;
- Engine air cleaner service indicator;
- Engine oil level;
- Fuel system fuel filter differential pressure; and
- Generator load.

Appendix A provides a form that is used for recording daily observations of engine/generator set operation

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3.4 On-Call Dial-Out System

The facility is not staffed around the clock. Therefore, the ECM is connected to a dial-out system that notifies the on-call operator of any engine shutdowns and certain faults and warnings during evening/weekend/holiday hours when the facility is not staffed.

4.0 Preventative Maintenance

4.1 Maintenance Schedule

The EUENGINE8 and EUENGINE9 are maintained per the guidelines in the Caterpillar Operation and Maintenance Manual. The actual maintenance schedule is dependent on actual fuel gas conditions and observations of engine performance.

Proper maintenance of the fuel train ensures good fuel mixing and combustion, which limits CO and NO_x formation. The monitoring and regular replacement of worn engine parts (such as cylinder seals) reduces particulate matter (PM₁₀/PM_{2.5}) emissions (primarily engine oil).

4.2 Oil Sampling Program

When engine oil is changed per the preventative maintenance schedule (typically monthly), a sample of the oil is sent for analysis of several properties. The oil analysis results are used to determine fuel condition, the level of engine wear or parts that may need attention (inspection or replacement). Depending upon the results, the maintenance schedule may be adjusted from the manufacturer's guidelines.

4.3 Parts Inventory

Important engine and generator parts are available on-site and kept on inventory. A sample of these parts include air filters, oil filters, spark plugs, sensors, pumps, thermostats, heads, new engine oil and coolant.

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5.0 Recordkeeping

The following information will be maintained to verify proper operation and maintenance of the Sumpter Energy CAT® Gf3520C engines and that proper procedures were implemented in response to malfunction requirements:

1. Daily records of the equipment monitoring parameters that are presented in this document (Section 3.3 Daily Inspections and Appendix A).
2. Equipment maintenance records for those systems that affect the operation of the engine.
3. Engine faults, alarms and shutdowns are recorded and logged by the ECM.
4. Records of process malfunctions or equipment failures if such events are different from those covered in this Plan. Particularly if it is suspected that emission limits may have been exceeded or LFG was vented to the atmosphere from the Sumpter Energy facility.

6.0 Personnel Responsibilities

The PGD Operations Specialist is responsible for operating the engines, regular inspections and monitoring (completing checklists), maintaining spare parts, and preventative maintenance as specified in this Plan. Major engine maintenance or malfunctions are reported to the PGD Operations Leader.

The PGD Operations Leader and PGD Operations Specialist will determine when revision of this Plan is necessary.

The PGD Operations Leader and PGD Operations Specialist are responsible for ensuring that this Plan is maintained on file, is accessible and kept up-to-date.

Appendix B provides a contact list for facility personnel.

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7.0 Plan Revisions

Permit to Install No. 103-09, Condition III.2. and MI-ROP-N5984-2019, FG-ICENGINE2, Condition III.2 specifies that:

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.

This Malfunction Abatement/Preventative Maintenance Plan will be:

1. Amended or modified if equipment or processes are added that are not covered under the Plan; or
2. Revised within 45 days of an event if the procedures described in this document do not adequately address any malfunction event that occurs at the facility.

Plan revisions will be documented using the revision history log (Appendix C) and submitted to the AQD District Supervisor as required by the Permit.

8.0 Appendices

The following documents and materials are included as part of this Malfunction Abatement/Preventative Maintenance Plan:

Appendix A: Daily Readings Form

Appendix B: Responsible Personnel Contact List

Appendix C: Malfunction Abatement/Preventative Maintenance Plan Revision History

Sumpter Energy Associates

APPENDIX A

DAILY READINGS FORM

**Sumpter Energy Associates, LLC @ Pine Tree Acres Landfill
Malfunction & Abatement Plan – Appendix A PHASE 2 Daily Readings Form**



Unit # /Serial #	EU-ICENGINE8 - GZJ00189		EU-ICENGINE9 – GJZ00609	
Gas Pressure	psi		psi	
JW Temp. Out / In °F	/		/	
Combustion Air Temp	°F		°F	
Gal. added to Make Up Tank				
Gal. Added to Engine				
Battery Charger: Amps/Volts	A:	V:	A:	V:
SCAC Temp. In / Out	/ °F		/ °F	
Crank Case Vent	FPM		FPM	
Engine Hours	HR		HR	
Megawatt Hrs.	MWH		MWH	
IAT (Intake Air Temp)	°F		°F	
Filtered Engine Oil Pressure	psi		psi	
Engine Oil Diff. Pressure	psi		psi	
Engine Coolant Pressure	psi		psi	
Engine Coolant Temp.	°F		°F	
Engine Oil Temp.	°F		°F	
Throttle Angle	%		%	
Generator KW Set Point	KW		KW	
Tie Screen Readings				
Volts:	V		Gas Readings	
Amps:	A		CH4	%
Total KW (Tie Meter Screen)	kW		CO2	%
KW Hr. Total	kWH		O2	%
Gas Flow Rate	scf/m		BTU	
Gas Flow Total	scf		Gas Head Psi.	Psi
Parasitic Load kW (Ion 6200)	kW		Gas Head Temp.	°F
Total Parasitic kWH (Ion)	kWH		H2S Readings	1.
				2.
				3.
Plant Conditions				
Air Compressor:	Run Hours:		System Psi:	
Plant Temp.:	°F		Ambient Temp. °F	
48 Volt Batteries	Amps:		Volts:	
Power Production				
Unit # 8 Kw		Phase 1 Total Kw		
Unit # 9 Kw		Phase 2 Total Kw		
Phase 2 Total Kw		PTA Total Kw		

Name: _____

Date: _____

Time: _____

Sumpter Energy Associates

APPENDIX B

RESPONSIBLE PERSONNEL CONTACT LIST

Responsible Personnel Contact List

Employee Name	Position / Title	Contact Number
Matt Strine	PGD Plant Manager	(484) 387-9820
Josh Wrubel	PGD Operations Leader	(810) 689-8316
Nicholas Visga	PGD Operations Specialist	(810) 956-3724
Ed Werkheiser	PGD Environmental Specialist	(484) 294-8253

Sumpter Energy Associates

APPENDIX C

MALFUNCTION ABATEMENT/PREVENTATIVE MAINTENANCE PLAN REVISION HISTORY

Sumpter Energy Associates

Malfunction Abatement/Preventative Maintenance Plan Revision History

This Plan will be amended if equipment or processes are added that are not covered under the plan or will be revised within 45 days of non-conforming events if the procedures described herein do not adequately address any malfunction or start- up/shutdown events that occur at the facility. A copy of the original plan and all revisions/addendums will be kept on file at the facility for at least five (5) years.

Date of Revision	Reason For Revision
2/15/2010	Initial draft of the Malfunction Abatement/Preventative Maintenance Plan
12/7/2017	Responsible Personnel Contact List updates
09/14/2023	Referenced current ROP number, updated Appendix A – Daily Readings Sheet, Appendix B contact list, and updated plant personnel titles. General technical / engine operations & maintenance information was not revised and is still appropriate as per the revised Plan.



September 18, 2023

State of Michigan
Department of Environment, Great Lakes, and Energy
Southeast Michigan District – Air Quality Division
27700 Donald Court
Warren, MI 48092-2793

**RE: Sumpter Energy Associates, LLC – Pine Tree Acres Landfill
ROP No.: MI-ROP-N5984-2019 / SRN No.: N5984
Revised Sulfur Monitoring & Emissions Curtailment Plan**

Dear EGLE Southeast Michigan District Office AQ Division:

Sumpter Energy Associates (SEA) is submitting to the Michigan Department of Environmental Quality, Air Quality Division (MDEQ-AQD) a revised Sulfur Monitoring and Emission Curtailment Plan for its landfill gas-to-energy facility located at the Pine Tree Acres Landfill in Lenox Twp., Macomb County (SRN N5984). Upon MDEQ-AQD approval, this revised plan will replace an earlier version of the plan that was submitted to the regulatory agency in a correspondence dated November 13, 2014 (enclosed).

Background:

Following the issuance of a Notice of Violation relative to potential SO₂ emission exceedances in 2012, the MDEQ-AQD requested that Sumpter Energy:

1. Continue to conduct monthly sulfur monitoring through December 2013, and submit the results of the monitoring, along with the SO₂ emission calculations, within 7 days of the monitoring event.
2. Explain how operations will be curtailed during periods when there is a high concentration of H₂S in the treated landfill gas (LFG) fuel stream.

In a correspondence dated January 4, 2013, SEA provided a plan to address the issues above. After further monitoring, the revised November 13, 2014 plan was submitted and later approved by EGLE. Since the submittal of the November 13, 2014 plan, a considerable amount of LFG sulfur content and facility operational data have been collected. Monthly H₂S and SO₂ emissions data is submitted to EGLE monthly as per the conditions of the ROP.

The SO₂ emissions reference sheet that was developed and submitted to EGLE in the November 13, 2014 plan update is still valid and is being used to determine when it is necessary to curtail engine operations to make sure the facility does not exceed the 7.5 lb/hr SO₂ limit.

I. Current Treated LFG Sulfur Monitoring & Curtailment Plan / Implementation

In general, SEA has been performing landfill gas (LFG) sulfur content monitoring for its Phase II facility (FG-ICENGINE2) on a daily basis, above and beyond what is required by condition V.3 of ROP No. MI-ROP-N5984-2019 and identified in the previously submitted and approved Sulfur Monitoring & Curtailment Plan. The “reported” monthly LFG sulfur monitoring is typically performed the first Monday of each month. SEA, or its environmental contractor IMPACT Compliance & Testing provides this data to the EGLE District Office staff via email, as requested by EGLE, within seven (7) days of the monitoring event.

The submitted monthly data includes:

- Most recent LFG sulfur sampling result (ppmv sulfur in the LFG used at the Phase II facility).
- LFG flowrate (scfm) for FG-ICENGINE2 at the time of the LFG sampling event.
- Treated LFG throughput (FG-ICENGINE2 fuel use) for the previous month and calculated sulfur dioxide (SO₂) mass emission rate for the previous month.

Curtailing of Operations

In addition to the monthly monitoring required by condition V.3 of ROP No. MI-ROP- N5984-2019, Sumpter Energy monitors the LFG sulfur content on a:

- Weekly basis whenever the monthly H₂S level indicates a concentration of 500 ppmv or greater. **(NOTE: SEA has not recorded an H₂S concentration in excess of 500 ppmv since August 26, 2020 where one of the 3 monitored concentrations was 712 ppmv). The MAX value for CY 2021 = 333 ppmv / AVG = 235 ppmv, MAX value for CY 2022 = 468 ppmv / AVG = 294 ppmv and MAX value for CY 2023 YTD = 451 ppmv / AVG = 360 ppmv – See Attached data.**
- Daily basis whenever an H₂S concentration of 600 ppmv or greater is observed (during either the weekly or monthly monitoring events). **See Above NOTE.**

Once daily monitoring is triggered, SEA has performed monitoring at least once per day (excluding weekends and holidays) until the measured H₂S concentration returned to a value of less than 600 ppmv.

SEA has developed a spreadsheet to record the monthly, weekly and (if required) daily monitoring events. The following information has been recorded with each LFG H₂S measurement:

- LFG flowrate (scfm) for FG-ICENGINE2 at the time of the LFG sampling event.
- Gas totalizer reading (total accumulated scf) at the time of the LFG sampling event.

The attachment 2021 – 2023 sulfur monitoring data includes the reference sheet that was developed for SEA Phase II operations that correlates LFG sulfur content to allowed flowrate (i.e., the maximum allowable treated LFG fuel flowrate that results in SO₂ emissions that are less than the permit limit of 7.5 lb/hr). The reference sheet is based on the assumption that 100% of the fuel sulfur is converted to SO₂ exhaust gas emissions. Previous emissions testing performed at the facility verified that this is a conservative calculation technique (the measured SO₂ stack emissions are less than the theoretical SO₂ emission rate based on fuel sulfur monitoring results). The reference sheet has been used by the SEA Phase II operators to determine when to curtail engine operations. The grey shading on the reference sheet indicates an SO₂ emission rate of 7.44 lb/hr or greater when FG-ICENGINE2 operations will be curtailed to avoid exceeding the 7.5 lb/hr permit limit.

Information for any operations curtailment will also be provided to the MDEQ-AQD with the monthly monitoring results.

II. Proposed Treated LFG Sulfur Monitoring & Emission Curtailment Plan / Implementation

FG-ICENGINE2 Condition V.3 of MI-ROP-N5984-2019 reads as follows:

The permittee shall verify the hydrogen sulfide or total reduced sulfur content of the treated landfill gas burned in FG-ICENGINE2 on a monthly basis by gas sampling. In addition, as outlined in the sulfur monitoring and emission curtailment plan, gas sampling shall be verified on a weekly basis whenever the monthly hydrogen sulfide or total reduced sulfur content level indicates a concentration of 500 ppmv or greater, and on a daily basis whenever a hydrogen sulfide or total reduced sulfur content concentration of 600 ppmv is observed. Once daily monitoring is triggered, the permittee will perform monitoring at least once per day (excluding weekends and holidays) until the measured hydrogen sulfide or total reduced sulfur content returns to a value of less than 600 ppmv. If after a year, each of the monthly concentrations of the hydrogen sulfide or total reduced sulfur concentration of the landfill gas are below 500 ppm (TRS equivalent), the permittee may petition the District Supervisor, Air Quality Division to reduce the frequency of gas sampling and recording the hydrogen sulfide/total reduced sulfur concentration of the treated landfill gas to once each calendar quarter. If, after two calendar years of quarterly sampling, each of the quarterly concentrations of the hydrogen sulfide or total reduced sulfur concentration of the landfill gas are below 500 ppm (TRS equivalent), the permittee may petition the District Supervisor, Air Quality Division to reduce the frequency of gas sampling and recording the hydrogen sulfide/total reduced sulfur concentration of the treated landfill gas to once each calendar year. If at any time the concentration readings exceed 500 ppm (TRS equivalent), the permittee shall review all operating and maintenance activities for the landfill gas collection and treatment system along with keeping records of corrective actions. The permittee shall notify the Department at least seven (7) days prior to sampling. The permittee shall keep all records on file at the facility for a period of at least five years and make them available to the Department upon request. (R 336.1213(3))

SEA proposes to continue complying with the above permit condition and is petitioning the District to reduce the frequency of landfill gas sampling to annually. The attached sampling result data from CY 2020 through YTD 2023 is being provided to support this request. The maximum H₂S concentration over this 3+ year period was 417 ppm with an average of 282 ppm. These concentrations equate to a maximum 4.43 lb/hr with an average of 2.78 lb/hr SO₂ emissions factor – well within compliance with the 7.5 lb/hr SO₂ emissions limit. SEA will continue to implement the approved November 13, 2014 Plan if H₂S concentrations dictate. Sumpter Energy Associates proposes to perform the annual LFG sampling during the annual 40 CFR Part 60, Subpart JJJJ emissions testing of the FG-ICENGINE2 engines. Sampling will be performed by SEA plant employees using a calibrated hand-held device and via a grab sample of the LFG collected by the third-party environmental contractor performing the Subpart JJJJ emissions testing. The grab sample will be sent to a laboratory for analysis. Results of the in-house hand-held results will be provided to EGLE within 7-days of receipt. Results of the laboratory analysis will be provided to EGLE within 30-days of obtaining the sample (this schedule is contingent on the turn-around time of the laboratory performing the LFG sample analysis).

SEA appreciates the consideration by the MDEQ-AQD of the information presented in this correspondence and looks forward to its concurrence with the proposed, revised monitoring and emission curtailment plan.

If you require additional information or have any questions regarding this request, please feel free to contact me at: (484) 294-8253 or email at edward.werkheiser@nexteraenergy.com.

Sincerely,

Edward J. Werkheiser

Ed Werkheiser
PGD Principal Environmental Specialist

Attachments:

- 1) November 13, 2014 Treated LFG Sulfur Monitoring & Emission Curtailment Plan
- 2) Supporting H₂S Concentration and SO₂lb/hr Data (CY 2020 – YTD 2023)

Cc: (via emailed pdf)

Kate Henry	IMPACT C&T
Josh Wrubel	NEER (PGD-Operations)
Ed Wentling	NEER (Technical Services)
File	

Attachment 1

~

Sumpter Energy Associates @
Pine Tree Acres Landfill
November 13, 2014
Sulfur Monitoring & Emissions Curtailment Plan

SUMPTER ENERGY ASSOCIATES

46280 DYLAN DRIVE • SUITE 200 • NOVI, MI 48377 • (248) 380-3920

November 13, 2014

Ms. Rebecca Loftus
Environmental Quality Analyst
MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
Air Quality Division
27700 Donald Court
Warren, MI 48092-2793

Subject: Revised Sulfur Monitoring and Emission Curtailment Plan
Sumpter Energy Associates at the Pine Tree Acres Landfill
State Registration No. N8004

Dear Ms. Loftus:

Sumpter Energy Associates (Sumpter Energy) is submitting to the Michigan Department of Environmental Quality, Air Quality Division (MDEQ-AQD) a revised Sulfur Monitoring and Emission Curtailment Plan for its landfill gas-to-energy facility located at the Pine Tree Acres Landfill in Lenox Twp., Macomb County (SRN N8004). Upon MDEQ-AQD approval, this revised plan will replace an earlier version of the plan that was submitted to the regulatory agency in a correspondence dated January 4, 2013.

Background

Following the issuance of a Notice of Violation relative to potential SO₂ emission exceedances in 2012, the MDEQ-AQD requested that Sumpter Energy:

1. Continue to conduct monthly sulfur monitoring through December 2013, and submit the results of the monitoring, along with the SO₂ emission calculations, within 7 days of the monitoring event.
2. Explain how operations will be curtailed during periods when there is a high concentration of H₂S in the treated landfill gas (LFG) fuel stream.

In a correspondence dated January 4, 2013, Sumpter Energy provided a plan to address the issues above. A considerable amount of LFG sulfur content and facility operational data have been collected since implementing the plan in early 2013. Based on this information, Sumpter Energy has reevaluated the approach that was originally developed for curtailing engine operations during periods of high LFG sulfur content. The initial approach (submitted plan) was based on a conservative scenario that has resulted in several engine curtailment events that may have been unnecessary (engine operations were curtailed while the SO₂ emission rate was well below the 7.5 pounds per hour permit limit).

These engine curtailment events result in the reduction of renewable energy production and lost revenues and do not reduce the overall SO₂ emission rate. During the engine curtailment period the LFG that would've been used as fuel is directed to the LFG flares, which emit the same amount of SO₂ per volume of fuel combusted as the renewable energy (engine) facility.

Following a review of the collected data, Sumpter Energy has developed a more comprehensive SO₂ emissions reference sheet that will be used to determine when it is appropriate to curtail engine operations.

Treated LFG Sulfur Monitoring

The treated LFG sulfur content monitoring procedures remain unchanged from the originally submitted plan and have been updated for consistency with the Renewable Operating Permit conditions contained in ROP No. MI-ROP-N8004-2013.

In general, Sumpter Energy is required to perform landfill gas (LFG) sulfur content monitoring for its Phase II facility (FGICENGINE2) on a monthly basis as required by condition V.2 of ROP No. MI-ROP-N8004-2013.

The monthly LFG sulfur monitoring is typically performed the first Monday of each month. Sumpter Energy, or its environmental contractor Derenzo and Associates, notifies the MDEQ-AQD of its sampling schedule at least seven days in advance of the planned monitoring date.

The MDEQ-AQD has requested that Sumpter Energy submit the monitoring results, along with the SO₂ emission calculations, within (7) days of the monitoring event. Therefore, within seven (7) days of completing the scheduled monthly monitoring event, Sumpter Energy (or Derenzo and Associates, Inc.) will submit to the MDEQ-AQD via electronic mail the:

- Most recent LFG sulfur sampling result (ppmv sulfur in the LFG used at the Phase II facility).
- LFG flowrate (scfm) for FGICENGINE2 at the time of the LFG sampling event.
- Treated LFG throughput (FGICENGINE2 fuel use) for the previous month and calculated sulfur dioxide (SO₂) mass emission rate for the previous month.

Curtailing of Operations

In addition to the monthly monitoring required by condition V.2 of ROP No. MI-ROP-N8004-2013, Sumpter Energy will monitor the LFG sulfur content, as required by the ROP No. MI-ROP-N8004-2013 Appendix 2 schedule of compliance, on a:

- Weekly basis whenever the monthly H₂S level indicates a concentration of 500 ppmv or greater.
- Daily basis whenever an H₂S concentration of 600 ppmv or greater is observed (during either the weekly or monthly monitoring events).

Once daily monitoring is triggered, Sumpter Energy will perform monitoring at least once per day (excluding weekends and holidays) until the measured H₂S concentration returns to a value of less than 600 ppmv.

Sumpter Energy has developed a spreadsheet to record the monthly, weekly and (if required) daily monitoring events. The following information will be recorded with each LFG H₂S measurement:

- LFG flowrate (scfm) for FGICENGINE2 at the time of the LFG sampling event.
- Gas totalizer reading (total accumulated scf) at the time of the LFG sampling event.

The Attachment provides a reference sheet that has been developed for Sumpter Energy Phase II operations that correlates LFG sulfur content to allowed flowrate (i.e., the maximum allowable treated LFG fuel flowrate that results in SO₂ emissions that are less than the permit limit of 7.5 lb/hr). The reference sheet is based on the assumption that 100% of the fuel sulfur is converted to SO₂ exhaust gas emissions. Recent stack testing performed at the facility verifies that this is a conservative calculation technique (the measured SO₂ stack emissions are less than the theoretical SO₂ emission rate based on fuel sulfur monitoring results). The attached reference sheet will be used by the Sumpter Energy Phase II operators to determine when to curtail engine operations. The grey shading on the reference sheet indicates an SO₂ emission rate of 7.44 lb/hr or greater when operations will be curtailed to avoid exceeding the 7.5 lb/hr permit limit.

The revised SO₂ emission reference sheet attached to this correspondence establishes an allowed operating envelope for the facility (combinations of fuel flowrate and fuel sulfur content). The previously submitted SO₂ emission reference sheet was based on an assumed LFG fuel consumption rate for both engines, which, based on actual data collected with the fuel sulfur monitoring data, is greater than normal operations. At times, this resulted in a requirement to curtail engine operations even when the actual SO₂ emission rate (lb/hr) was well below the permit allowed SO₂ emission rate.

Information for any operations curtailment will also be provided to the MDEQ-AQD with the monthly monitoring results.

Sumpter Energy Associates appreciates the consideration by the MDEQ-AQD of the information presented in this correspondence and looks forward to its concurrence with the proposed, revised monitoring and emission curtailment plan.

Please contact us at (248) 380-3920 if you have any questions or require additional information.

Sincerely,

SUMPTER ENERGY ASSOCIATES, LLC

Dennis Plaster
Vice President of Operations

Sumpter Energy Pine Tree Acres Phase II

SO₂ Emission Reference Sheet (lb/hr SO₂ for corresponding sulfur content and flowrate)

Sulfur (ppmv)	SO ₂ Rate (lb/MMcf)	950 (scfm)	960 (scfm)	970 (scfm)	980 (scfm)	990 (scfm)	1000 (scfm)	1010 (scfm)	1020 (scfm)	1030 (scfm)	1040 (scfm)	1050 (scfm)	1060 (scfm)	1070 (scfm)	1080 (scfm)	1090 (scfm)	1100 (scfm)	1110 (scfm)	1120 (scfm)	1130 (scfm)	1140 (scfm)	1150 (scfm)	1160 (scfm)	1170 (scfm)	1180 (scfm)	1190 (scfm)	1200 (scfm)	1210 (scfm)
500	83.2	4.74	4.79	4.84	4.89	4.94	4.99	5.04	5.09	5.14	5.19	5.24	5.29	5.34	5.39	5.44	5.49	5.54	5.59	5.64	5.69	5.74	5.79	5.84	5.89	5.94	5.99	6.04
505	84.0	4.79	4.84	4.89	4.94	4.99	5.04	5.09	5.14	5.19	5.24	5.29	5.34	5.39	5.44	5.50	5.55	5.60	5.65	5.70	5.75	5.80	5.85	5.90	5.95	6.00	6.05	6.10
510	84.9	4.84	4.89	4.94	4.99	5.04	5.09	5.14	5.19	5.24	5.30	5.35	5.40	5.45	5.50	5.55	5.60	5.65	5.70	5.75	5.80	5.86	5.91	5.96	6.01	6.06	6.11	6.16
515	85.7	4.88	4.94	4.99	5.04	5.09	5.14	5.19	5.24	5.30	5.35	5.40	5.45	5.50	5.55	5.60	5.66	5.71	5.76	5.81	5.86	5.91	5.96	6.02	6.07	6.12	6.17	6.22
520	86.5	4.93	4.98	5.04	5.09	5.14	5.19	5.24	5.30	5.35	5.40	5.45	5.50	5.55	5.61	5.66	5.71	5.76	5.81	5.87	5.92	5.97	6.02	6.07	6.13	6.18	6.23	6.28
525	87.4	4.98	5.03	5.08	5.14	5.19	5.24	5.29	5.35	5.40	5.45	5.50	5.56	5.61	5.66	5.71	5.77	5.82	5.87	5.92	5.98	6.03	6.08	6.13	6.18	6.24	6.29	6.34
530	88.2	5.03	5.08	5.13	5.19	5.24	5.29	5.34	5.40	5.45	5.50	5.56	5.61	5.66	5.71	5.77	5.82	5.87	5.93	5.98	6.03	6.08	6.14	6.19	6.24	6.30	6.35	6.40
535	89.0	5.07	5.13	5.18	5.23	5.29	5.34	5.39	5.45	5.50	5.55	5.61	5.66	5.71	5.77	5.82	5.88	5.93	5.98	6.04	6.09	6.14	6.20	6.25	6.30	6.36	6.41	6.46
540	89.9	5.12	5.18	5.23	5.28	5.34	5.39	5.44	5.50	5.55	5.61	5.66	5.71	5.77	5.82	5.88	5.93	5.98	6.04	6.09	6.15	6.20	6.25	6.31	6.36	6.42	6.47	6.52
545	90.7	5.17	5.22	5.28	5.33	5.39	5.44	5.50	5.55	5.60	5.66	5.71	5.77	5.82	5.88	5.93	5.99	6.04	6.09	6.15	6.20	6.26	6.31	6.37	6.42	6.47	6.53	6.58
550	91.5	5.22	5.27	5.33	5.38	5.44	5.49	5.55	5.60	5.66	5.71	5.77	5.82	5.88	5.93	5.99	6.04	6.09	6.15	6.20	6.26	6.31	6.37	6.42	6.48	6.53	6.59	6.64
555	92.3	5.26	5.32	5.37	5.43	5.49	5.54	5.60	5.65	5.71	5.76	5.82	5.87	5.93	5.98	6.04	6.09	6.15	6.21	6.26	6.32	6.37	6.43	6.48	6.54	6.59	6.65	6.70
560	93.2	5.31	5.37	5.42	5.48	5.53	5.59	5.65	5.70	5.76	5.81	5.87	5.93	5.98	6.04	6.09	6.15	6.21	6.26	6.32	6.37	6.43	6.49	6.54	6.60	6.66	6.71	6.76
565	94.0	5.36	5.41	5.47	5.53	5.58	5.64	5.70	5.75	5.81	5.87	5.92	5.98	6.04	6.09	6.15	6.20	6.26	6.32	6.37	6.43	6.49	6.54	6.60	6.66	6.71	6.77	6.83
570	94.8	5.41	5.46	5.52	5.58	5.63	5.69	5.75	5.80	5.86	5.92	5.98	6.03	6.09	6.15	6.20	6.26	6.32	6.37	6.43	6.49	6.54	6.60	6.66	6.71	6.77	6.83	6.89
575	95.7	5.45	5.51	5.57	5.63	5.68	5.74	5.80	5.86	5.91	5.97	6.03	6.08	6.14	6.20	6.26	6.31	6.37	6.43	6.49	6.54	6.60	6.66	6.72	6.77	6.83	6.89	6.95
580	96.5	5.50	5.56	5.62	5.67	5.73	5.79	5.85	5.91	5.96	6.02	6.08	6.14	6.20	6.25	6.31	6.37	6.43	6.49	6.54	6.60	6.66	6.72	6.77	6.83	6.89	6.95	7.01
585	97.3	5.55	5.61	5.67	5.72	5.78	5.84	5.90	5.96	6.02	6.07	6.13	6.19	6.25	6.31	6.37	6.42	6.48	6.54	6.60	6.66	6.72	6.77	6.83	6.89	6.95	7.01	7.07
590	98.2	5.60	5.65	5.71	5.77	5.83	5.89	5.95	6.01	6.07	6.13	6.18	6.24	6.30	6.36	6.42	6.48	6.54	6.60	6.66	6.71	6.77	6.83	6.89	6.95	7.01	7.07	7.13
595	99.0	5.64	5.70	5.76	5.82	5.88	5.94	6.00	6.06	6.12	6.18	6.24	6.30	6.36	6.42	6.47	6.53	6.59	6.65	6.71	6.77	6.83	6.89	6.95	7.01	7.07	7.13	7.19
600	99.8	5.69	5.75	5.81	5.87	5.93	5.99	6.05	6.11	6.17	6.23	6.29	6.35	6.41	6.47	6.53	6.59	6.65	6.71	6.77	6.83	6.89	6.95	7.01	7.07	7.13	7.19	7.25
605	100.7	5.74	5.80	5.86	5.92	5.98	6.04	6.10	6.16	6.22	6.28	6.34	6.40	6.46	6.52	6.58	6.64	6.70	6.76	6.83	6.89	6.95	7.01	7.07	7.13	7.19	7.25	7.31
610	101.5	5.79	5.85	5.91	5.97	6.03	6.09	6.15	6.21	6.27	6.33	6.39	6.46	6.52	6.58	6.64	6.70	6.76	6.82	6.88	6.94	7.00	7.06	7.13	7.19	7.25	7.31	7.37
615	102.3	5.83	5.89	5.96	6.02	6.08	6.14	6.20	6.26	6.32	6.39	6.45	6.51	6.57	6.63	6.69	6.75	6.82	6.88	6.94	7.00	7.06	7.12	7.18	7.24	7.31	7.37	7.43
620	103.2	5.88	5.94	6.00	6.07	6.13	6.19	6.25	6.31	6.38	6.44	6.50	6.56	6.62	6.68	6.75	6.81	6.87	6.93	6.99	7.06	7.12	7.18	7.24	7.30	7.37	7.43	7.49
625	104.0	5.93	5.99	6.05	6.11	6.18	6.24	6.30	6.36	6.43	6.49	6.55	6.61	6.68	6.74	6.80	6.86	6.93	6.99	7.05	7.11	7.18	7.24	7.30	7.36	7.43	7.49	7.55
630	104.8	5.98	6.04	6.10	6.16	6.23	6.29	6.35	6.42	6.48	6.54	6.60	6.67	6.73	6.79	6.86	6.92	6.98	7.04	7.11	7.17	7.23	7.30	7.36	7.42	7.48	7.55	7.61
635	105.7	6.02	6.09	6.15	6.21	6.28	6.34	6.40	6.47	6.53	6.59	6.66	6.72	6.78	6.85	6.91	6.97	7.04	7.10	7.16	7.23	7.29	7.35	7.42	7.48	7.54	7.61	7.67
640	106.5	6.07	6.13	6.20	6.26	6.33	6.39	6.45	6.52	6.58	6.64	6.71	6.77	6.84	6.90	6.96	7.03	7.09	7.16	7.22	7.28	7.35	7.41	7.48	7.54	7.60	7.67	7.73
645	107.3	6.12	6.18	6.25	6.31	6.37	6.44	6.50	6.57	6.63	6.70	6.76	6.83	6.89	6.95	7.02	7.08	7.15	7.21	7.28	7.34	7.41	7.47	7.53	7.60	7.66	7.73	7.79
650	108.2	6.16	6.23	6.29	6.36	6.42	6.49	6.55	6.62	6.68	6.75	6.81	6.88	6.94	7.01	7.07	7.14	7.20	7.27	7.33	7.40	7.46	7.53	7.59	7.66	7.72	7.79	7.85
655	109.0	6.21	6.28	6.34	6.41	6.47	6.54	6.60	6.67	6.74	6.80	6.87	6.93	7.00	7.06	7.13	7.19	7.26	7.32	7.39	7.45	7.52	7.59	7.65	7.72	7.78	7.85	7.91
660	109.8	6.26	6.33	6.39	6.46	6.52	6.59	6.65	6.72	6.79	6.85	6.92	6.98	7.05	7.12	7.18	7.25	7.31	7.38	7.45	7.51	7.58	7.64	7.71	7.78	7.84	7.91	7.97
665	110.6	6.31	6.37	6.44	6.51	6.57	6.64	6.71	6.77	6.84	6.90	6.97	7.04	7.10	7.17	7.24	7.30	7.37	7.44	7.50	7.57	7.63	7.70	7.77	7.83	7.90	7.97	8.03
670	111.5	6.35	6.42	6.49	6.56	6.62	6.69	6.76	6.82	6.89	6.96	7.02	7.09	7.16	7.22	7.29	7.36	7.42	7.49	7.56	7.63	7.69	7.76	7.83	7.89	7.96	8.03	8.09
675	112.3	6.40	6.47	6.54	6.60	6.67	6.74	6.81	6.87	6.94	7.01	7.08	7.14	7.21	7.28	7.35	7.41	7.48	7.55	7.61	7.68	7.75	7.82	7.88	7.95	8.02	8.09	8.15
680	113.1	6.45	6.52	6.59	6.65	6.72	6.79	6.86	6.92	6.99	7.06	7.13	7.20	7.26	7.33	7.40	7.47	7.54	7.60	7.67	7.74	7.81	7.87	7.94	8.01	8.08	8.15	8.21
685	114.0	6.50	6.57	6.63	6.70	6.77	6.84	6.91	6.98	7.04	7.11	7.18	7.25	7.32	7.39	7.45	7.52	7.59	7.66	7.73	7.80	7.86	7.93	8.00	8.07	8.14	8.21	8.27
690	114.8	6.54	6.61	6.68	6.75	6.82	6.89	6.96	7.03	7.10	7.16	7.23	7.30	7.37	7.44	7.51	7.58	7.65	7.72	7.78	7.85	7.92	7.99	8.06	8.13	8.20	8.27	8.34
695	115.6	6.59	6.66	6.73	6.80	6.87	6.94	7.01	7.08	7.15	7.22	7.29	7.35	7.42	7.49	7.56	7.63	7.70	7.77	7.84	7.91	7.98	8.05	8.12	8.19	8.26	8.33	8.40
700	116.5	6.64	6.71	6.78	6.85	6.92	6.99	7.06	7.13	7.20	7.27	7.34	7.41	7.48	7.55	7.62	7.69	7.76	7.83	7.90	7.97	8.04	8.11	8.18	8.25	8.32	8.39	8.46
705	117.3	6.69	6.76	6.83	6.90	6.97	7.04	7.11	7.18	7.25	7.32	7.39	7.46	7.53	7.60	7.67	7.74	7.81	7.88	7.95	8.02	8.09	8.16	8.23	8.31	8.38	8.45	8.52
710	118.1	6.73	6.80	6.88	6.95	7.02	7.09	7.16	7.23	7.30	7.37	7.44	7.51	7.58	7.66	7.73	7.80	7.87	7.94	8.01	8.08	8.15	8.22	8.29	8.36	8.43	8.51	8.58
715	119.0	6.78	6.85	6.92	7.00	7.07	7.14	7.21	7.28	7.35	7.42	7.50	7.57	7.64	7.71	7.78	7.85	7.92	7.99	8.07	8.14	8.21	8.28	8.35	8.42	8.49	8.57	8.64
720	119.8	6.83	6.90	6.97	7.04	7.12	7.19	7.26	7.33	7.40	7.48	7.55	7.62	7.69	7.76	7.83	7.9											

Attachment 2

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Supporting H₂S Concentration &
SO₂ lb/hr Data (CY 2020 – YTD 2023)

Attachment 2 - H2S SO2 Data

Sample Date	Zero Check with Ambient Air (ppm)	Calibration Gas Concentration (ppm)	Pre-Test Calibration (ppm)	H ₂ S Test 1 (ppm)	H ₂ S Test 2 (ppm)	H ₂ S Test 3 (ppm)	H ₂ S Test 1 Adjusted for Calibration Bias (ppm)	H ₂ S Test 2 Adjusted for Calibration Bias (ppm)	H ₂ S Test 3 Adjusted for Calibration Bias (ppm)	Recorded Initial 3-Test Avg. Sampling Result (ppm Sulfur)	Average Sampling Result for Month (ppmv Sulfur)	SO ₂ Emission Factor (lb/MMCF)	SO ₂ Emissions (lbs/month)	SO ₂ Emissions (lbs/hour)	SO ₂ Emissions Rolling 12-Months (tons/yr)	12-month period
01/06/20	0.0	496	496	304	305	306	304	305	306	305	326	54.2	2,143	2.89	15.24	Feb 19 - Jan 20
02/03/20	0.0	496	496	322	322	322	322	322	322	322	314	52.3	1,999	2.89	14.79	Mar 19 - Feb 20
03/01/20	0.0	496	496	299	299	299	299	299	299	299	288	48.0	2,152	2.93	14.48	Apr 19 - Mar 20
04/06/20	0.0	496	496	216	218	218	216	218	218	217	245	40.7	1,758	2.45	13.89	May 19 - Apr 20
05/04/20	0.0	496	496	268	270	268	268	270	268	269	246	40.9	1,651	2.22	13.4	Jun 19 - May 20
06/01/20	0.0	496	496	252	252	252	252	252	252	252	243	40.43	1,794	2.49	13.1	Jul 19 - Jun 20
07/07/20	0.0	496	496	246	245	246	246	245	246	246	248	41.26	1,951	2.64	13.1	Aug 19 - Jul 20
08/03/20	0.0	496	496	230	231	232	230	231	232	231	240	39.93	1,889	2.57	12.7	Sep 19- Aug 20
09/08/20	0.0	496	496	231	232	233	231	232	233	232	234	38.94	1,818	2.54	12.7	Oct 19 - Sep 20
10/05/20	0.0	496	496	224	226	228	224	226	228	226	247	41.1	1,787	2.40	12.4	Nov 19 - Oct 20
11/01/20	0.0	496	496	237	238	241	237	238	241	239	230	38.3	1,711	2.38	12.2	Dec 19 - Nov 20
12/07/20	0.0	496	496	250	250	251	250	250	251	250	223	37.1	1,779	2.40	12.1	Jan 20 - Dec 20
01/04/21	0.0	496	496	172	173	174	172	173	174	173	178	29.6	1,350	1.81	11.5	Feb 20 - Jan 21
02/01/21	0.0	496	496	148	149	150	148	149	150	149	173	28.8	1,268	1.90	11.1	Mar 20 - Feb 21
03/01/21	0.0	496	496	210	211	211	210	211	211	211	222	36.9	1,777	2.40	11.2	Apr 20 - Mar 21
04/05/21	0.0	496	496	265	266	266	265	266	266	266	246	40.9	1,865	2.60	11.3	May 20 - Apr 21
05/03/21	0.0	496	496	233	234	233	233	234	233	233	225	37.4	1,257	1.71	10.8	Jun 20 - May 21
06/07/21	0.0	496	496	230	231	232	230	231	232	231	235	39.1	1,693	2.36	10.9	Jul 20 - Jun 21
07/01/21	0.0	496	496	247	248	249	247	248	249	248	237	39.4	1,268	1.81	10.4	Aug 20 - Jul 21
08/02/21	0.0	496	496	238	241	244	238	241	244	241	257	42.8	1,902	2.60	10.7	Sep 20 - Aug 21
09/02/21	0.0	496	496	246	247	248	246	247	248	247	248	41.3	1,813	2.53	10.6	Oct 20 - Sep 21
10/04/21	0.0	496	496	251	250	251	251	250	251	251	255	42.4	1,636	2.31	10.5	Nov 20 - Oct 21
11/02/21	0.0	496	496	343	342	332	343	342	332	339	312	51.9	1,696	2.36	10.5	Dec 20 - Nov 21
12/06/21	0.0	496	496	318	317	317	318	317	317	317	282	46.9	2,040	2.75	10.8	Jan 21 - Dec 21
01/03/22	0.0	496	496	281	281	282	281	281	282	281	274	45.6	1,988	2.73	11.1	Feb 21 - Jan 22
02/07/22	0.0	496	496	173	173	174	173	173	174	173	227	37.8	1,521	2.31	11.0	Mar 21 - Feb 22
03/07/22	0.0	496	496	284	282	282	284	282	282	283	264	43.9	2,010	2.72	11.3	Apr 21 - Mar 22
04/04/22	0.0	496	496	271	272	271	271	272	271	271	273	45.4	2,388	3.32	11.8	May 21 - Apr 22
05/02/22	0.0	496	496	297	297	298	297	297	298	297	297	49.4	2,232	3.03	12.2	Jun 21 - May 22
06/06/22	0.0	496	496	277	277	278	277	277	278	277	268	44.6	1,982	2.75	12.2	Jul 21 - Jun 22
07/04/22	0.0	496	496	238	239	240	238	239	240	239	268	44.6	2,148	2.94	12.8	Aug 21 - Jul 22
08/01/22	0.0	496	496	291	291	291	291	291	291	291	318	52.9	2,316	3.11	13.0	Sep 21 - Aug 22
09/05/22	0.0	496	496	326	327	329	326	327	329	327	309	51.4	2,382	3.39	13.4	Oct 21 - Sep 22
10/03/22	0.0	496	496	304	305	306	304	305	306	305	308	51.2	2,353	3.21	13.7	Nov 21 - Oct 22
11/07/22	0.0	496	496	298	299	299	298	299	299	299	348	57.9	2,379	3.31	14.1	Dec - 21 - Nov 22
12/06/22	0.0	496	496	413	414	414	413	414	414	414	417	69.4	3,112	4.27	15.0	Jan 22 - Dec 22
01/02/23	0.0	496	496	389	390	392	389	390	392	390	398	66.2	3,283	4.43	15.7	Feb 22 - Jan 23
02/06/23	0.0	50	48	401	402	403	418	419	420	419	349	58.1	2,129	3.21	15.4	Mar 22 - Feb 23
03/06/23	0.0	50	48	401	402	402	418	419	419	418	352	58.6	2,359	3.28	15.7	Apr 22 - Mar 23
04/03/23	0.0	50	46	389	391	392	423	425	426	425	382	63.6	2,620	3.69	16.0	May 22 - Apr 23
05/01/23	0.0	50	48	435	436	437	453	454	455	454	376	62.6	2,658	3.58	16.2	Jun 22 - May 23
06/05/23	0.0	50	47	309	310	312	312	313	315	313	336	55.9	2,398	3.41	16.3	Jul 22 - Jun 23
07/03/23	0.0	50	49	320	321	321	321	322	322	322	344	57.2	1,553	2.73	15.5	Aug 22 - Jul 23
08/07/23	0.0	50	50	343	344	345	343	344	345	344	340	56.6	2,088	2.85	15.7	Sep 22 - Aug 23

MAX ppm H₂S 417
 AVG ppm H₂S 282
 MAX lb/hr 4.43
 AVG lb/hr 2.78
 lb/hr limit 7.5