From: Ron Landis
To: EGLE-ROP
Subject: Pitsch Sanitary Landfill ROP renewal
Date: Monday, August 5, 2024 10:44:53 AM
Attachments: 2024 signed transmittal - Copy.pdf
renewal requirements - Copy.pdf
Odor Management Plan 2 - Copy.pdf
N5619 REO Final 24_08_1 - Copy.docx
ROP Renewal Application Form markup - Copy.docx
signature page signed - Copy.pdf
Tier II analysis report - Copy.pdf
landfill map - Copy.pdf

Attached please find the Rop Renewal for the Pitsch Sanitary landfill (SRN 5619)

If there are any questions please contact Ron LAndirat 616 901 6747

Thanks

Ron Landis
RdL Engineering, LLC

August 5, 2024

Ms. Heidi G. Hollenbach
Grand Rapids District Supervisor, AQD
EGLE
350 Ottawa NW
Grand Rapids, MI 49503

Re: Pitsch Sanitary Landfill
Permit Renewal Application SRN N5619

Dear Ms. Hollenbach:

Attached please find the submittal for the above referenced permit renewal. Included with this submittal is the following:

- Renewal Application Form
- Marked up permit
- Odor Management Plan
- Tier 2 Analysis Report
- Site Map

If there are any questions or you require further information please contact me at 616 901 6747.

We appreciate all the assistance from your staff in the preparation of this renewal.

Regards,

Ron Landis, PE
RdL Engineering, LLC
7350 Leyton SE
Grand Rapids, MI 49546
Rdltr250@sbcglobal.net

C: Gary Pitsch

Pitsch Sanitary Landfill
7905 Johnson Road
Belding, MI 48809
State Registration Number (SRN) N5619
Renewable Operating Permit Application

Renewal Permit Application

August 1, 2024

Renewal Permit application requirements:

- All Applicable requirements for this renewal are included in the existing marked-up permit. This permit was modified in 2020 to reflect the changes from an NSPS site to an EG site requirements.
- The test methods used to determine compliance is Tier 2 testing as outline in the permit. This analysis is completed every five years. The latest analysis report is included in the application.
- Emissions calculations are based on the requirements outlined in Appendix 7 of the permit. Actual data obtained from waste receipts and Tier 2 testing results.
- Daily cover is used to prevent odors from escaping. The Odor Management Plan is provided in the application.
- Emission limits are 34 mega gram as outline in the regulations. This site is well below this requirement this may be due to a majority of the waste received at this site is construction and demolish debris that does not generate as n=much methane.
- Daily cover is used as pollution control.
- There are no stacks on site

EGLE

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	SIC Code	NAICS Code	Existing ROP Number	Section Number (if applicable)
N5619	4953	562212	MI-ROP-N5619-2020b	

Source Name
Pitsch Sanitary Landfill

Street Address
7905 Johnson Road

City	State	ZIP Code	County
Belding	MI	48809	Ionia

Section/Town/Range (if address not available)

Source Description
Type II Sanitary Landfill

☐ 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	Section Number (if applicable)
Pitsch Recycle and Disposal, Inc. Companies	

Mailing address (☐ check if same as source address)
675 Richmond NW

City	State	ZIP Code	County	Country
Grand Rapids	MI	49504	Kent	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.

SRN: N5619	Section Number (if applicable):

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	Title			
Gary Pitsch	Vice President			
Company Name & Mailing address (☐ check if same as source address)				
Pitsch Recycle and Disposal, Inc. Companies				
City	State	ZIP Code	County	Country
Grand Rapids	MI	49504	Kent	USA
Phone number		E-mail address		
616 437 2093		Gary.pitsch@pitschenterprises.com		

Contact 2 Name (optional)	Title			
Ron Landis	Professional Engineer			
Company Name & Mailing address (☐ check if same as source address)				
RdL Engineering, LLC				
City	State	ZIP Code	County	Country
Grand Rapids	MI	49546	Kent	USA
Phone number		E-mail address		
616 901 6747		Rdltr250@gmail.com		

RESPONSIBLE OFFICIAL INFORMATION

Responsible Official 1 Name	Title			
Gary Pitsch	Vice President			
Company Name & Mailing address (☐ check if same as source address)				
Pitsch Recycle and Disposal, INC. Companies				
City	State	ZIP Code	County	Country
Grand Rapids	MI	49504	Kent	USA
Phone number		E-mail address		
616 437 2093		Gary.pitsch@pitschenterprises.com		

Responsible Official 2 Name (optional)	Title			
Company Name & Mailing address (☐ 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:

SRN: N5619	Section Number (if applicable):

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.	
☒ Completed ROP Renewal Application Form (and any AI-001 Forms) (required)	☐ Compliance Plan/Schedule of Compliance
☒ Mark-up copy of existing ROP using official version from the AQD website (required)	☐ Stack information
☐ Copies of all Permit(s) to Install (PTIs) that have not been incorporated into existing ROP (required)	☐ Acid Rain Permit Initial/Renewal Application
☐ Criteria Pollutant/Hazardous Air Pollutant (HAP) Potential to Emit Calculations	☐ Cross-State Air Pollution Rule (CSAPR) Information
☐ MAERS Forms (to report emissions not previously submitted)	☐ Confidential Information
☐ Copies of all Consent Order/Consent Judgments that have not been incorporated into existing ROP	☒ Paper copy of all documentation provided (required)
☐ Compliance Assurance Monitoring (CAM) Plan	☒ Electronic documents provided (optional)
☒ Other Plans (Odor Management Plan)	☒ Other, explain: Tier 2 sampling report

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)

Gary Pitsch, Vice President

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**

SRN: N5619	Section Number (if applicable):

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.	☐ Yes ☒ No
C2.	Is this source subject to the federal regulations on ozone-depleting substances? (40 CFR Part 82)	☐ Yes ☒ 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?	☐ Yes ☒ No ☐ Yes ☒ 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.	☐ Yes ☒ 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.	☐ Yes ☒ 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.	☐ Yes ☒ 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?	☐ Yes ☒ No ☐ Yes ☒ 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	☐ Yes ☒ No ☐ Yes ☒ No ☐ ☐
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.	☒ Yes ☐ 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.	☐ Yes ☒ No

☒ Check here if an AI-001 Form is attached to provide more information for Part C. Enter AI-001 Form ID: **AI-**Part c
Site has Odor Management Plan

SRN: N5619	Section Number (if applicable):

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)]
EU00013 Eu-propane Tank	Propane Tanks used for heating garage and office. Garage 1000 gal. tank, installed 1994; office 500 gal. tank installed 1996	Rule 282 (b)	
EU00011 EU-Heater	Propane powered radiant heater used in garage. 2 heaters estimated at 80,000 Btu/hour	Rule 282 (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-**

SRN: N5619	Section Number (if applicable):

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.

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 Yes, identify changes and additions on Part F, Part G and/or Part H.	☐ Yes ☒ No
E2. For each emission unit(s) identified in the existing ROP, all 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 not reported in the most recent MAERS reporting year? If Yes, identity the stack(s) that was/were not reported on applicable MAERS form(s).	☐ Yes ☒ No
E3. Have any emission units identified in the existing ROP been modified or reconstructed that required a PTI? If Yes, complete Part F with the appropriate information.	☐ Yes ☒ No
E4. Have any emission units identified in the existing ROP been dismantled? If Yes, identify the emission unit(s) and the dismantle date in the comment area below or on an AI-001 Form.	☐ Yes ☒ No

Comments:
Solar Flares are no longer used onsite since permit was modified.

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

SRN:	Section Number (if applicable):

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. If No, go to Part G. ☐ Yes ☒ No

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, identity 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-**

SRN: N5619	Section Number (if applicable):

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 – *Provide Emission Unit ID and a description of Process Equipment, Control Devices and Monitoring Devices***	**Date Emission Unit was Installed/ Modified/ Reconstructed**
☐ Rule 281(2)(h) or 285(2)(r)(iv) cleaning operation		
☐ Rule 287(2)(c) surface coating line		
☐ 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-**

SRN: N5619	Section Number (if applicable):

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 Yes, answer the questions below.	☐ Yes ☒ No
H2. Are there any proposed administrative changes to any of the existing emission unit names, descriptions or control devices in the ROP? If Yes, describe the changes in questions H8 – H16 below and in the affected Emission Unit Table(s) in the mark-up of the ROP.	☐ Yes ☒ 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 Yes, 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.	☐ Yes ☒ No
H4. Does the source propose to add new state or federal regulations to the existing ROP? If Yes, on an AI-001 Form, identify each emission unit/flexible group that the new regulation applies to and identify each 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.	☐ Yes ☒ No
H5. Has a Consent Order/Consent Judgment (CO/CJ) been issued where the requirements were not incorporated into the existing ROP? If Yes, 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.	☐ Yes ☒ No
H6. Does the source propose to add, change and/or delete **source-wide** 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
H7. Are you proposing to **streamline** any requirements? If Yes, identify the streamlined and subsumed requirements and the EU ID, and provide a justification for streamlining the applicable requirement below.	☐ Yes ☒ No

SRN: N5916	Section Number (if applicable):

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
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
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

SRN: N5916	Section Number (if applicable):

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-**

EGLE

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: N5916	Section Number (if applicable):

1. Additional Information ID
AI-

Additional Information

2. Is This Information Confidential? ☐ Yes ☒ No

Based on the modified permit issued in 2020 this site is in compliance.

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

EFFECTIVE DATE: February 28, 2025

ISSUED TO

Pitsch Sanitary Landfill

State Registration Number (SRN): N5619

LOCATED AT

7905 Johnson Road, Belding, Ionia County, Michigan 48809

RENEWABLE OPERATING PERMIT

Permit Number: MI-ROP-N5619-2025

Expiration Date: February 28, 2030

Administratively Complete ROP Renewal Application
Due Between August 28, 2029 and August 28, 2029

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

SOURCE-WIDE PERMIT TO INSTALL

Permit Number: MI-PTI-N5619-2025

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

Michigan Department of Environment, Great Lakes, and Energy

_____
Heidi Hollenbach, Grand Rapids 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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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 state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete. **(R 336.1213(3)(c))**

19. A Responsible Official shall certify to the appropriate AQD District Office and to the USEPA that the stationary source is and has been in compliance with all terms and conditions contained in the ROP except for deviations that have been or are being reported to the appropriate AQD District Office pursuant to Rule 213(3)(c). This certification shall include all the information specified in Rule 213(4)(c)(i) through (v) and shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the certification are true, accurate, and complete. The USEPA address is: USEPA, Air Compliance Data - Michigan, Air and Radiation Division, 77 West Jackson Boulevard, Chicago, Illinois 60604-3507. **(R 336.1213(4)(c))**

20. The certification of compliance shall be submitted annually for the term of this ROP as detailed in the special conditions, or more frequently if specified in an applicable requirement or in this ROP. **(R 336.1213(4)(c))**

21. The permittee shall promptly report any deviations from ROP requirements and certify the reports. The prompt reporting of deviations from ROP requirements is defined in Rule 213(3)(c)(ii) as follows, unless otherwise described in this ROP. **(R 336.1213(3)(c))**
    a. For deviations that exceed the emissions allowed under the ROP, prompt reporting means reporting consistent with the requirements of Rule 912 as detailed in Condition 25. All reports submitted pursuant to this paragraph shall be promptly certified as specified in Rule 213(3)(c)(iii).
    b. For deviations which exceed the emissions allowed under the ROP and which are not reported pursuant to Rule 912 due to the duration of the deviation, prompt reporting means the reporting of all deviations in the semiannual reports required by Rule 213(3)(c)(i). The report shall describe reasons for each deviation and the actions taken to minimize or correct each deviation.
    c. For deviations that do not exceed the emissions allowed under the ROP, prompt reporting means the reporting of all deviations in the semiannual reports required by Rule 213(3)(c)(i). The report shall describe the reasons for each deviation and the actions taken to minimize or correct each deviation.

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22. For reports required pursuant to Rule 213(3)(c)(ii), prompt certification of the reports is described in Rule 213(3)(c)(iii) as either of the following: **(R 336.1213(3)(c))**
    a. Submitting a certification by a Responsible Official with each report which states that, based on information and belief formed after reasonable inquiry, the statements and information in the report are true, accurate, and complete.
    b. Submitting, within 30 days following the end of a calendar month during which one or more prompt reports of deviations from the emissions allowed under the ROP were submitted to the department pursuant to Rule 213(3)(c)(ii), a certification by a Responsible Official which states that; "based on information and belief formed after reasonable inquiry, the statements and information contained in each of the reports submitted during the previous month were true, accurate, and complete." The certification shall include a listing of the reports that are being certified. Any report submitted pursuant to Rule 213(3)(c)(ii) that will be certified on a monthly basis pursuant to this paragraph shall include a statement that certification of the report will be provided within 30 days following the end of the calendar month.

23. Semiannually for the term of the ROP as detailed in the special conditions, or more frequently if specified, the permittee shall submit certified reports of any required monitoring to the appropriate AQD District Office. All instances of deviations from ROP requirements during the reporting period shall be clearly identified in the reports. **(R 336.1213(3)(c)(i))**

24. On an annual basis, the permittee shall report the actual emissions, or the information necessary to determine the actual emissions, of each regulated air pollutant as defined in Rule 212(6) for each emission unit utilizing the emissions inventory forms provided by the department. **(R 336.1212(6))**

25. The permittee shall provide notice of an abnormal condition, start-up, shutdown, or malfunction that results in emissions of a hazardous or toxic air pollutant which continue for more than one hour in excess of any applicable standard or limitation, or emissions of any air contaminant continuing for more than two hours in excess of an applicable standard or limitation, as required in Rule 912, to the appropriate AQD District Office. The notice shall be provided not later than two business days after the start-up, shutdown, or discovery of the abnormal conditions or malfunction. Notice shall be by any reasonable means, including electronic, telephonic, or oral communication. Written reports, if required under Rule 912, must be submitted to the appropriate AQD District Supervisor within 10 days after the start-up or shutdown occurred, within 10 days after the abnormal conditions or malfunction has been corrected, or within 30 days of discovery of the abnormal conditions or malfunction, whichever is first. The written reports shall include all of the information required in Rule 912(5) and shall be certified by a Responsible Official in a manner consistent with the CAA.[2] **(R 336.1912)**

Permit Shield

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

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

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

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d. The ability of the USEPA to obtain information from a source pursuant to Section 114 of the CAA. **(R 336.1213(6)(b)(iv))**

28. The permit shield shall not apply to provisions incorporated into this ROP through procedures for any of the following:
    a. Operational flexibility changes made pursuant to Rule 215. **(R 336.1215(5))**
    b. Administrative Amendments made pursuant to Rule 216(1)(a)(i)-(iv). **(R 336.1216(1)(b)(iii))**
    c. Administrative Amendments made pursuant to Rule 216(1)(a)(v) until the amendment has been approved by the department. **(R 336.1216(1)(c)(iii))**
    d. Minor Permit Modifications made pursuant to Rule 216(2). **(R 336.1216(2)(f))**
    e. State-Only Modifications made pursuant to Rule 216(4) until the changes have been approved by the department. **(R 336.1216(4)(e))**

29. Expiration of this ROP results in the loss of the permit shield. If a timely and administratively complete application for renewal is submitted not more than 18 months, but not less than 6 months, before the expiration date of the ROP, but the department fails to take final action before the end of the ROP term, the existing ROP does not expire until the renewal is issued or denied, and the permit shield shall extend beyond the original ROP term until the department takes final action. **(R 336.1217(1)(c), R 336.1217(1)(a))**

Revisions

30. For changes to any process or process equipment covered by this ROP that do not require a revision of the ROP pursuant to Rule 216, the permittee must comply with Rule 215. **(R 336.1215, R 336.1216)**

31. A change in ownership or operational control of a stationary source covered by this ROP shall be made pursuant to Rule 216(1). **(R 336.1219(2))**

32. For revisions to this ROP, an administratively complete application shall be considered timely if it is received by the department in accordance with the time frames specified in Rule 216. **(R 336.1210(10))**

33. Pursuant to Rule 216(1)(b)(iii), Rule 216(2)(d) and Rule 216(4)(d), after a change has been made, and until the department takes final action, the permittee shall comply with both the applicable requirements governing the change and the ROP terms and conditions proposed in the application for the modification. During this time period, the permittee may choose to not comply with the existing ROP terms and conditions that the application seeks to change. However, if the permittee fails to comply with the ROP terms and conditions proposed in the application during this time period, the terms and conditions in the ROP are enforceable. **(R 336.1216(1)(c)(iii), R 336.1216(2)(d), R 336.1216(4)(d))**

Reopenings

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

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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:
[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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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.

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C. EMISSION UNIT SPECIAL CONDITIONS

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

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

EMISSION UNIT SUMMARY TABLE

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

Emission Unit ID	Emission Unit Description (Including Process Equipment & Control Device(s))	Installation Date/ Modification Date	Flexible Group ID
EULANDFILL<34	A Municipal Solid Waste (MSW) landfill that commenced construction, reconstruction, or modification on or before July 17, 2014, and has accepted waste at any time since November 8, 1987. The MSW landfill has a design capacity greater than 2.5 million megagrams (Mg) and 2.5 million cubic meters, and actual NMOC emissions less than 34 Mg per year. This MSW landfill is subject to the requirements of 40 CFR Part 62, Subpart OOO.	Act 87 Area Installed in 1975, closed in 1992 Phases I-VIII installed in November 1985	NA
EUASBESTOS	This landfill is actively accepting or has accepted asbestos waste in the past.	NA	NA

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EULANDFILL<34
EMISSION UNIT CONDITIONS

DESCRIPTION

A Municipal Solid Waste (MSW) landfill that commenced construction, reconstruction, or modification on or before July 17, 2014, and has accepted waste at any time since November 8, 1987. The MSW landfill has a design capacity greater than 2.5 million megagrams (Mg) and 2.5 million cubic meters, but actual NMOC emissions based upon an established Tier 2 value in the landfill calculation are less than 34 Mg per year. This emission unit is subject to the requirements of 40 CFR Part 62, Subpart OOO.

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT

Open Flares

I. EMISSION LIMIT(S)

NA

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. Within 45 days of the ROP issuance date, the permittee shall submit, implement and maintain an Odor Management Plan (OMP). If at any time the plan fails to address or inadequately addresses odor management, the permittee shall amend the plan within 45 days after such an event occurs. The permittee shall submit the OMP and any amendments to the OMP to the AQD District Supervisor for review and approval. If the AQD does not notify the permittee within 90 days of submittal, the OMP or amended OMP shall be considered approved. Until an amended plan is approved, the permittee shall implement corrective procedures or operational changes to minimize odors. **(R 336.1901, R 336.1213(2))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

V. TESTING/SAMPLING

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

1. The permittee shall determine the NMOC mass emission rate by testing at owner's expense, in accordance with the Department requirements. Testing shall be performed using procedures and calculations, as described in Appendices 5 and 7. No less than 30 days prior to testing, the permittee shall submit a complete test plan to the appropriate AQD District Office. The AQD must approve the final plan prior to testing, including any modifications to the method in the test protocol that are proposed after initial submittal. The permittee must submit a complete report of the test results to the appropriate AQD District Office within 60 days following the last date of the test. **(R 336.1213(3), R 336.2001, R 336.2003, R 336.2004, 40 CFR 62.16714(e)(1), 40 CFR 62.16718(a)(1))**
   a. Upon completion of each Tier test, the permittee must compare the results to the NMOC mass emission rate standard of 34 Mg per year. If the results are equal to or greater than 34 Mg per year, then the permittee may perform the next higher tier test or submit a gas collection and control system design plan within one

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year as specified in 40 CFR 62.16724(d) and install and operate a gas collection and control system within 30 months according to 40 CFR 62.16714(b) and (c). **(40 CFR 62.16718(a)(2), (3) and (4))**

b. Tier 1 or Tier 2 NMOC emission results must be recalculated annually if the NMOC mass emission rate is less than 34 Mg per year. **(40 CFR 62.16718(a)(2) and (3))**

c. Tier 2 testing must be performed at least once every five years when being used to demonstrate the facility NMOC emissions are less than 34 Mg per year. **(40 CFR 62.16718(a)(3))**

d. Tier 3 testing must be performed to determine a site-specific methane generation rate constant. **(40 CFR 62.16718(a)(4))**

e. Tier 4 testing to determine surface methane emissions, as described in Appendix 5, is allowed only if the permittee can demonstrate that NMOC emissions are greater than or equal to 34 Mg per year but less than 50 Mg per year using Tier 1 or Tier 2. If both Tier 1 and Tier 2 indicate NMOC emissions are 50 Mg per year or greater, then Tier 4 cannot be used. **(40 CFR 62.16718(a)(6))**

f. Tier 4 testing is allowed to demonstrate that surface methane emissions are below the standard of 500 ppm. Surface emission monitoring must be conducted on a quarterly basis. **(40 CFR 62.16718(a)(6))**

g. If there is any measured concentration of methane of 500 parts per million or greater from the surface of the landfill, the permittee must submit a gas collection and control system design plan within 1 year of the first measured concentration of methane of 500 parts per million or greater from the surface of the landfill according to 40 CFR 62.16724(d) and install and operate a gas collection and control system according to 40 CFR 62.16714(b) and (c) within 30 months of the most recent NMOC emission rate report in which the NMOC emission rate equals or exceeds 34 Mg per year based on Tier 2. **(40 CFR 62.16718(a)(6)(v))**

2. The permittee may use other methods to determine the NMOC concentration or a site-specific methane generation rate constant as an alternative to the methods required in Tier 2 (40 CFR 62.16718(a)(3)) and Tier 3 (40 CFR 62.16718(a)(4)) if the method has been approved by USEPA prior to submitting a test protocol to AQD. **(40 CFR 62.16718(a)(5))**

See Appendices 5 and 7

VI. MONITORING/RECORDKEEPING

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 62.16724(d)(2), each MSW landfill subject to the provisions of 40 CFR 62.16714(e) must keep for at least 5 years up-to-date, readily accessible, on-site records of the design capacity report that triggered 40 CFR 62.16714(e), the current amount of solid waste in-place, and the year-by-year waste acceptance rate. Off-site records may be maintained if they are retrievable within 4 hours. Either paper copy or electronic formats are acceptable. **(40 CFR 62.16726(a))**

2. The permittee shall calculate the annual NMOC emission rates using methods outlined in Appendix 7. **(40 CFR 62.16718(a)(1))**

3. If the landfill is permanently closed, a closure notification shall be submitted to the AQD District Supervisor within 30 days, except for exemption allowed under 40 CFR 62.16711(g)(4). **(40 CFR 62.16714(e)(1)(ii)(B))**

4. The permittee shall maintain a record of all odor complaints received by the permittee and corrective actions taken to minimize odors, according to the OMP as required by SC III.1. The permittee shall keep records on file at the facility and make them available to the Department upon request. **(R 336.1901, R 336.1213(3))**

See Appendix 7

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 must submit the NMOC emission rate report to the Administrator annually following the procedure specified in 40 CFR 62.16724(j)(2), except as provided for in 40 CFR 62.16724(c)(3). The Administrator may request such additional information as may be necessary to verify the reported NMOC emission rate. **(40 CFR 62.16724(c))**

   a. The NMOC emission rate report must contain an annual or 5-year estimate of the NMOC emission rate calculated using the formula and procedures provided in 40 CFR 62.16718(a) or (b), as applicable. **(40 CFR 62.16724(c)(1))**

   b. The NMOC emission rate report must include all the data, calculations, sample reports and measurements used to estimate the annual or 5-year emissions. **(40 CFR 62.16724(c)(2))**

   c. If the estimated NMOC emission rate as reported in the annual report is less than 34 Mg per year in each of the next 5 consecutive years, the permittee may elect to submit, following the procedure specified in 40 CFR 62.16724(j)(2), an estimate of the NMOC emission rate for the next 5-year period in lieu of the annual report. This estimate must include the current amount of solid waste-in-place and the estimated waste acceptance rate for each year of the 5 years for which an NMOC emission rate is estimated. All data and calculations upon which this estimate is based must be provided. This estimate must be revised at least once every 5 years. If the actual waste acceptance rate exceeds the estimated waste acceptance rate in any year reported in the 5-year estimate, a revised 5-year estimate must be submitted. The revised estimate must cover the 5-year period beginning with the year in which the actual waste acceptance rate exceeded the estimated waste acceptance rate. **(40 CFR 62.16724(c)(3))**

5. The permittee must submit reports electronically according to 40 CFR 62.16724(j)(1) and (2) as follows:

   a. Within 60 days after the date of completing each performance test (as defined in 40 CFR 60.8), the permittee must submit the results of each performance test. For data collected using test methods supported by the USEPA's Electronic Reporting Tool (ERT) as listed on the EPA's ERT website (https://www.epa.gov/electronic-reporting-air-emissions/electronic-reporting-tool-ert) at the time of the test, submit the results of the performance test to the USEPA via the Compliance and Emissions Data Reporting Interface (CEDRI). The CEDRI can be accessed through the EPA's CDX (https://cdx.epa.gov/). Performance test data must be submitted in a file format generated through the use of the EPA's ERT or an alternative file format consistent with the extensible markup language (XML) schema listed on the EPA's ERT website, once the XML schema is available. For data collected using test methods that are not supported by the EPA's ERT as listed on the EPA's ERT website at the time of the test, submit the results of the performance test to the USEPA at the appropriate address listed in 40 CFR 60.4. **(40 CFR 62.16724(j)(1)(i) and (ii))**

   b. Each permittee must submit reports to the USEPA via the CEDRI (CEDRI can be accessed through the EPA's CDX). The permittee must use the appropriate electronic report in CEDRI for this subpart or an alternate electronic file format consistent with the XML schema listed on the CEDRI website (https://www.epa.gov/chief). If the reporting form specific to this subpart is not available in CEDRI at the time that the report is due, the permittee must submit the report to the USEPA at the appropriate address listed in 40 CFR 60.4. Once the form has been available in CEDRI for 90 calendar 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. **(40 CFR 62.16724(j)(2))**

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6. The permittee shall submit any NMOC test reports to the appropriate AQD District Office, in a format approved by the AQD. **(R 336.1213(3)(c), R 336.2001(5))**

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VIII. STACK/VENT RESTRICTION(S)

NA

IX. OTHER REQUIREMENT(S)

1. If the NMOC emission rate is calculated to be equal to or greater than 34 Mg per year, the permittee must install a collection and control system in compliance with 40 CFR 62.16714(b) and (c) or conduct a surface emission monitoring demonstration using the Tier 4 procedures specified in Appendix 5 if Tier 1 or 2 testing demonstrates NMOC emissions less than 50 Mg per year. If the permittee chooses or is required to install a gas collection and control system, they must submit a gas collection and control system design plan within one year as specified in 40 CFR 62.16724(d) and install and operate a gas collection and control system within 30 months according to 40 CFR 62.16714(b) and (c). Additionally, within 90 days of determining NMOC emissions are above 34 Mg per year, the permittee shall apply for a revision of this permit to reflect applicable requirements of 40 CFR Part 62, Subpart OOO. **(R 336.1216(2), 40 CFR 62.16718(a)(4)(i)(A) and (B))**

2. The permittee is exempted from the requirements to submit an NMOC emission rate report, after installing a collection and control system that complies with 40 CFR 62.16714(b) and (c), during such time as the collection and control system is in operation and in compliance with 40 CFR 62.16716 and 40 CFR 62.16720. **(40 CFR 62.16724(c)(4))**

3. The permittee shall comply with all applicable provisions of the Federal Plan requirements for Municipal Solid Waste Landfills as specified in 40 CFR Part 62, Subparts A and OOO. **(40 CFR Part 62, Subparts A and OOO)**

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EUASBESTOS
EMISSION UNIT CONDITIONS

DESCRIPTION

This landfill is actively accepting or has accepted asbestos waste in the past.

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

NA

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTIONS

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 follows, or the requirements of 40 CFR 61.154(c)(1) must be met. **(40 CFR 61.154(b))**
      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. **(40 CFR 61.154(b)(1))**

         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 36 cm (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: **(40 CFR 61.154(c))**

   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 PARAMETERS

1. The placement of gas collection devices determined in paragraph 40 CFR 62.16728(a)(1) shall control all gas producing areas, except as provided by 40 CFR 62.16728(a)(3)(i) and (a)(3)(ii). **(40 CFR 62.16728(a)(3))**

   a. Any segregated area of asbestos or non-degradable material may be excluded from collection if documented as provided under 40 CFR 62.16726(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 AQD upon request. **(40 CFR 62.16728(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 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 non-degradable waste excluded from collection as provided in 40 CFR 62.16728(a)(3)(i) as well as any nonproductive areas excluded from collection as provided in 40 CFR 62.16728(a)(3)(ii). **(40 CFR 62.16726(d)(2))**

4. The permittee shall keep records of one the following regarding any active disposal site where asbestos containing materials have been deposited: **(R 336.1213(3))**

   a. USEPA Test 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 of this table.

   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 of this table.

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 Supervisor, upon closure of the facility, a copy of records of asbestos waste disposal locations and quantities. **(40 CFR 61.154(h))**

5. The permittee shall furnish upon request and make available during normal business hours for inspection by the AQD, all records required by 40 CFR Part 61. **(40 CFR 61.154(i))**

6. 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. **(40 CFR 61.154(j))**

   Include the following information in the notice:

   a. Scheduled starting and completion dates. **(40 CFR 61.154(j)(1))**

   b. Reason for disturbing the waste. **(40 CFR 61.154(j)(2))**

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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))**

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

NA

IX. OTHER REQUIREMENT(S)

NA

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D. FLEXIBLE GROUP SPECIAL CONDITIONS

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

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

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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).

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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_2e	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
		HAP	Hazardous Air Pollutant
EGLE	Michigan Department of Environment, Great Lakes, and Energy	Hg	Mercury
		hr	Hour
EU	Emission Unit	HP	Horsepower
FG	Flexible Group	H_2S	Hydrogen Sulfide
GACS	Gallons of Applied Coating Solids	kW	Kilowatt
GC	General Condition	lb	Pound
GHGs	Greenhouse Gases	m	Meter
HVLP	High Volume Low Pressure*	mg	Milligram
ID	Identification	mm	Millimeter
IRSL	Initial Risk Screening Level	MM	Million
ITSL	Initial Threshold Screening Level	MW	Megawatts
LAER	Lowest Achievable Emission Rate	NMOC	Non-methane Organic Compounds
MACT	Maximum Achievable Control Technology	NO_x	Oxides of Nitrogen
MAERS	Michigan Air Emissions Reporting System	ng	Nanogram
MAP	Malfunction Abatement Plan	PM	Particulate Matter
MSDS	Material Safety Data Sheet	PM10	Particulate Matter equal to or less than 10 microns in diameter
NA	Not Applicable		
NAAQS	National Ambient Air Quality Standards	PM2.5	Particulate Matter equal to or less than 2.5 microns in diameter
NESHAP	National Emission Standard for Hazardous Air Pollutants	pph	Pounds per hour
		ppm	Parts per million
NSPS	New Source Performance Standards	ppmv	Parts per million by volume
NSR	New Source Review	ppmw	Parts per million by weight
PS	Performance Specification	%	Percent
PSD	Prevention of Significant Deterioration	psia	Pounds per square inch absolute
PTE	Permanent Total Enclosure	psig	Pounds per square inch gauge
PTI	Permit to Install	scf	Standard cubic feet
RACT	Reasonable Available Control Technology	sec	Seconds
ROP	Renewable Operating Permit	SO_2	Sulfur Dioxide
SC	Special Condition	TAC	Toxic Air Contaminant
SCR	Selective Catalytic Reduction	Temp	Temperature
SDS	Safety Data Sheet	THC	Total Hydrocarbons
SNCR	Selective Non-Catalytic Reduction	tpy	Tons per year
SRN	State Registration Number	µg	Microgram
TEQ	Toxicity Equivalence Quotient	µm	Micrometer or Micron
USEPA/EPA	United States Environmental Protection Agency	VOC	Volatile Organic Compounds
		yr	Year
VE	Visible Emissions		

*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 shall continue to comply with all terms and conditions of this ROP. A Schedule of Compliance is not required. **(R 336.1213(4)(a), R 336.1119(a)(ii))**

Appendix 3. 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

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

Tier 2

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

The permittee must collect and analyze one sample of landfill gas from each probe to determine the NMOC concentration using 40 CFR Part 60, Appendix A-7, Methods 25 or 25C. Taking composite samples from different probes into a single cylinder is allowed; however, equal sample volumes must be taken from each probe. For each composite, the sampling rate, collection times, beginning and ending cylinder vacuums, or alternative volume measurements must be recorded to verify that composite volumes are equal. Composite sample volumes should not be less than one liter unless evidence can be provided to substantiate the accuracy of smaller volumes. Terminate compositing before the cylinder approaches ambient pressure where measurement accuracy diminishes. If more than the required number of samples is taken, all samples must be used in the analysis. The permittee must divide the NMOC concentration from 40 CFR Part 60, Appendix A-7, Method 25 or 25C by six (6) to convert from C_{NMOC} as carbon to C_{NMOC} as hexane. If the landfill has an active or passive gas removal system in place, Method 25 or 25C samples may be collected from these systems instead of surface probes provided the removal system can be shown to provide sampling as representative as the two-sampling probes per hectare requirement. For active collection systems, samples may be collected from the common header pipe. The sample location on the common header pipe must be before any gas moving, condensate removal, or treatment system equipment. For active collection systems, a minimum of three (3) samples must be collected from the header pipe. **(40 CFR 62.16718(a)(3))**

Tier 3

The site-specific methane generation rate constant must be determined using the procedures provided in 40 CFR Part 60, Appendix A-1, Method 2E. The permittee must estimate the NMOC mass emission rate using **Equation 1** (40 CFR 62.16718(a)(1)(i)) or **Equation 2** (40 CFR 62.16718(a)(1)(ii)) and using a site-specific methane generation rate constant (k), and the site-specific NMOC concentration as determined in 40 CFR 62.16718(a)(3) instead of the default values provided in 40 CFR 62.16718(a)(1). The permittee must compare the resulting NMOC mass emission rate to the standard of 34 Mg per year. **(40 CFR 62.16718(a)(4))**

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Tier 4

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

The permittee must measure surface concentrations of methane along the entire perimeter of the landfill and along a pattern that traverses the landfill at no more than 30-meter intervals using an organic vapor analyzer, flame ionization detector, or other portable monitor meeting the specifications provided in 40 CFR 62.16720(d). The background concentration must be determined by moving the probe inlet upwind and downwind at least 30 meters from the waste mass boundary of the landfill.

Surface emission monitoring (SEM) must be performed in accordance with 40 CFR Part 60, Appendix A-7, Section 8.3.1 of Method 21 except that the probe inlet must be placed no more than 5 centimeters above the landfill surface; the constant measurement of distance above the surface should be based on a mechanical device such as with a wheel on a pole. The permittee must use a wind barrier, similar to a funnel, when onsite average wind speed exceeds 4 miles per hour or 2 meters per second or gust exceeding 10 miles per hour. Average on-site wind speed must also be determined in an open area at 5-minute intervals using an on-site anemometer with a continuous recorder and data logger for the entire duration of the monitoring event. The wind barrier must surround the SEM monitor, and must be placed on the ground, to ensure wind turbulence is blocked. SEM cannot be conducted if average wind speed exceeds 25 miles per hour.

Landfill surface areas where visual observations indicate elevated concentrations of landfill gas, such as distressed vegetation and cracks or seeps in the cover, and all cover penetrations must also be monitored using a device meeting the specifications provided in 40 CFR 62.16720(d).

Each permittee seeking to comply with the Tier 4 provisions must maintain records of surface emission monitoring as provided in 40 CFR 62.16726(g) and submit a Tier 4 surface emissions report as provided in 40 CFR 62.16724(d)(4)(iii).

If a landfill has installed and operates a collection and control system that is not required by this subpart, then the collection and control system must meet the following criteria: **(40 CFR 62.16718(a)(6)(viii))**

(A) The gas collection and control system must have operated for at least 6,570 out of 8,760 hours preceding the Tier 4 surface emissions monitoring demonstration.

(B) During the Tier 4 surface emissions monitoring demonstration, the gas collection and control system must operate as it normally would to collect and control as much landfill gas as possible.

Appendix 6. 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-N5619-2014. 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-N5619-2014 is being reissued as Source-Wide PTI No. MI-PTI-N5619-2020b.

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

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Appendix 7. 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 EULANDFILL<34.

Default Values

The permittee must calculate the NMOC emission rate using either **Equation 1** (the equation provided in 40 CFR 62.16718(a)(1)(i)) or **Equation 2** (the equation provided in 40 CFR 62.16718(a)(1)(ii)(A)). Both equations may be used if the actual year-to-year solid waste acceptance rate is known, as specified in **Equation 1** (40 CFR 62.16718(a)(1)(i)(A)), for part of the life of the landfill and the actual year-to-year solid waste acceptance rate is unknown, as specified in **Equation 2** (the equation provided in 40 CFR 62.16718(a)(1)(ii)(A)), for part of the life of the landfill. The values to be used in both equations are 0.05 per year for k, 170 cubic meters per megagram for L_o, and 4,000 parts per million by volume as hexane for the C_{NMOC}. For landfills located in geographical areas with a thirty-year annual average precipitation of less than 25 inches, as measured at the nearest representative official meteorologic site, the k value to be used is 0.02 per year. **(40 CFR 62.16718(a)(1))**

Equation 1

The following equation must be used if the actual year-to-year solid waste acceptance rate is known.
(40 CFR 62.16718(a)(1)(i)(A))

$$M_{NMOC} = \sum_{i=1}^{n} 2\,kL_o M_i \left(e^{-kt_i}\right)(C_{NMOC})(3.6\,x\,10^{-9})$$

Where:

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

k = methane generation rate constant, year^{-1}

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

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

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

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

3.6×10^{-9} = conversion factor

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

Equation 2

The following equation shall be used if the actual year-to-year solid waste acceptance rate is unknown. **(40 CFR 62.16718(a)(1)(ii)(A))**

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

Where:

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

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

R = average annual acceptance rate, megagrams per year

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k = methane generation rate constant, $year^{-1}$

t = age of landfill, years

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

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

3.6×10^{-9} = conversion factor

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

Tier 1

The permittee must calculate NMOC mass emission rate utilizing Equation 1 or 2 in **Appendix 7**, as applicable, and compare it to the standard of 34 Mg per year. **(40 CFR 62.16718(a)(2))**

Tier 2

The permittee must recalculate the NMOC mass emission rate using **Equation 1** or **Equation 2** in **Appendix 7** and using the average site-specific NMOC concentration from the collected samples (**Tier 2** testing in **Appendix 5**) instead of the default value in the equation provided in 40 CFR 62.16718(a)(1). **(40 CFR 62.16718(a)(3)(ii))**

If the resulting **Tier 2** NMOC mass emission rate is less than 34 Mg per year, the permittee must submit a periodic estimate of NMOC emissions in an NMOC emission rate report as provided in 40 CFR 62.16724(c) and must recalculate the NMOC mass emission rate annually as required under 40 CFR 62.16714(e). The site-specific NMOC concentration must be retested every 5 years. **(40 CFR 62.16718(a)(3)(iii))**

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

1. Comply with 40 CFR 62.16724(d) (submit a gas collection and control system design plan prepared by a professional engineer within 1 year), **(40 CFR 62.16718(a)(3)(iv)(A)**, or

2. Determine the site-specific methane generation rate constant and recalculate the NMOC emission rate using the site-specific methane generation rate using the procedure specified in **Tier 3** (40 CFR 62.16718(a)(4)), **(40 CFR 62.16718(a)(3)(iv)(B))**, or

3. Conduct a surface emission monitoring demonstration using the Tier 4 procedures specified in 40 CFR 62.16718(a)(6). **(40 CFR 62.16718(a)(3)(iv)(C))**

Tier 3

If the NMOC mass emission rate as calculated using the Tier 2 site-specific NMOC concentration and Tier 3 site-specific methane generation rate is equal to or greater than 34 Mg per year, the permittee must either comply with 40 CFR 62.16724(d) (submit a collection and control system design plan prepared by a professional engineer within 1 year) or conduct a surface emission monitoring demonstration using the Tier 4 procedures specified in Appendix 5 and 40 CFR 62.16718(a)(6). **(40 CFR 62.16718(a)(4)(i)(A))**

If the NMOC mass emission rate is less than 34 Mg per year, then the permittee must recalculate the NMOC mass emission rate annually, as provided in 40 CFR 62.16718(a)(1) using **Equation 1** or **Equation 2**, and using the site-specific Tier 2 NMOC concentration and Tier 3 methane generation rate constant and submit a periodic NMOC emission rate report as provided in 40 CFR 62.16724(c). The calculation of the methane generation rate constant (**Tier 3**) is performed only once, and the value obtained from this test must be used in all subsequent annual NMOC emission rate calculations. **(40 CFR 62.16718(a)(4)(ii))**

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Calculating expected gas generation flow rates from the landfill

For the purposes of calculating the maximum expected gas generation flow rate from the landfill to determine compliance with 40 CFR 62.16714(b)(2)(i), either **Equation 5** or **Equation 6**, below, must be used. The methane generation rate constant (k) and methane generation potential (L_o) kinetic factors should be those published in the most recent AP-42 or other site-specific values demonstrated to be appropriate and approved by the Administrator. If k has been determined as specified in 40 CFR 62.16718(a)(4), the value of k determined from the test must be used. A value of no more than 15 years must be used for the intended use period of the gas mover equipment. The active life of the landfill is the age of the landfill plus the estimated number of years until closure. **(40 CFR 62.16720(a)(1))**

If a collection and control system has been installed, actual flow data may be used to project the maximum expected gas generation flow rate instead of, or in conjunction with, **Equation 5** or **Equation 6, below**. If the landfill is still accepting waste, the actual measured flow data will not equal the maximum expected gas generation rate, so calculations using **Equation 5** or **Equation 6, below,** or other methods must be used to predict the maximum expected gas generation rate over the intended period of use of the gas control system equipment. **(40 CFR 62.16720(a)(1)(iii))**

Equation 5

$$Q_m = 2L_oR(e^{-kc} - e^{-kt}) \quad \text{(Eq. 5)}$$

Where:

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

L_o = Methane generation potential, cubic meters per megagram solid waste.

R = Average annual acceptance rate, megagrams per year.

k = Methane generation rate constant, year−1.

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

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

Equation 6

$$Q_M = \sum_{i=1}^{n} 2kL_oM_i(e^{-kt_i}) \quad \text{(Eq. 6)}$$

Where:

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

k = Methane generation rate constant, year−1.

L_o = Methane generation potential, cubic meters per megagram solid waste.

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

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

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Appendix 8. 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.

Odor Management Plan

For

Pitsch Sanitary Landfill

7905 Johnson Road

Belding, MI 4880

Prepared by:

RdL Engineering LLC

7350 Leyton Dr. SE

Grand Rapids, MI

August 2022

Rev 1

1.0 INTRODUCTION

The Pitsch Recycling and Disposal, Inc., DBA: Pitsch Sanitary Landfill (PSL) is a licensed solid waste disposal facility located at 7905 Johnson Rd, Belding, Michigan. PSL is a Type II sanitary landfill licensed under the provisions of the Natural Resources and Environmental Protection Act, Public Act 451 of 1994 (PA 451), Part 115, Solid Waste Management, as amended (the Act). The PSL receives mostly demolition debris in addition to non-hazardous solid waste from residential, commercial, and industrial sources.

The Michigan Environment, Great Lakes and Energy (EGLE) Air Quality Division (AQD) has requested that PSL to develop and submit an Odor Management Plan.

This plan presents various procedures and protocols for detecting, preventing, and correcting odor events. Attachments are also included with targeted checklists for evaluating odor potential. In addition, various schedules for implementation have been included. It is the intent of this plan that the observation for potential off-site odor is an integral part of landfill operations. If a particular odor inspection is being conducted on a particular day during a weekly frequency, that does not mean that odor observation and minimization will not be undertaken the other 6 days in any given week.

This Plan has been prepared to provide guidance for procedures developed to enhance odor prevention, detection, and correction, as well as, public relations regarding odors from the PSL. More specifically, this Plan provides detailed information and descriptions of the following items regarding off-site odor from the PSL:

1. Identification of the major sources potentially contributing to off-site odor;
2. Operational responsibilities related to the prevention, detection, and correction of off-site odor;
3. Monitoring procedures for conditions causing off-site odor;
4. Response to an off-site odor event;
5. Employee Training
6. Record Keeping;
7. Community/Complaint response action.

"Nuisance" is defined in R 299.4104 (h) of the Part 115 Rules, as conditions that unreasonably interfere with the enjoyment of life and property, such as noise, blowing debris, odors, vectors, or pest animals. R 336.1901 of Part 55 prohibits the emission of an air contaminant in quantities that cause unreasonable interference with comfortable enjoyment of life and property. For purposes of this Plan, reference to off-site odor shall be considered an odor which has the potential to cause a nuisance condition.

The Supervisory personnel responsible overseeing this Plan is the Site Supervisor.

Citizen complaints and request for information about odor issues can be obtained by contacting the Landfill Supervisor at (616) 794-3050.

2.0 ODOR SOURCE IDENTIFICATION

A description of the materials and sources which have a potential to contribute to off-site odor is below:

- Incoming waste- the waste stream at the PSL mostly includes Demolition debris, MSW, and other non-hazardous waste. Off-site odor due to incoming waste is higher as the incoming loads are dumped on the active face that is covered daily.
- Landfill Waste – If additional waste is to be placed in an area that has not received waste in more than 30 days, landfill operators will scrap the daily/intermediate cover. If in place waste is exposed it has a potential to generate off site odor.
- Landfill Gas- Landfill gas has the potential to contribute to offsite odor. Insufficient daily/interim cover could lead to gas emissions. Gas emissions may also arise from the leachate collection system.
- Waste container and vehicle parking areas- The waste container drop off area and waste container storage area may also contribute to offsite odor.

3.0 OPERATIONS

Landfill operations

Operations at the PSL are conducted in an effort to minimize potential for offsite odor. The “Odor inspection checklist”, included is designated prevent possible odor emissions from occurring. The prevention detection and correction of offsite odors due to landfill operations shall be the responsibility of the Site Supervisor and operators.

- The operators will be responsible for observation of and advance preparation for any waste that has the potential to contribute to offsite odor upon disposal at the landfill active face. Preparation may include pre-dug pits, immediate burial of potential odor causing material, and placing daily cover. The scale house operator will advise the operators at the working face of the delivery of possible odor causing material.
- If site conditions such as wind, type of waste received and proximity to the property line are contributing to offsite odor, operators shall alter the size and configuration of the working face to reduce such potential.
- Daily and intermediate cover shall be placed in conformance with R 299.4429 of the part 115 Rules, to reduce the potential for offsite odors from areas that will not receive additional waste for 90 days.

Landfill gas collection.

PSL is not required to maintain the passive landfill collection system. However already installed gas wells located near the working face will be maintained to assist in the prevention of offsite odors.

Residential waste drop off area

The area designated for residential/citizen drop off area will be maintained as necessary to prevent the potential for offsite odor. This will involve emptying containers as necessary, keeping area clean and monitoring wastes that are placed in drop off containers. The containers will be emptied every night as necessary.

4.0 ODOR MONITORING

The first step in the process of controlling odors is to determine if the odors are present and being generated onsite.

- Odors are identified by PSL personnel, through self-inspection and/or on the job observations;
- Odors identified by non PSL personnel. This could be drivers or citizens in drop off area;
- Through odor complaints to the Site Supervisor.

Odors Identified through Self-inspection

The primary objective of the Plan is to identify and mitigate odors from the landfill before the odors can have an impact on the surrounding community. This can be accomplished through self-inspections. Onsite personnel will continuously monitor the odor onsite and at the working face during working hours. If excessive odor is observed PSL personnel shall notify the Site Supervisor.

Self-inspections will be performed on a weekly basis by the Site Supervisor or his designated representative. Self-inspections consists of the individual touring the facility specifically to identify odors. Weather conditions will be considered when planning odor observations (early morning, low winds, etc.). The results will be documented on the forms provided. Any odors identified through self-inspection will be mitigated in accordance with the guidance provided in this Plan. An odor crossing property lines is the criteria for mitigation.

If PSL has received more complaints, regarding offsite odor, on two occasions in any 10-day period or notified by EGLE or Township officials. Monitoring of offsite odor shall be conducted daily when the facility is collecting waste. Daily self-inspections will continue until the potential problem is corrected and no complaints have been received for 30 days. After this time the facility shall suspend daily odor monitoring and resume weekly monitoring schedule.

Odors identified by non PSL individuals

Odor complaints brought to the attention of the Site Supervisor, or other PSL personnel, must be properly investigated. Upon receipt of an odor complaint, the following steps will be taken:

- The complaint will be investigated by the Site Supervisor or his designated representative
- If the complaint is made verbally (i.e. driver or onsite citizen) and the odor is ongoing, the complaint will be investigated as soon as possible. The investigation should include interviewing the complainant, completing the appropriate form, and a visit to the site of the alleged odor. During the visit to the location where the alleged odor was noted the PSL employee will try to verify the odor exists.
- If some time has elapsed since the occurrence of the odor, the complaint still must be investigated. The investigation must include a visit to the location, interviewing the complainant, if possible, and completing the appropriate form.

Monitoring for offsite odor shall be conducted by the Site Supervisor who can recognize the odors and identify the potential source. If an odor is detected which is likely contributing to the offsite odors, the following additional monitoring shall be conducted as necessary based on the type of odor:

- Leachate collection system risers, pump stations, manholes and vents shall be checked for leaks and spills;
- Active landfill working face will be continually monitored during operating hours for conditions that have potential to contribute to offsite odors including odorous incoming waste and odorous waste in place;
- Daily and interim cover shall be inspected in accordance with current regulations and PSL procedures. However, if the detection of offsite odor warrants, landfill personnel will monitor daily and interim cover for leachate breakout, erosion rills, settlement, adequate vegetation, stressed vegetation, depth and cover.
- Landfill personnel will monitor the waste containers located at the throw off area and the container storage area for presence of residual waste in containers.

Personnel conducting the odor monitoring shall complete the Odor Survey Form, which includes the name of the inspector, time and date of the inspection, description of the odor observed, location of odor onsite (if possible), odor inspection check list, and corrective action taken. All forms will be filed onsite.

5.0 RESPONSE TO DETECTION/ NOTIFICATION OF OFFSITE ODOR

If the facility detects or is notified of an offsite from the landfill, the following procedures will be implemented by landfill personnel:

- To the extent possible, identify the odor type as landfill gas, decomposing waste, leachate, or odor due to incoming waste stream.
- Determine the odor source using the following:
  1. Using available weather data determine the wind direction at the time of the odor was identified.
  2. Using the plan view of the landfill draw a line in the direction of the wind and intersecting the location where the odor was identified.
  3. If the facility is in an upwind position compared to the location where the odor was identified, then determine the facility features and activities along the vector.
  4. Compare the identified odor to any odors generated along the wind vector in an upwind position and determine the source of the odor.
- Perform the following mitigation measures based on the source of the odor:

  If the odor originates from an incoming waste stream, one or more of the following will be selected to mitigate the odor:
  - Require that the waste stream generator treat the waste stream to eliminate the odors prior to delivery to the landfill
  - Change the disposal location of the waste onsite (move further upwind, behind a wind break, or other spatial mitigation method).
  - Immediately Cover objectionable waste upon delivery to the working face
  - Restrict the times when an objectionable waste stream can be delivered to the site
  - Stop taking the waste
  - Use odor masking or neutralizing agents

  If the odor originates from the decomposing waste in general, one or more of the following methods will be selected to mitigate the odor:
  - Place additional cover soil on material
  - Repair cracking and erosion in daily and interim cover
  - Stop reintroducing leachate to the landfill

6.0 TRAINING

Operators and employees will be trained annually on the contents of this Plan. Employees will be trained to recognize conditions at the working face which could contribute to offsite odor as discussed. Employees will be trained to respond accordingly to objectionable waste being disposed of at the working face. One or more of the PSL employees will be trained to conduct odor monitoring. The training to conduct odor monitoring shall include discussion about recognizing odor types, determining the source of the odor, completing an odor monitoring survey, and responding accordingly as discussed in this Plan. A memo which includes the

topics covered and the employees present at the training will be completed by the person responsible for the training, and a copy will be maintained in the site operating record.

7.0 RECORD KEEPING

As discussed following EGLE approval of this Plan, odor survey forms will be completed weekly and maintained in the site operating record. If PSL receives a complaint regarding an offsite odor, monitoring for offsite odor shall be conducted daily until the problem is corrected and there have been no complaints for 30 days. If this is the case daily odor surveys will be completed and maintained in the operating record. Daily and interim cover inspection will be completed daily.

Odor survey forms and complaint investigations will be maintained in the operating record for 1 calendar year.

8.0 PUBLIC RELATIONS

All odor complaints brought to the attention of the Site Supervisor by individuals other than PSL employees must be investigated and documented. The PSL has an open door policy in regard to odor complaints. A site employee will be available to interview odor complainants during operating hours and complainants can leave a message regarding odors with the scale house operator or the voice mail for the site.

Pitsch Sanitary Landfill

Odor Survey Form

Date: _____

Time of inspection: _____

Name of inspector: _____

Weather conditions:

Temperature: _____

Wind Direction: _____

Approximate wind speed: _____

Approximate Humidity: _____

Were there any odor detections at the landfill property lines: Yes__ No ___

If yes Please describe:

Location: _____

Odor description: _____

Possible source: _____

Were there any odors detected at or near the working face: Yes: ___ No: _

If yes describe: _____

_____

Targeted Odor inspection Check List

Location	Objectionable noted	Description of corrective action
North, South, East, West, Property line	Yes No	
Working Face	Yes No	
Leachate collection system (Manhole, pump station)	Yes No	
Leachate load out	Yes No	
Throw off containers	Yes No	
Container Storage	Yes No	
Daily cover	Yes No	
Interim cover	Yes No	
Erosion areas	Yes No	

Complainant Investigation/ Interview

Interviewer Name: _____ Inspection/interview date: _____

Complaint Date and Time: _____ Inspection/ interview: Time:_____

Complainant Name and
Address:_____

_____

Location of Complaint: _____

Weather conditions: _____

Wind direction and approximate speed at time of complaint:

_____

What time was odor observed: _____

Describe the Characteristics of the odor: What did smell like? How strong?

_____

In what way did the odor disturb or annoy you? _____

_____

Do you know anyone else disturbed by the odor? How do you know?

_____

Besides making a complaint did you take any action in response to the odor? (for example: Shut windows, stay indoors, cancel outdoor activities)

_____

Do you detect the odor now? _____

How often do you detect the odor? _____

How long does the odor incident last? _____

Is the odor always basically the same or does it differ in intensity_____

Verified complaint: _____ Unverified Complaint _____

Did Complainant request feedback? _____

Was feedback given, what date provided: _____

SCS ENGINEERS







Summary Report
New Source Performance Standards Tier 2 Sampling, Analysis, and Landfill NMOC Emission Estimates

Presented to:

Pitsch Recycling & Disposal, Inc.

7905 Johnson Road
Belding, MI 48809

Presented by:

SCS ENGINEERS
2060 Reading Road, Suite 200
Cincinnati, Ohio 45202

June 18, 2021
File No. 27221154.00

INTRODUCTION

Pitsch Sanitary Landfill (PSL) Sanitary Landfill (PSL) is located in Belding, Michigan. SCS Engineers conducted landfill gas sampling for a Tier 2 May 4 and 5, 2021.

The U.S. Environmental Protection Agency (EPA) first promulgated the New Source Performance Standards for Municipal Solid Waste Landfills (NSPS Subpart WWW) in the Federal Register on March 12, 1996. The purpose of an NSPS Tier 2 investigation is to obtain a site-specific non-methane organic compound (NMOC) concentration for use in recalculating the site's NMOC emission rate. Tier 2 results more accurately reflect NMOC emissions than Tier 1 results. We understand PSL will be subject to the new 40 CFR Part 62 Subpart OOO regulations starting June 21, 2021 provided Michigan does not have an approved State Plan under 40 CFR 60 Subpart Cf.

With a lower value of the NMOC concentration, an exceedance of the 34 Mg per year threshold may occur years later than when using the default value, or may never occur for a given landfill. Therefore, landfills in which Tier 1 results exceed the NSPS Subpart OOO NMOC 34 Mg per year emission threshold may perform testing to determine the site-specific NMOC value in a procedure commonly known as "Tier 2 testing."

SCS conducted Tier 2 testing of the landfill gas in accordance with the requirements of the NSPS Subpart OOO regulation that permits a site-specific NMOC concentration to be used for determining if the NMOC estimated emissions are greater than 34 Mg per year. This submittal reports the results of the most recent Tier 2 testing that was conducted in May 2021. As shown in this report, the site is not currently expected to exceed the 34 Mg per year threshold of Subpart OOO during the next five calendar years that includes the period of 2021 through 2025.

The NSPS regulations state that the Tier 2 site-specific NMOC concentration is valid for a period of five years, or until such time as the NMOC emissions are estimated to be greater than or equal to 34 Mg per year.

The NSPS regulations require at least two samples be collected per hectare (2.47 acres) of landfill surface that has retained waste for at least two years, up to a maximum of 50 samples. The Landfill has approximately 48 acres of waste older than 2 years and did not have an active gas collection system at the time the samples were collected.

This summary report presents the Tier 2 sampling, analysis, and landfill non-methane organic compound (NMOC) emission estimate activities for PSL. The following elements are summarized below:

- Field Sampling Activities.
- Laboratory Analysis Results.
- Tier 2 NMOC Estimates.
- Recommendations.

FIELD SAMPLING ACTIVITIES

Field sampling activities were conducted at the PSL on May 4 and 5, 2021. Present at PSL was SCS field crew to operate a geo-probe and obtain gas samples.

NSPS Tier 2 testing was performed on waste at the facility older than 2 years. The total footprint of waste over 2 years old at the site is approximately 48 acres in size. A total of 24 samples were obtained based on the availability of landfill gas in the planned sample locations to meet the Method 25C requirements. Samples were obtained over the surface of the landfill and were obtained from geoprobe samples and passive vents. Site map showing the sampling locations are provided in Attachment 1. The samples were composited into the sample canisters as shown in Attachment 2.

The geoprobe samples were taken at depths greater than 1 meter below the landfill surface in the areas where a geoprobe was used.

The 24 landfill gas samples were combined into 6 summa canisters (up to five samples per canister) per the modified Method 25C as previously approved by the USEPA for Tier 2 sampling. The summa canisters were not pre-spiked at the lab with helium. The summa canisters were shipped by SCS to the AtmAA, Inc. Laboratory located in Calabasas, California, for subsequent analysis under EPA Method 25C and Method 3C.

The landfill has a total of 18 passive gas vents. On May 4, 2021 the gas from each vent was measured in the field with a GEM 2000. Vents producing sufficient quality and quantities of landfill gas to collect samples totaled one on May 4, 2021. The other gas vents had gas with less than five percent methane content and nitrogen or oxygen contents above the limits set by the testing protocol when field measured using a GEM 2000. Since the PSL has a significant quantity of construction and demolition (C&D) debris, portions were closed in 1987, and prior gas analyses demonstrated low gas generation in some areas of the waste fill, it is not unexpected that some areas of the landfill generate little to no gas in 2021. (Note: In 2015, after discussions with Ms. Bush, US EPA Region 5, Ron Landis (representing Pitsch Landfill) and Dan Brennan, SCS Engineers, it was determined that any gas vent that was not able to meet the nitrogen or oxygen criteria required by the testing method and approved protocol need not be sampled in the future. The nitrogen and oxygen measurements obtained in the field were used for the in-field assessment.)

The gas vents valves were closed in preparation a May 5, 2021 vent re-sampling event. Based on the May 5, 2021 field measurements, the temporary closure of valves the gas quality in 8 vents qualified for sampling. All passive vent valves were opened after gas quality was measured or samples were obtained.

Landfill gas samples were obtained from 16 geoprobe locations and 8 samples from gas vents for a total of 24 sampling locations. Attachment 1 shows the locations of vents and geoprobes

that had gas with insufficient quality to sample. See Attachment 6 for field forms that contains field data on gas samples obtained.

40 C.F.R. § 60.754(a)(3) and 40 CFR§ 62.16718(a)(3) specifies testing be performed on waste older than 2 years, which was approximately 48 acres of solid waste placement. Based on the two samples per hectare criteria, a total of 38 samples were planned. Although the number of samples obtained was less than 38, the samples obtained are representative of the quality of the generated gas. If gas samples from the gas vents with insufficient quality were obtained, the average NMOC ppmv value, as presented in this report, would be lower. The NMOC value of 34.0 that is based on the 24 samples is a high side estimate of the ppmv value.

LABORATORY ANALYSIS RESULTS

All laboratory analyses were performed by AtmAA, Inc. The measured NMOC concentrations from the sample canisters were used in the calculation of the average NMOC concentration for the waste disposal area. The overall average NMOC concentration for the site was calculated to be 34.0 parts per million by volume (ppmv), as hexane as shown in Attachment 2. The site-specific NMOC concentration was used in estimating the total NMOC emissions from the landfill. A copy of the laboratory analysis results, and laboratory quality control data, are provided in Attachment 3.

TIER 2 NMOC EMISSION ESTIMATES

Using the site-specific NMOC concentration described above, the Tier 2 NMOC emission calculations for the PSI were performed. The NMOC emissions for the next five years are shown in Attachment 4. The total NMOC emissions for the site are estimated to be 3.19 Mg per year, as hexane, by year 2025.

NMOC emission estimates were performed using the EPA Landfill Gas Emissions Model (LandGEM). Model input parameters, which affect the results, include:

- Estimated annual waste disposal quantities.
- Potential methane generation capacity (L_o).
- Methane generation decay rate constant (k).
- NMOC concentration.

Historical annual waste disposal quantities along with future estimates of waste disposal rates have been included in Attachment 5. Waste receipt information was received from PSL personnel. A copy of the LandGEM output reports are provided in Attachment 5.

A L_o value of 170 m^3/Mg was used for the methane generation capacity. This represents the default New Source Performance Standards (NSPS) value for the Model.

A k value of 0.05 yr^{-1} was used for the methane generation decay rate. This also represents a default NSPS value for the Model.

The site-specific average NMOC concentration of 34.0 ppmv, as hexane, was used in lieu of the US EPA default value of 4,000 ppmv, as hexane gas generation model.

RECOMMENDATIONS

The gas modeling results referenced above indicate that for the five-year period covered by this summary report, the 34 megagrams NMOC threshold imposed by the NSPS will not be exceeded at PSL through year 2025. The estimated emissions can change if the annual waste received is different from the projected waste quantities. The Tier 2 NMOC emission values derived from this project are only valid for up to five years. A new Tier 2 test will need to be conducted after the five-year period expires to determine updated NMOC concentration and emission values for PSL. The Tier 2 model should be updated every year to reflect actual waste receipts if actual waste receipts exceed the values estimated in this report.

CLOSING

This report was prepared exclusively for the PSL. If you have any questions or comments, please contact undersigned at (513) 421-5353.

Sincerely,

Anthony J. DiPuccio, PE
Project Director
SCS ENGINEERS

Gary L. Saylor
Senior Project Manager
SCS ENGINEERS

Attachments:

1. Landfill Gas Sampling Locations
2. Summary of Laboratory Results
3. Laboratory Analysis Results and Quality Control Data
4. Estimated NMOC Emissions for the Next Five Years
5. LandGEM Model Report
6. Field Sampling Forms

ATTACHMENT 1

LANDFILL GAS SAMPLING LOCATIONS

KIDDVILLE ROAD

EXISTING GRAVEL ROAD

HAUL ROAD

CONCRETE

STORM WATER RETENTION POND

METALS RECOVERY

SMALL VEHICLE UNLOADING

DUMPSTERS

15,000 GAL DIESEL TANK

VEHICLE PARKING

SCALE

LANDFILL ENTRANCE

OFFICE

GRAVEL ACCESS ROAD

AREA 1
7.70 ACRES
NO GEO-LINER

AREA 2
22.50 ACRES
GEO-LINER PRESENT

AREA 3
9.00 ACRES

AREA 4
9.20 ACRES

TYPE II - CLOSED

TYPE III - CLOSED

SERVICE BUILDING Fueling Area

TREATMENT BUILDING

SITE BOUNDARY

GW-31 GW-11 GW-10 GW-27 GW-22 GW-24 GW-23 GW-25 GW-6 GW-5 GW-7 GW-3 GW-9 GW-8 GW-9B GW-2 GW-1 GW-187

#1 #2 #3 #4 #5 #6 #7 #8 #9 #10 #11 #12 #13 #14 #15 #16

#1F #2F #3F #4F #5F #6F #7F #8F #9F #10F

30+00 W 28+00 W 26+00 W 24+00 W 22+00 W 18+00 W 16+00 W 14+00 W 12+00 W 10+00 W 8+00 W 6+00 W 2+00 W 2+00 W 0+00

2+00 S 4+00 S 6+00 S 8+00 S 10+00 S 10+00 S

LEGEND:

GW-1 GAS VENT SAMPLING LOCATIONS

GW-1 FAILED GAS VENT SAMPLING LOCATIONS

#1 GEOPROBE SAMPLING LOCATIONS

#1F FAILED GEOPROBE SAMPLING LOCATIONS

200 0 100 200 400 600

SCALE: 1"=200'

SCS ENGINEERS
CONSULTING ENGINEERS, INC.
2060 READING ROAD SUITE 200 CINCINNATI, OHIO 45202
PH. (513) 421-5353 FAX NO. (513) 421-2847

PROJ. NO.	CADD FILE:	DATE:	SCALE:
27221154.00	SAMPLING MAP	MAY 2021	AS SHOWN

ATTACHMENT 1

2021 SAMPLING LOCATION MAP

PITSCH SANITARY LANDFILL
7905 JOHNSON ROAD
BELDING, MICHIGAN 48809

S:\PROJECT\2012 Projects\23212020.03 Pitsch 2016 LFG est\Data and Calculations\Sample Locations\JULY 2016 SAMPLING MAP.dwg May 24, 2016 - 4:08pm

ATTACHMENT 2

SUMMARY OF LABORATORY RESULTS

Pitsch Sanitary Landfill
Summary of Laboratory Analysis Results
May 2021

Composite Sample Canister Number Lab Number	Sample Number	Total Gaseous Non-Methane Organics, (ppmv)C	Non-Methane Organic Compounds, reported as Hexane (ppmv) C6
	1		
00111	2	271	45.2
21331-7	3		
	4		
	5		
	6		
00154	7	293	48.83
21331-8			
	8		
00172	9	157	26.2
21331-9	10		
	11		
	12		
	13		
00145	14	142	23.7
21331-10	15		
	16		
	22		
00344	23	195	32.5
21331-11	24		
	17		
00358	18	202	33.7
21331-12	19		
	20		
	21		
Weighted Average NMOC Concentration			34.0

NMOC ppmv-C6 were determined by laboratory analyses for each composite sample.
The weighted average NMOC concentration is proportioned based on the number of samples in each in composite sample to the total number of samples.

ATTACHMENT 3

LABORATORY ANALYSIS RESULTS AND QUALITY CONTROL DATA

AtmAA Inc.
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environmental consultants
laboratory services
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LABORATORY ANALYSIS REPORT

Total Gaseous Non-Methane Organics (TGNMO), Nitrogen, and Oxygen Analysis in SUMMA Canister Samples

Report Date: May 24, 2021
Client: SCS Engineers
Site: Pitsch Sanitary Landfill
Project No.: 27221154.00
Date Received: May 13, 2021
Date Analyzed: May 13, 2021

ANALYSIS DESCRIPTION

Total gaseous non-methane organics in SUMMA canisters was measured by flame ionization detection/ total combustion analysis (FID/TCA), EPA Method 25C. Nitrogen and oxygen were measured by thermal conductivity detection/ gas chromatography (TCD/GC), EPA Method 3C.

AtmAA Lab No.	Sample ID	Oxygen (%,v)	Nitrogen (%,v)	TGNMO (ppmvC)	TGNMO (ppmvC6)
21331-7	00111	3.27	12.9	271	45.2
21331-8	00154	0.53	1.07	293	48.8

TGNMO is total gaseous non-methane organics measured as ppmvC and ppmvC6.
The reported oxygen concentration includes any argon present in the sample, calibration is based on a standard atmosphere containing 20.95% oxygen and 0.93% argon.

*The reported TGNMO concentration is calculated using the **nitrogen correction** with the temperature and barometric pressure at sampling time per client's request.*

Note: Site barometric pressures and site temperatures which were recorded on the submitted chain of custody, were used in the concentration calculations.

Michael S. Porter
Senior Analyst

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Total gaseous non-methane organics in SUMMA canisters was measured by flame ionization detection/ total combustion analysis (FID/TCA), EPA Method 25C. Nitrogen and oxygen were measured by thermal conductivity detection/ gas chromatography (TCD/GC), EPA Method 3C.

AtmAA Lab No.	Sample ID	Oxygen (%,v)	Nitrogen (%,v)	TGNMO (ppmvC)	TGNMO (ppmvC6)
21331-9	00172	1.48	45.3	157	26.1
21331-10	00145	1.34	65.8	142	23.7
21331-11	00344	7.16	39.5	195	32.5
21331-12	00358	4.10	21.5	202	33.7

TGNMO is total gaseous non-methane organics measured as ppmvC and ppmvC6.
The reported oxygen concentration includes any argon present in the sample, calibration is based on a standard atmosphere containing 20.95% oxygen and 0.93% argon.

*The reported TGNMO concentration is calculated using the **oxygen correction** with the temperature and barometric pressure at sampling time per client's request.*

Note: Site barometric pressures and site temperatures which were recorded on the submitted chain of custody, were used in the concentration calculations.

Michael S. Porter
Senior Analyst

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LABORATORY ANALYSIS REPORT

Permanent Gases Analysis in SUMMA Canister Samples

Report Date: May 21, 2021
Client: SCS Engineers
Site: Pitsch Sanitary Landfill
Project Location: Belding, Mi.
Project No.: 27221154.00
Sample Location: LFG Composite

Date Received: May 13, 2021
Date Analyzed: May 13, 2021

ANALYSIS DESCRIPTION

Methane, carbon dioxide, oxygen, and nitrogen were measured by thermal conductivity detection gas chromatography (TCD/GC), Method 3C.

AtmAA Lab No.	Sample ID	Methane (%v)	Carbon Dioxide (%v)	Oxygen (%v)	Nitrogen (%v)
21331-7	00111	55.5	28.1	3.23	12.7
21331-8	00154	63.0	34.8	0.52	1.05
21331-9	00172	33.2	19.9	1.46	44.6
21331-10	00145	18.4	15.5	1.32	64.7
21331-11	00344	34.6	18.9	7.05	38.9
21331-12	00358	47.3	27.1	4.05	21.2

The reported oxygen concentration includes any argon present in the sample. Calibration is based on a standard atmosphere containing 20.95% oxygen and 0.93% argon.
The accuracy of permanent gas analysis by TCD/GC is +/- 2%, actual results are reported.
Actual analysis results are reported on a "wet" basis.

Actual analysis results are reported on a "wet" basis.

Michael S. Porter
Senior Analyst

QUALITY ASSURANCE SUMMARY
(Repeat Analyses)

Site: Pitsch Sanitary Landfill
Date Received: May 13, 2021
Date Analyzed: May 13, 2021

Components	Sample ID	Repeat Analysis Run #1	Repeat Analysis Run #2	Mean Conc.	% Diff. From Mean
		(Concentration in %,v)			
Methane	00111	55.5	55.5	55.5	0.04
	00154	63.0	63.0	63.0	0.04
	00172	33.2	33.2	33.2	0.0
	00145	18.4	18.4	18.4	0.03
	00344	34.6	34.7	34.6	0.07
	00358	47.3	47.3	47.3	0.07
Carbon dioxide	00111	28.1	28.1	28.1	0.14
	00154	34.6	35.0	34.8	0.47
	00172	19.9	19.9	19.9	0.10
	00145	15.4	15.5	15.5	0.13
	00344	18.9	19.0	18.9	0.08
	00358	27.1	27.0	27.1	0.11
Oxygen	00111	3.22	3.23	3.23	0.2
	00154	0.44	0.60	0.52	15.4
	00172	1.49	1.43	1.46	2.1
	00145	1.40	1.24	1.32	6.1
	00344	7.03	7.07	7.05	0.3
	00358	4.08	4.01	4.05	0.9
Nitrogen	00111	12.6	12.8	12.7	0.63
	00154	0.96	1.14	1.05	8.6
	00172	44.7	44.6	44.6	0.11
	00145	64.7	64.7	64.7	0.0
	00344	38.9	38.9	38.9	0.08
	00358	21.3	21.2	21.2	0.12

Six SUMMA Canister samples, laboratory numbers 21331-(7 - 12), were analyzed for permanent gases. Agreement between repeat analyses is a measure of precision and is shown above in the column "% Difference from Mean". The average % difference from mean for 24 repeat measurements from 6 SUMMA Canister samples is 1.5%.

CHAIN OF CUSTODY RECORD

Client/Project Name: Pitsch Sanitary Landfill	Project Location: Belding, MI
Project No.: 27221154.00	Field Logbook No.
Sampler: (Signature)	Chain of Custody Tape No.

Sample No./ Identification	Type of Sample	AtmAA Lab Number	Sampling Date	Sampling Time	ANALYSES REQUESTED: N 5 U	ANALYSES REQUESTED: M U	Special Remarks
00111	LFG Composite	21331-7	5-5-21	9:30-11:30	X	X	
00154	LFG Composite	-8	5-5-21	11:30-12:30	X	X	
00172	LFG Composite	-9	5-5-21	14:00-16:30	X	X	* Can ID is labeled 00102
00145	LFG Composite	-10	5-5-21	16:30-17:30	X	X	
00344	LFG Composite	-11	5-5-21	20:30-9:30	X	X	
00358	LFG Composite	-12	5-5-21	19:30-20:30	X	X	

	Date	Time		Date	Time
Relinquished by: (Signature)	5-8-21	16:30	Received by: (Signature)		
Relinquished by: (Signature)			Received by: (Signature)		
Relinquished by: (Signature)			Received for Laboratory by: (Signature) Attn: Zack Bishop	5/13/21	09:40

Company Info:

Company: SCS Engineers
Street Address: 2060 Reading Rd.
City/State/Zip: Cincinnati, OH 45202-1497
Telephone No.: 513-421-5353
Fax No.:

Send Report to:

Company: Same
Street Address:
City/State/Zip:
Project Manager:
Email Address:

Analytical Laboratory

AtmAA Inc.
23917 Craftsman Rd.
Calabasas, CA 91302
TEL: (818) 223-3277
FAX: (818) 223-8250

ATTACHMENT 4

ESTIMATED NMOC EMISSIONS FOR NEXT FIVE YEARS

Pitsch Sanitary Landfill
Estimated Annual Emissions of
Non-Methane Organic Compounds (NMOC)
Sampling Event – May 2021

Year	NMOC Emissions (Megagrams per Year)
2021	2.89
2022	2.97
2023	3.05
2024	3.12
2025	3.19

ATTACHMENT 5

LandGEM MODEL REPORT

Summary Report

Landfill Name or Identifier: Pitsch Gas Sampling - 2021 24 34 trial

Date: Tuesday, June 15, 2021

Description/Comments:

About LandGEM:

First-Order Decomposition Rate Equation:

$$Q_{CH_4} = \sum_{i=1}^{n} \sum_{j=0.1}^{1} kL_o \left(\frac{M_i}{10} \right) e^{-kt_{ij}}$$

Where,

Q_{CH4} = annual methane generation in the year of the calculation ($m^3/year$)

i = 1-year time increment

n = (year of the calculation) - (initial year of waste acceptance)

j = 0.1-year time increment

k = methane generation rate ($year^{-1}$)

L_o = potential methane generation capacity (m^3/Mg)

M_i = mass of waste accepted in the i^{th} year (Mg)

t_{ij} = age of the j^{th} section of waste mass M_i accepted in the i^{th} year (*decimal years*, e.g., 3.2 years)

LandGEM is based on a first-order decomposition rate equation for quantifying emissions from the decomposition of landfilled waste in municipal solid waste (MSW) landfills. The software provides a relatively simple approach to estimating landfill gas emissions. Model defaults are based on empirical data from U.S. landfills. Field test data can also be used in place of model defaults when available. Further guidance on EPA test methods, Clean Air Act (CAA) regulations, and other guidance regarding landfill gas emissions and control technology requirements can be found at http://www.epa.gov/ttnatw01/landfill/landflpg.html.

LandGEM is considered a screening tool — the better the input data, the better the estimates. Often, there are limitations with the available data regarding waste quantity and composition, variation in design and operating practices over time, and changes occurring over time that impact the emissions potential. Changes to landfill operation, such as operating under wet conditions through leachate recirculation or other liquid additions, will result in generating more gas at a faster rate. Defaults for estimating emissions for this type of operation are being developed to include in LandGEM along with defaults for convential landfills (no leachate or liquid additions) for developing emission inventories and determining CAA applicability. Refer to the Web site identified above for future updates.

Input Review

LANDFILL CHARACTERISTICS

Landfill Open Year	**1975**	
Landfill Closure Year (with 80-year limit)	**2039**	
Actual Closure Year (without limit)	***2039***	
Have Model Calculate Closure Year?	**No**	
Waste Design Capacity	**3,356,780**	*short tons*

MODEL PARAMETERS

Methane Generation Rate, k	**0.050**	*year^{-1}*
Potential Methane Generation Capacity, L_o	**170**	*m^3/Mg*
NMOC Concentration	**34**	*ppmv as hexane*
Methane Content	**50**	*% by volume*

GASES / POLLUTANTS SELECTED

Gas / Pollutant #1:	**Total landfill gas**
Gas / Pollutant #2:	**Methane**
Gas / Pollutant #3:	**Carbon dioxide**
Gas / Pollutant #4:	**NMOC**

WASTE ACCEPTANCE RATES

Year	Waste Accepted		Waste-In-Place	
	(Mg/year)	*(short tons/year)*	*(Mg)*	*(short tons)*
1975	11,700	12,870	0	0
1976	11,700	12,870	11,700	12,870
1977	11,700	12,870	23,400	25,740
1978	11,700	12,870	35,100	38,610
1979	11,700	12,870	46,800	51,480
1980	11,700	12,870	58,500	64,350
1981	11,700	12,870	70,200	77,220
1982	11,700	12,870	81,900	90,090
1983	11,700	12,870	93,600	102,960
1984	11,700	12,870	105,300	115,830
1985	11,700	12,870	117,000	128,700
1986	64,973	71,470	128,700	141,570
1987	64,973	71,470	193,673	213,040
1988	64,973	71,470	258,646	284,511
1989	64,973	71,470	323,619	355,981
1990	64,973	71,470	388,592	427,451
1991	64,973	71,470	453,565	498,922
1992	64,973	71,470	518,538	570,392
1993	53,273	58,600	583,511	641,862
1994	53,273	58,600	636,784	700,462
1995	53,273	58,600	690,057	759,063
1996	175,517	193,069	743,330	817,663
1997	127,370	140,107	918,847	1,010,732
1998	221,120	243,232	1,046,217	1,150,839
1999	131,359	144,495	1,267,337	1,394,071
2000	67,017	73,719	1,398,696	1,538,566
2001	65,517	72,069	1,465,713	1,612,284
2002	91,139	100,253	1,531,230	1,684,353
2003	44,565	49,022	1,622,369	1,784,606
2004	27,445	30,190	1,666,934	1,833,627
2005	20,933	23,026	1,694,379	1,863,817
2006	45,076	49,584	1,715,312	1,886,843
2007	71,123	78,235	1,760,388	1,936,427
2008	76,750	84,425	1,831,511	2,014,662
2009	69,890	76,879	1,908,261	2,099,087
2010	61,887	68,076	1,978,151	2,175,966
2011	75,000	82,500	2,040,038	2,244,042
2012	84,568	93,025	2,115,038	2,326,542
2013	85,349	93,884	2,199,606	2,419,567
2014	98,525	108,378	2,284,955	2,513,451

WASTE ACCEPTANCE RATES (Continued)

Year	Waste Accepted		Waste-In-Place	
	(Mg/year)	*(short tons/year)*	*(Mg)*	*(short tons)*
2015	90,041	99,045	2,383,480	2,621,828
2016	101,464	111,610	2,473,521	2,720,873
2017	85,135	93,649	2,574,985	2,832,484
2018	93,465	102,812	2,660,120	2,926,132
2019	103,702	114,072	2,753,585	3,028,944
2020	99,894	109,883	2,857,287	3,143,016
2021	110,000	121,000	2,957,181	3,252,899
2022	110,000	121,000	3,067,181	3,373,899
2023	110,000	121,000	3,177,181	3,494,899
2024	110,000	121,000	3,287,181	3,615,899
2025	110,000	121,000	3,397,181	3,736,899
2026	110,000	121,000	3,507,181	3,857,899
2027	110,000	121,000	3,617,181	3,978,899
2028	110,000	121,000	3,727,181	4,099,899
2029	110,000	121,000	3,837,181	4,220,899
2030	110,000	121,000	3,947,181	4,341,899
2031	110,000	121,000	4,057,181	4,462,899
2032	110,000	121,000	4,167,181	4,583,899
2033	110,000	121,000	4,277,181	4,704,899
2034	110,000	121,000	4,387,181	4,825,899
2035	110,000	121,000	4,497,181	4,946,899
2036	110,000	121,000	4,607,181	5,067,899
2037	110,000	121,000	4,717,181	5,188,899
2038	110,000	121,000	4,827,181	5,309,899
2039	110,000	121,000	4,937,181	5,430,899
2040	0	0	5,047,181	5,551,899
2041	0	0	5,047,181	5,551,899
2042	0	0	5,047,181	5,551,899
2043	0	0	5,047,181	5,551,899
2044	0	0	5,047,181	5,551,899
2045	0	0	5,047,181	5,551,899
2046	0	0	5,047,181	5,551,899
2047	0	0	5,047,181	5,551,899
2048	0	0	5,047,181	5,551,899
2049	0	0	5,047,181	5,551,899
2050	0	0	5,047,181	5,551,899
2051	0	0	5,047,181	5,551,899
2052	0	0	5,047,181	5,551,899
2053	0	0	5,047,181	5,551,899
2054	0	0	5,047,181	5,551,899

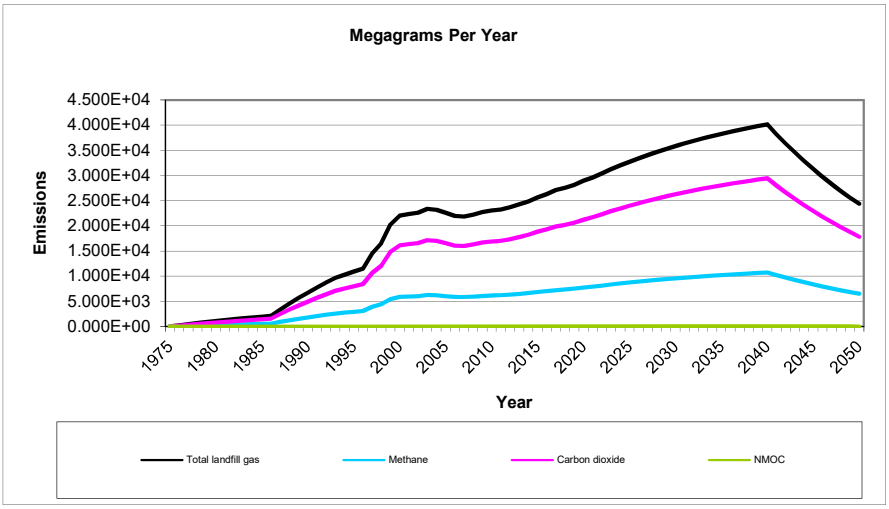
Pollutant Parameters

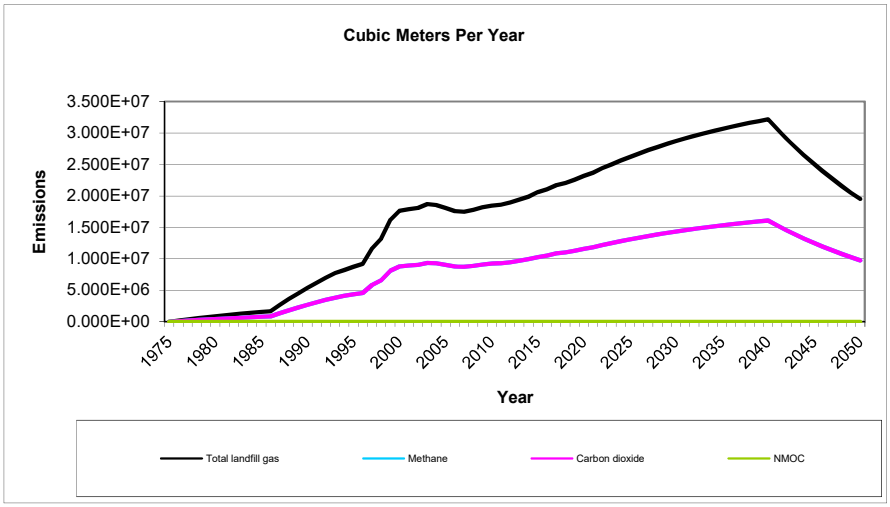
		Gas / Pollutant Default Parameters:		*User-specified Pollutant Parameters:*	
	Compound	Concentration (*ppmv*)	Molecular Weight	Concentration (*ppmv*)	Molecular Weight
Gases	Total landfill gas		0.00		
	Methane		16.04		
	Carbon dioxide		44.01		
	NMOC	4,000	86.18		
Pollutants	1,1,1-Trichloroethane (methyl chloroform) - HAP	0.48	133.41		
	1,1,2,2-Tetrachloroethane - HAP/VOC	1.1	167.85		
	1,1-Dichloroethane (ethylidene dichloride) - HAP/VOC	2.4	98.97		
	1,1-Dichloroethene (vinylidene chloride) - HAP/VOC	0.20	96.94		
	1,2-Dichloroethane (ethylene dichloride) - HAP/VOC	0.41	98.96		
	1,2-Dichloropropane (propylene dichloride) - HAP/VOC	0.18	112.99		
	2-Propanol (isopropyl alcohol) - VOC	50	60.11		
	Acetone	7.0	58.08		
	Acrylonitrile - HAP/VOC	6.3	53.06		
	Benzene - No or Unknown Co-disposal - HAP/VOC	1.9	78.11		
	Benzene - Co-disposal - HAP/VOC	11	78.11		
	Bromodichloromethane - VOC	3.1	163.83		
	Butane - VOC	5.0	58.12		
	Carbon disulfide - HAP/VOC	0.58	76.13		
	Carbon monoxide	140	28.01		
	Carbon tetrachloride - HAP/VOC	4.0E-03	153.84		
	Carbonyl sulfide - HAP/VOC	0.49	60.07		
	Chlorobenzene - HAP/VOC	0.25	112.56		
	Chlorodifluoromethane	1.3	86.47		
	Chloroethane (ethyl chloride) - HAP/VOC	1.3	64.52		
	Chloroform - HAP/VOC	0.03	119.39		
	Chloromethane - VOC	1.2	50.49		
	Dichlorobenzene - (HAP for para isomer/VOC)	0.21	147		
	Dichlorodifluoromethane	16	120.91		
	Dichlorofluoromethane - VOC	2.6	102.92		
	Dichloromethane (methylene chloride) - HAP	14	84.94		
	Dimethyl sulfide (methyl sulfide) - VOC	7.8	62.13		
	Ethane	890	30.07		
	Ethanol - VOC	27	46.08		

Pollutant Parameters (Continued)

		Gas / Pollutant Default Parameters:		*User-specified Pollutant Parameters:*	
	Compound	Concentration (*ppmv*)	Molecular Weight	Concentration (*ppmv*)	Molecular Weight
Pollutants	Ethyl mercaptan (ethanethiol) - VOC	2.3	62.13		
	Ethylbenzene - HAP/VOC	4.6	106.16		
	Ethylene dibromide - HAP/VOC	1.0E-03	187.88		
	Fluorotrichloromethane - VOC	0.76	137.38		
	Hexane - HAP/VOC	6.6	86.18		
	Hydrogen sulfide	36	34.08		
	Mercury (total) - HAP	2.9E-04	200.61		
	Methyl ethyl ketone - HAP/VOC	7.1	72.11		
	Methyl isobutyl ketone - HAP/VOC	1.9	100.16		
	Methyl mercaptan - VOC	2.5	48.11		
	Pentane - VOC	3.3	72.15		
	Perchloroethylene (tetrachloroethylene) - HAP	3.7	165.83		
	Propane - VOC	11	44.09		
	t-1,2-Dichloroethene - VOC	2.8	96.94		
	Toluene - No or Unknown Co-disposal - HAP/VOC	39	92.13		
	Toluene - Co-disposal - HAP/VOC	170	92.13		
	Trichloroethylene (trichloroethene) - HAP/VOC	2.8	131.40		
	Vinyl chloride - HAP/VOC	7.3	62.50		
	Xylenes - HAP/VOC	12	106.16		

Graphs


Megagrams Per Year
Emissions
4.500E+04
4.000E+04
3.500E+04
3.000E+04
2.500E+04
2.000E+04
1.500E+04
1.000E+04
5.000E+03
0.000E+00
1975 1980 1985 1990 1995 2000 2005 2010 2015 2020 2025 2030 2035 2040 2045 2050
Year
Total landfill gas
Methane
Carbon dioxide
NMOC


Cubic Meters Per Year
Emissions
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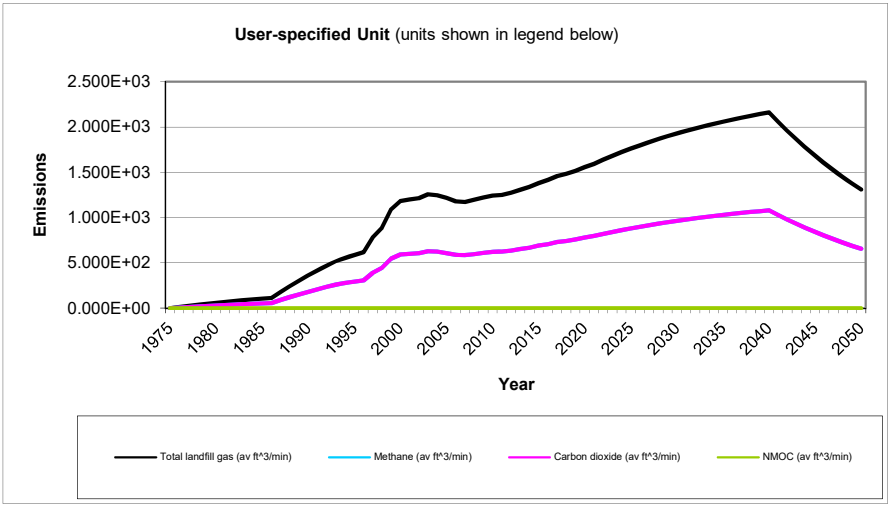
3.000E+07
2.500E+07
2.000E+07
1.500E+07
1.000E+07
5.000E+06
0.000E+00
1975 1980 1985 1990 1995 2000 2005 2010 2015 2020 2025 2030 2035 2040 2045 2050
Year
Total landfill gas
Methane
Carbon dioxide
NMOC


User-specified Unit (units shown in legend below)
Emissions
2.500E+03
2.000E+03
1.500E+03
1.000E+03
5.000E+02
0.000E+00
1975 1980 1985 1990 1995 2000 2005 2010 2015 2020 2025 2030 2035 2040 2045 2050
Year
Total landfill gas (av ft^3/min)
Methane (av ft^3/min)
Carbon dioxide (av ft^3/min)
NMOC (av ft^3/min)

Results

Year	Total landfill gas			Methane		
	(Mg/year)	*(m^3/year)*	*(av ft^3/min)*	*(Mg/year)*	*(m^3/year)*	*(av ft^3/min)*
1975	0	0	0	0	0	0
1976	2.429E+02	1.945E+05	1.307E+01	6.488E+01	9.725E+04	6.534E+00
1977	4.739E+02	3.795E+05	2.550E+01	1.266E+02	1.898E+05	1.275E+01
1978	6.937E+02	5.555E+05	3.732E+01	1.853E+02	2.777E+05	1.866E+01
1979	9.028E+02	7.229E+05	4.857E+01	2.411E+02	3.614E+05	2.429E+01
1980	1.102E+03	8.821E+05	5.927E+01	2.943E+02	4.411E+05	2.964E+01
1981	1.291E+03	1.034E+06	6.945E+01	3.448E+02	5.168E+05	3.472E+01
1982	1.471E+03	1.178E+06	7.913E+01	3.928E+02	5.888E+05	3.956E+01
1983	1.642E+03	1.315E+06	8.834E+01	4.386E+02	6.574E+05	4.417E+01
1984	1.805E+03	1.445E+06	9.710E+01	4.821E+02	7.226E+05	4.855E+01
1985	1.960E+03	1.569E+06	1.054E+02	5.234E+02	7.846E+05	5.272E+01
1986	2.107E+03	1.687E+06	1.134E+02	5.628E+02	8.436E+05	5.668E+01
1987	3.353E+03	2.685E+06	1.804E+02	8.956E+02	1.342E+06	9.020E+01
1988	4.538E+03	3.634E+06	2.442E+02	1.212E+03	1.817E+06	1.221E+02
1989	5.666E+03	4.537E+06	3.048E+02	1.513E+03	2.268E+06	1.524E+02
1990	6.738E+03	5.396E+06	3.625E+02	1.800E+03	2.698E+06	1.813E+02
1991	7.758E+03	6.213E+06	4.174E+02	2.072E+03	3.106E+06	2.087E+02
1992	8.729E+03	6.990E+06	4.696E+02	2.332E+03	3.495E+06	2.348E+02
1993	9.652E+03	7.729E+06	5.193E+02	2.578E+03	3.864E+06	2.597E+02
1994	1.029E+04	8.238E+06	5.535E+02	2.748E+03	4.119E+06	2.767E+02
1995	1.089E+04	8.721E+06	5.860E+02	2.909E+03	4.361E+06	2.930E+02
1996	1.147E+04	9.182E+06	6.169E+02	3.063E+03	4.591E+06	3.085E+02
1997	1.455E+04	1.165E+07	7.829E+02	3.887E+03	5.826E+06	3.914E+02
1998	1.649E+04	1.320E+07	8.869E+02	4.403E+03	6.600E+06	4.435E+02
1999	2.027E+04	1.623E+07	1.091E+03	5.415E+03	8.116E+06	5.453E+02
2000	2.201E+04	1.762E+07	1.184E+03	5.879E+03	8.812E+06	5.921E+02
2001	2.233E+04	1.788E+07	1.201E+03	5.964E+03	8.940E+06	6.006E+02
2002	2.260E+04	1.810E+07	1.216E+03	6.036E+03	9.048E+06	6.079E+02
2003	2.339E+04	1.873E+07	1.258E+03	6.247E+03	9.364E+06	6.292E+02
2004	2.317E+04	1.856E+07	1.247E+03	6.190E+03	9.278E+06	6.234E+02
2005	2.261E+04	1.811E+07	1.217E+03	6.040E+03	9.054E+06	6.083E+02
2006	2.194E+04	1.757E+07	1.181E+03	5.862E+03	8.786E+06	5.903E+02
2007	2.181E+04	1.746E+07	1.173E+03	5.826E+03	8.732E+06	5.867E+02
2008	2.222E+04	1.780E+07	1.196E+03	5.936E+03	8.898E+06	5.978E+02
2009	2.273E+04	1.820E+07	1.223E+03	6.072E+03	9.102E+06	6.115E+02
2010	2.307E+04	1.848E+07	1.241E+03	6.163E+03	9.239E+06	6.207E+02
2011	2.323E+04	1.860E+07	1.250E+03	6.206E+03	9.302E+06	6.250E+02
2012	2.366E+04	1.894E+07	1.273E+03	6.319E+03	9.472E+06	6.364E+02
2013	2.426E+04	1.943E+07	1.305E+03	6.480E+03	9.713E+06	6.526E+02
2014	2.485E+04	1.990E+07	1.337E+03	6.637E+03	9.949E+06	6.685E+02
2015	2.568E+04	2.056E+07	1.382E+03	6.860E+03	1.028E+07	6.909E+02
2016	2.630E+04	2.106E+07	1.415E+03	7.025E+03	1.053E+07	7.075E+02
2017	2.712E+04	2.172E+07	1.459E+03	7.245E+03	1.086E+07	7.296E+02
2018	2.757E+04	2.207E+07	1.483E+03	7.363E+03	1.104E+07	7.416E+02
2019	2.816E+04	2.255E+07	1.515E+03	7.523E+03	1.128E+07	7.576E+02
2020	2.894E+04	2.318E+07	1.557E+03	7.731E+03	1.159E+07	7.786E+02
2021	2.960E+04	2.371E+07	1.593E+03	7.908E+03	1.185E+07	7.964E+02
2022	3.044E+04	2.438E+07	1.638E+03	8.132E+03	1.219E+07	8.190E+02
2023	3.124E+04	2.502E+07	1.681E+03	8.345E+03	1.251E+07	8.405E+02
2024	3.200E+04	2.563E+07	1.722E+03	8.548E+03	1.281E+07	8.609E+02

Results (Continued)

Year	Total landfill gas			Methane		
	(Mg/year)	*(m^3/year)*	*(av ft^3/min)*	*(Mg/year)*	*(m^3/year)*	*(av ft^3/min)*
2025	3.273E+04	2.621E+07	1.761E+03	8.741E+03	1.310E+07	8.804E+02
2026	3.341E+04	2.676E+07	1.798E+03	8.925E+03	1.338E+07	8.989E+02
2027	3.407E+04	2.728E+07	1.833E+03	9.100E+03	1.364E+07	9.164E+02
2028	3.469E+04	2.778E+07	1.866E+03	9.266E+03	1.389E+07	9.332E+02
2029	3.528E+04	2.825E+07	1.898E+03	9.424E+03	1.413E+07	9.491E+02
2030	3.584E+04	2.870E+07	1.928E+03	9.574E+03	1.435E+07	9.642E+02
2031	3.638E+04	2.913E+07	1.957E+03	9.717E+03	1.457E+07	9.787E+02
2032	3.689E+04	2.954E+07	1.985E+03	9.853E+03	1.477E+07	9.924E+02
2033	3.737E+04	2.993E+07	2.011E+03	9.983E+03	1.496E+07	1.005E+03
2034	3.783E+04	3.030E+07	2.036E+03	1.011E+04	1.515E+07	1.018E+03
2035	3.827E+04	3.065E+07	2.059E+03	1.022E+04	1.532E+07	1.030E+03
2036	3.869E+04	3.098E+07	2.082E+03	1.033E+04	1.549E+07	1.041E+03
2037	3.909E+04	3.130E+07	2.103E+03	1.044E+04	1.565E+07	1.051E+03
2038	3.946E+04	3.160E+07	2.123E+03	1.054E+04	1.580E+07	1.062E+03
2039	3.982E+04	3.189E+07	2.143E+03	1.064E+04	1.594E+07	1.071E+03
2040	4.016E+04	3.216E+07	2.161E+03	1.073E+04	1.608E+07	1.080E+03
2041	3.820E+04	3.059E+07	2.056E+03	1.020E+04	1.530E+07	1.028E+03
2042	3.634E+04	2.910E+07	1.955E+03	9.707E+03	1.455E+07	9.776E+02
2043	3.457E+04	2.768E+07	1.860E+03	9.234E+03	1.384E+07	9.300E+02
2044	3.288E+04	2.633E+07	1.769E+03	8.783E+03	1.317E+07	8.846E+02
2045	3.128E+04	2.505E+07	1.683E+03	8.355E+03	1.252E+07	8.415E+02
2046	2.975E+04	2.383E+07	1.601E+03	7.948E+03	1.191E+07	8.004E+02
2047	2.830E+04	2.266E+07	1.523E+03	7.560E+03	1.133E+07	7.614E+02
2048	2.692E+04	2.156E+07	1.449E+03	7.191E+03	1.078E+07	7.243E+02
2049	2.561E+04	2.051E+07	1.378E+03	6.841E+03	1.025E+07	6.889E+02
2050	2.436E+04	1.951E+07	1.311E+03	6.507E+03	9.753E+06	6.553E+02
2051	2.317E+04	1.856E+07	1.247E+03	6.190E+03	9.278E+06	6.234E+02
2052	2.204E+04	1.765E+07	1.186E+03	5.888E+03	8.825E+06	5.930E+02
2053	2.097E+04	1.679E+07	1.128E+03	5.601E+03	8.395E+06	5.640E+02
2054	1.994E+04	1.597E+07	1.073E+03	5.327E+03	7.985E+06	5.365E+02
2055	1.897E+04	1.519E+07	1.021E+03	5.068E+03	7.596E+06	5.104E+02
2056	1.805E+04	1.445E+07	9.710E+02	4.820E+03	7.225E+06	4.855E+02
2057	1.717E+04	1.375E+07	9.236E+02	4.585E+03	6.873E+06	4.618E+02
2058	1.633E+04	1.308E+07	8.786E+02	4.362E+03	6.538E+06	4.393E+02
2059	1.553E+04	1.244E+07	8.357E+02	4.149E+03	6.219E+06	4.179E+02
2060	1.478E+04	1.183E+07	7.950E+02	3.947E+03	5.916E+06	3.975E+02
2061	1.405E+04	1.125E+07	7.562E+02	3.754E+03	5.627E+06	3.781E+02
2062	1.337E+04	1.071E+07	7.193E+02	3.571E+03	5.353E+06	3.597E+02
2063	1.272E+04	1.018E+07	6.842E+02	3.397E+03	5.092E+06	3.421E+02
2064	1.210E+04	9.687E+06	6.509E+02	3.231E+03	4.843E+06	3.254E+02
2065	1.151E+04	9.214E+06	6.191E+02	3.074E+03	4.607E+06	3.096E+02
2066	1.095E+04	8.765E+06	5.889E+02	2.924E+03	4.382E+06	2.945E+02
2067	1.041E+04	8.338E+06	5.602E+02	2.781E+03	4.169E+06	2.801E+02
2068	9.904E+03	7.931E+06	5.329E+02	2.646E+03	3.965E+06	2.664E+02
2069	9.421E+03	7.544E+06	5.069E+02	2.517E+03	3.772E+06	2.534E+02
2070	8.962E+03	7.176E+06	4.822E+02	2.394E+03	3.588E+06	2.411E+02
2071	8.525E+03	6.826E+06	4.586E+02	2.277E+03	3.413E+06	2.293E+02
2072	8.109E+03	6.493E+06	4.363E+02	2.166E+03	3.247E+06	2.181E+02
2073	7.713E+03	6.177E+06	4.150E+02	2.060E+03	3.088E+06	2.075E+02
2074	7.337E+03	5.875E+06	3.948E+02	1.960E+03	2.938E+06	1.974E+02
2075	6.979E+03	5.589E+06	3.755E+02	1.864E+03	2.794E+06	1.878E+02

Results (Continued)

Year	Total landfill gas			Methane		
	(Mg/year)	*(m^3/year)*	*(av ft^3/min)*	*(Mg/year)*	*(m^3/year)*	*(av ft^3/min)*
2076	6.639E+03	5.316E+06	3.572E+02	1.773E+03	2.658E+06	1.786E+02
2077	6.315E+03	5.057E+06	3.398E+02	1.687E+03	2.528E+06	1.699E+02
2078	6.007E+03	4.810E+06	3.232E+02	1.605E+03	2.405E+06	1.616E+02
2079	5.714E+03	4.576E+06	3.074E+02	1.526E+03	2.288E+06	1.537E+02
2080	5.436E+03	4.353E+06	2.924E+02	1.452E+03	2.176E+06	1.462E+02
2081	5.170E+03	4.140E+06	2.782E+02	1.381E+03	2.070E+06	1.391E+02
2082	4.918E+03	3.938E+06	2.646E+02	1.314E+03	1.969E+06	1.323E+02
2083	4.678E+03	3.746E+06	2.517E+02	1.250E+03	1.873E+06	1.259E+02
2084	4.450E+03	3.564E+06	2.394E+02	1.189E+03	1.782E+06	1.197E+02
2085	4.233E+03	3.390E+06	2.278E+02	1.131E+03	1.695E+06	1.139E+02
2086	4.027E+03	3.224E+06	2.167E+02	1.076E+03	1.612E+06	1.083E+02
2087	3.830E+03	3.067E+06	2.061E+02	1.023E+03	1.534E+06	1.030E+02
2088	3.644E+03	2.918E+06	1.960E+02	9.732E+02	1.459E+06	9.802E+01
2089	3.466E+03	2.775E+06	1.865E+02	9.258E+02	1.388E+06	9.324E+01
2090	3.297E+03	2.640E+06	1.774E+02	8.806E+02	1.320E+06	8.869E+01
2091	3.136E+03	2.511E+06	1.687E+02	8.377E+02	1.256E+06	8.436E+01
2092	2.983E+03	2.389E+06	1.605E+02	7.968E+02	1.194E+06	8.025E+01
2093	2.838E+03	2.272E+06	1.527E+02	7.580E+02	1.136E+06	7.634E+01
2094	2.699E+03	2.161E+06	1.452E+02	7.210E+02	1.081E+06	7.261E+01
2095	2.568E+03	2.056E+06	1.381E+02	6.858E+02	1.028E+06	6.907E+01
2096	2.442E+03	1.956E+06	1.314E+02	6.524E+02	9.779E+05	6.570E+01
2097	2.323E+03	1.860E+06	1.250E+02	6.206E+02	9.302E+05	6.250E+01
2098	2.210E+03	1.770E+06	1.189E+02	5.903E+02	8.848E+05	5.945E+01
2099	2.102E+03	1.683E+06	1.131E+02	5.615E+02	8.417E+05	5.655E+01
2100	2.000E+03	1.601E+06	1.076E+02	5.341E+02	8.006E+05	5.379E+01
2101	1.902E+03	1.523E+06	1.023E+02	5.081E+02	7.616E+05	5.117E+01
2102	1.809E+03	1.449E+06	9.735E+01	4.833E+02	7.244E+05	4.867E+01
2103	1.721E+03	1.378E+06	9.260E+01	4.597E+02	6.891E+05	4.630E+01
2104	1.637E+03	1.311E+06	8.808E+01	4.373E+02	6.555E+05	4.404E+01
2105	1.557E+03	1.247E+06	8.379E+01	4.160E+02	6.235E+05	4.189E+01
2106	1.481E+03	1.186E+06	7.970E+01	3.957E+02	5.931E+05	3.985E+01
2107	1.409E+03	1.128E+06	7.581E+01	3.764E+02	5.642E+05	3.791E+01
2108	1.340E+03	1.073E+06	7.212E+01	3.580E+02	5.367E+05	3.606E+01
2109	1.275E+03	1.021E+06	6.860E+01	3.406E+02	5.105E+05	3.430E+01
2110	1.213E+03	9.712E+05	6.525E+01	3.240E+02	4.856E+05	3.263E+01
2111	1.154E+03	9.238E+05	6.207E+01	3.082E+02	4.619E+05	3.104E+01
2112	1.097E+03	8.788E+05	5.904E+01	2.931E+02	4.394E+05	2.952E+01
2113	1.044E+03	8.359E+05	5.616E+01	2.788E+02	4.180E+05	2.808E+01
2114	9.930E+02	7.951E+05	5.343E+01	2.652E+02	3.976E+05	2.671E+01
2115	9.446E+02	7.564E+05	5.082E+01	2.523E+02	3.782E+05	2.541E+01

Results (Continued)

Year	Carbon dioxide			NMOC		
	(Mg/year)	*(m^3/year)*	*(av ft^3/min)*	*(Mg/year)*	*(m^3/year)*	*(av ft^3/min)*
1975	0	0	0	0	0	0
1976	1.780E+02	9.725E+04	6.534E+00	2.370E-02	6.613E+00	4.443E-04
1977	3.473E+02	1.898E+05	1.275E+01	4.625E-02	1.290E+01	8.670E-04
1978	5.084E+02	2.777E+05	1.866E+01	6.770E-02	1.889E+01	1.269E-03
1979	6.616E+02	3.614E+05	2.429E+01	8.810E-02	2.458E+01	1.651E-03
1980	8.074E+02	4.411E+05	2.964E+01	1.075E-01	2.999E+01	2.015E-03
1981	9.460E+02	5.168E+05	3.472E+01	1.260E-01	3.514E+01	2.361E-03
1982	1.078E+03	5.888E+05	3.956E+01	1.435E-01	4.004E+01	2.690E-03
1983	1.203E+03	6.574E+05	4.417E+01	1.602E-01	4.470E+01	3.003E-03
1984	1.323E+03	7.226E+05	4.855E+01	1.761E-01	4.913E+01	3.301E-03
1985	1.436E+03	7.846E+05	5.272E+01	1.912E-01	5.335E+01	3.585E-03
1986	1.544E+03	8.436E+05	5.668E+01	2.056E-01	5.736E+01	3.854E-03
1987	2.457E+03	1.342E+06	9.020E+01	3.272E-01	9.129E+01	6.134E-03
1988	3.326E+03	1.817E+06	1.221E+02	4.429E-01	1.236E+02	8.302E-03
1989	4.152E+03	2.268E+06	1.524E+02	5.529E-01	1.543E+02	1.036E-02
1990	4.938E+03	2.698E+06	1.813E+02	6.576E-01	1.835E+02	1.233E-02
1991	5.686E+03	3.106E+06	2.087E+02	7.571E-01	2.112E+02	1.419E-02
1992	6.397E+03	3.495E+06	2.348E+02	8.518E-01	2.376E+02	1.597E-02
1993	7.074E+03	3.864E+06	2.597E+02	9.419E-01	2.628E+02	1.766E-02
1994	7.539E+03	4.119E+06	2.767E+02	1.004E+00	2.801E+02	1.882E-02
1995	7.982E+03	4.361E+06	2.930E+02	1.063E+00	2.965E+02	1.992E-02
1996	8.403E+03	4.591E+06	3.085E+02	1.119E+00	3.122E+02	2.097E-02
1997	1.066E+04	5.826E+06	3.914E+02	1.420E+00	3.962E+02	2.662E-02
1998	1.208E+04	6.600E+06	4.435E+02	1.609E+00	4.488E+02	3.016E-02
1999	1.486E+04	8.116E+06	5.453E+02	1.978E+00	5.519E+02	3.708E-02
2000	1.613E+04	8.812E+06	5.921E+02	2.148E+00	5.992E+02	4.026E-02
2001	1.636E+04	8.940E+06	6.006E+02	2.179E+00	6.079E+02	4.084E-02
2002	1.656E+04	9.048E+06	6.079E+02	2.205E+00	6.153E+02	4.134E-02
2003	1.714E+04	9.364E+06	6.292E+02	2.282E+00	6.368E+02	4.278E-02
2004	1.698E+04	9.278E+06	6.234E+02	2.261E+00	6.309E+02	4.239E-02
2005	1.657E+04	9.054E+06	6.083E+02	2.207E+00	6.156E+02	4.137E-02
2006	1.608E+04	8.786E+06	5.903E+02	2.142E+00	5.975E+02	4.014E-02
2007	1.598E+04	8.732E+06	5.867E+02	2.128E+00	5.938E+02	3.990E-02
2008	1.629E+04	8.898E+06	5.978E+02	2.169E+00	6.050E+02	4.065E-02
2009	1.666E+04	9.102E+06	6.115E+02	2.218E+00	6.189E+02	4.158E-02
2010	1.691E+04	9.239E+06	6.207E+02	2.252E+00	6.282E+02	4.221E-02
2011	1.703E+04	9.302E+06	6.250E+02	2.267E+00	6.326E+02	4.250E-02
2012	1.734E+04	9.472E+06	6.364E+02	2.309E+00	6.441E+02	4.328E-02
2013	1.778E+04	9.713E+06	6.526E+02	2.367E+00	6.605E+02	4.438E-02
2014	1.821E+04	9.949E+06	6.685E+02	2.425E+00	6.765E+02	4.545E-02
2015	1.882E+04	1.028E+07	6.909E+02	2.506E+00	6.992E+02	4.698E-02
2016	1.927E+04	1.053E+07	7.075E+02	2.566E+00	7.160E+02	4.811E-02
2017	1.988E+04	1.086E+07	7.296E+02	2.647E+00	7.384E+02	4.961E-02
2018	2.020E+04	1.104E+07	7.416E+02	2.690E+00	7.505E+02	5.043E-02
2019	2.064E+04	1.128E+07	7.576E+02	2.748E+00	7.668E+02	5.152E-02
2020	2.121E+04	1.159E+07	7.786E+02	2.824E+00	7.880E+02	5.294E-02
2021	2.170E+04	1.185E+07	7.964E+02	2.889E+00	8.060E+02	5.415E-02
2022	2.231E+04	1.219E+07	8.190E+02	2.971E+00	8.289E+02	5.569E-02
2023	2.290E+04	1.251E+07	8.405E+02	3.049E+00	8.506E+02	5.715E-02
2024	2.345E+04	1.281E+07	8.609E+02	3.123E+00	8.713E+02	5.854E-02

Results (Continued)

Year	Carbon dioxide			NMOC		
	(Mg/year)	*(m^3/year)*	*(av ft^3/min)*	*(Mg/year)*	*(m^3/year)*	*(av ft^3/min)*
2025	2.398E+04	1.310E+07	8.804E+02	3.194E+00	8.910E+02	5.986E-02
2026	2.449E+04	1.338E+07	8.989E+02	3.261E+00	9.097E+02	6.112E-02
2027	2.497E+04	1.364E+07	9.164E+02	3.325E+00	9.275E+02	6.232E-02
2028	2.542E+04	1.389E+07	9.332E+02	3.385E+00	9.444E+02	6.346E-02
2029	2.586E+04	1.413E+07	9.491E+02	3.443E+00	9.605E+02	6.454E-02
2030	2.627E+04	1.435E+07	9.642E+02	3.498E+00	9.759E+02	6.557E-02
2031	2.666E+04	1.457E+07	9.787E+02	3.550E+00	9.904E+02	6.655E-02
2032	2.704E+04	1.477E+07	9.924E+02	3.600E+00	1.004E+03	6.748E-02
2033	2.739E+04	1.496E+07	1.005E+03	3.647E+00	1.018E+03	6.837E-02
2034	2.773E+04	1.515E+07	1.018E+03	3.692E+00	1.030E+03	6.921E-02
2035	2.805E+04	1.532E+07	1.030E+03	3.735E+00	1.042E+03	7.001E-02
2036	2.836E+04	1.549E+07	1.041E+03	3.776E+00	1.053E+03	7.077E-02
2037	2.865E+04	1.565E+07	1.051E+03	3.814E+00	1.064E+03	7.150E-02
2038	2.892E+04	1.580E+07	1.062E+03	3.851E+00	1.074E+03	7.219E-02
2039	2.919E+04	1.594E+07	1.071E+03	3.886E+00	1.084E+03	7.285E-02
2040	2.944E+04	1.608E+07	1.080E+03	3.920E+00	1.093E+03	7.347E-02
2041	2.800E+04	1.530E+07	1.028E+03	3.728E+00	1.040E+03	6.989E-02
2042	2.663E+04	1.455E+07	9.776E+02	3.547E+00	9.894E+02	6.648E-02
2043	2.534E+04	1.384E+07	9.300E+02	3.374E+00	9.412E+02	6.324E-02
2044	2.410E+04	1.317E+07	8.846E+02	3.209E+00	8.953E+02	6.015E-02
2045	2.292E+04	1.252E+07	8.415E+02	3.053E+00	8.516E+02	5.722E-02
2046	2.181E+04	1.191E+07	8.004E+02	2.904E+00	8.101E+02	5.443E-02
2047	2.074E+04	1.133E+07	7.614E+02	2.762E+00	7.706E+02	5.177E-02
2048	1.973E+04	1.078E+07	7.243E+02	2.627E+00	7.330E+02	4.925E-02
2049	1.877E+04	1.025E+07	6.889E+02	2.499E+00	6.972E+02	4.685E-02
2050	1.785E+04	9.753E+06	6.553E+02	2.377E+00	6.632E+02	4.456E-02
2051	1.698E+04	9.278E+06	6.234E+02	2.261E+00	6.309E+02	4.239E-02
2052	1.615E+04	8.825E+06	5.930E+02	2.151E+00	6.001E+02	4.032E-02
2053	1.537E+04	8.395E+06	5.640E+02	2.046E+00	5.708E+02	3.836E-02
2054	1.462E+04	7.985E+06	5.365E+02	1.946E+00	5.430E+02	3.648E-02
2055	1.390E+04	7.596E+06	5.104E+02	1.851E+00	5.165E+02	3.471E-02
2056	1.323E+04	7.225E+06	4.855E+02	1.761E+00	4.913E+02	3.301E-02
2057	1.258E+04	6.873E+06	4.618E+02	1.675E+00	4.674E+02	3.140E-02
2058	1.197E+04	6.538E+06	4.393E+02	1.594E+00	4.446E+02	2.987E-02
2059	1.138E+04	6.219E+06	4.179E+02	1.516E+00	4.229E+02	2.841E-02
2060	1.083E+04	5.916E+06	3.975E+02	1.442E+00	4.023E+02	2.703E-02
2061	1.030E+04	5.627E+06	3.781E+02	1.372E+00	3.827E+02	2.571E-02
2062	9.798E+03	5.353E+06	3.597E+02	1.305E+00	3.640E+02	2.446E-02
2063	9.320E+03	5.092E+06	3.421E+02	1.241E+00	3.462E+02	2.326E-02
2064	8.866E+03	4.843E+06	3.254E+02	1.181E+00	3.294E+02	2.213E-02
2065	8.433E+03	4.607E+06	3.096E+02	1.123E+00	3.133E+02	2.105E-02
2066	8.022E+03	4.382E+06	2.945E+02	1.068E+00	2.980E+02	2.002E-02
2067	7.631E+03	4.169E+06	2.801E+02	1.016E+00	2.835E+02	1.905E-02
2068	7.259E+03	3.965E+06	2.664E+02	9.666E-01	2.696E+02	1.812E-02
2069	6.905E+03	3.772E+06	2.534E+02	9.194E-01	2.565E+02	1.723E-02
2070	6.568E+03	3.588E+06	2.411E+02	8.746E-01	2.440E+02	1.639E-02
2071	6.248E+03	3.413E+06	2.293E+02	8.319E-01	2.321E+02	1.559E-02
2072	5.943E+03	3.247E+06	2.181E+02	7.913E-01	2.208E+02	1.483E-02
2073	5.653E+03	3.088E+06	2.075E+02	7.528E-01	2.100E+02	1.411E-02
2074	5.377E+03	2.938E+06	1.974E+02	7.160E-01	1.998E+02	1.342E-02
2075	5.115E+03	2.794E+06	1.878E+02	6.811E-01	1.900E+02	1.277E-02

Results (Continued)

Year	Carbon dioxide			NMOC		
	(Mg/year)	*(m^3/year)*	*(av ft^3/min)*	*(Mg/year)*	*(m^3/year)*	*(av ft^3/min)*
2076	4.866E+03	2.658E+06	1.786E+02	6.479E-01	1.808E+02	1.214E-02
2077	4.628E+03	2.528E+06	1.699E+02	6.163E-01	1.719E+02	1.155E-02
2078	4.403E+03	2.405E+06	1.616E+02	5.862E-01	1.636E+02	1.099E-02
2079	4.188E+03	2.288E+06	1.537E+02	5.577E-01	1.556E+02	1.045E-02
2080	3.984E+03	2.176E+06	1.462E+02	5.305E-01	1.480E+02	9.943E-03
2081	3.789E+03	2.070E+06	1.391E+02	5.046E-01	1.408E+02	9.458E-03
2082	3.605E+03	1.969E+06	1.323E+02	4.800E-01	1.339E+02	8.997E-03
2083	3.429E+03	1.873E+06	1.259E+02	4.566E-01	1.274E+02	8.558E-03
2084	3.262E+03	1.782E+06	1.197E+02	4.343E-01	1.212E+02	8.141E-03
2085	3.102E+03	1.695E+06	1.139E+02	4.131E-01	1.153E+02	7.744E-03
2086	2.951E+03	1.612E+06	1.083E+02	3.930E-01	1.096E+02	7.366E-03
2087	2.807E+03	1.534E+06	1.030E+02	3.738E-01	1.043E+02	7.007E-03
2088	2.670E+03	1.459E+06	9.802E+01	3.556E-01	9.920E+01	6.665E-03
2089	2.540E+03	1.388E+06	9.324E+01	3.382E-01	9.436E+01	6.340E-03
2090	2.416E+03	1.320E+06	8.869E+01	3.217E-01	8.976E+01	6.031E-03
2091	2.298E+03	1.256E+06	8.436E+01	3.060E-01	8.538E+01	5.737E-03
2092	2.186E+03	1.194E+06	8.025E+01	2.911E-01	8.122E+01	5.457E-03
2093	2.080E+03	1.136E+06	7.634E+01	2.769E-01	7.726E+01	5.191E-03
2094	1.978E+03	1.081E+06	7.261E+01	2.634E-01	7.349E+01	4.938E-03
2095	1.882E+03	1.028E+06	6.907E+01	2.506E-01	6.990E+01	4.697E-03
2096	1.790E+03	9.779E+05	6.570E+01	2.383E-01	6.649E+01	4.468E-03
2097	1.703E+03	9.302E+05	6.250E+01	2.267E-01	6.325E+01	4.250E-03
2098	1.620E+03	8.848E+05	5.945E+01	2.157E-01	6.017E+01	4.043E-03
2099	1.541E+03	8.417E+05	5.655E+01	2.051E-01	5.723E+01	3.845E-03
2100	1.466E+03	8.006E+05	5.379E+01	1.951E-01	5.444E+01	3.658E-03
2101	1.394E+03	7.616E+05	5.117E+01	1.856E-01	5.179E+01	3.480E-03
2102	1.326E+03	7.244E+05	4.867E+01	1.766E-01	4.926E+01	3.310E-03
2103	1.261E+03	6.891E+05	4.630E+01	1.680E-01	4.686E+01	3.148E-03
2104	1.200E+03	6.555E+05	4.404E+01	1.598E-01	4.457E+01	2.995E-03
2105	1.141E+03	6.235E+05	4.189E+01	1.520E-01	4.240E+01	2.849E-03
2106	1.086E+03	5.931E+05	3.985E+01	1.446E-01	4.033E+01	2.710E-03
2107	1.033E+03	5.642E+05	3.791E+01	1.375E-01	3.836E+01	2.578E-03
2108	9.824E+02	5.367E+05	3.606E+01	1.308E-01	3.649E+01	2.452E-03
2109	9.345E+02	5.105E+05	3.430E+01	1.244E-01	3.471E+01	2.332E-03
2110	8.889E+02	4.856E+05	3.263E+01	1.184E-01	3.302E+01	2.219E-03
2111	8.455E+02	4.619E+05	3.104E+01	1.126E-01	3.141E+01	2.110E-03
2112	8.043E+02	4.394E+05	2.952E+01	1.071E-01	2.988E+01	2.008E-03
2113	7.651E+02	4.180E+05	2.808E+01	1.019E-01	2.842E+01	1.910E-03
2114	7.278E+02	3.976E+05	2.671E+01	9.691E-02	2.703E+01	1.816E-03
2115	6.923E+02	3.782E+05	2.541E+01	9.218E-02	2.572E+01	1.728E-03

ATTACHMENT 6

FIELD SAMPLING FORMS

PROJECT/CLIENT	PROJECT LOCATION		DATE	WEATHER	PERSONNEL:
Pitsch Sanitary Landfill Tier 2 Sampling	Pitsch Sanitary Landfill Belding, MI		5/5/2021	Cloudy, 48-53 F	SCS: Zack Bishop SCS: Whit Martin
SUMMA CANISTER ID	0011	00111	00111	00111	00111
SAMPLE NO.	1	2	3	4	5
TOTAL CANISTER VACUUM (in. Hg)	26	26	26	26	26
CANISTER VOLUME (L)	6	6	6	6	6
CANISTER VACUUM/VOL (in. Hg/L)	4.16	4.16	4.16	4.16	4.16
AMBIENT TEMPERATURE (^{o}F)	48	48	53	53	53
BAROMETRIC PRESSURE	29.09	28.89	28.89	28.89	28.89
TIME: BEGIN PURGE	9:31	9:52	10:23	10:47	11:10
PURGE RATE (ml/min)	250	250	250	250	250
TIME: END PURGE	9:35	9:56	10:27	10:51	11:14
PURGE VOLUME (L)	1	1	1	1	1
	Gas Readings Before / After Sampling				
GEM: % METHANE	67.6 / 67.5	67.0 / 65.0	69.6 / 65.2	54.2 / 53.9	54.6 / 55.6
GEM: % CO2	23.7 / 24.0	17.7 / 11.6	28.5 / 21.6	42.9 / 43.3	40.6 / 41.7
GEM: % O2	1.3 / 1.6	3.0 / 3.9	0.0 / 2.8	0.0 / 0.0	0.3 / 0.0
GEM: % NITROGEN (calc)	7.4 / 7.0	12.3 / 19.3	1.9 / 10.6	3.0 / 3.0	4.5 / 2.7
CANISTER VAC: INITIAL (in. of Hg)	26	19.5	15.5	10.5	6
CANISTER VAC: FINAL (in. of Hg)	19.5	15.5	10.5	6	2
TIME: BEGIN FILL	9:37	9:57	10:30	10:52	11:16
SAMPLE FILL RATE (ml/min)	250	250	250	250	250
TIME: END FILL	9:41	10:01	10:34	10:56	11:20
SAMPLE VOLUME (L)	1	1	1.25	1.125	1
SAMPLE DEPTH (FT)	10	10	10	10	10

GEM Serial # GH1239.3/10

PROJECT/CLIENT	PROJECT LOCATION		DATE	WEATHER	PERSONNEL:
Pitsch Sanitary Landfill Tier 2 Sampling	Pitsch Sanitary Landfill Belding, MI		5/5/2021	Cloudy, 54-55 F	SCS: Zack Bishop SCS: Whit Martin
SUMMA CANISTER ID	00154	00154	00102*	00102*	00102*
SAMPLE NO.	6	7	8	9	10
TOTAL CANISTER VACUUM (in. Hg)	26.5	26.5	26.5	26.5	26.5
CANISTER VOLUME (L)	6	6	6	6	6
CANISTER VACUUM/VOL (in. Hg/L)	4.42	4.42	4.42	4.42	4.42
AMBIENT TEMPERATURE (^{o}F)	54	53	54	54	55
BAROMETRIC PRESSURE	28.89	28.89	28.01	28.00	29.11
TIME: BEGIN PURGE	11:42	12:04	13:50	14:14	15:15
PURGE RATE (ml/min)	250	250	250	250	250
TIME: END PURGE	11:46	12:08	13:54	14:18	15:19
PURGE VOLUME (L)	1	1	1	1	1
	Gas Readings Before / After Sampling				
GEM: % METHANE	62.0 / 61.4	66.8 / 67.6	31.2 / 32.2	47.0 / 47.1	24.5 / 23.9
GEM: % CO2	35.5 / 36.9	31.2 / 29.9	18.7 / 20.2	23.1 / 23.1	17.8 / 16.4
GEM: % O2	0.1 / 0.0	0.0 / 0.1	0.3 / 0.0	4.0 / 4.0	2.1 / 3.1
GEM: % NITROGEN (calc)	2.5 / 1.7	2.0 / 2.2	49.9 / 47.5	25.5 / 26.1	55.8 / 56.6
CANISTER VAC: INITIAL (in. of Hg)	26	22	26.5	1.5	17
CANISTER VAC: FINAL (in. of Hg)	22.5	18	22.5	17.5	13
TIME: BEGIN FILL	11:49	12:09	13:56	14:20	15:20
SAMPLE FILL RATE (ml/min)	250	250	250	250	250
TIME: END FILL	11:53	12:12	14:00	14:24	15:24
SAMPLE VOLUME (L)	1	1	1	1	1
SAMPLE DEPTH (FT)	10	10	15	15	15

GEM Serial # _500437__

* Summa Canister 00102 was incorrectly transcribed on the Chain of Custody during shipment preparation to be sent to the lab.
The Tier II report mentions "Summa Canister 00172". These samples belong to the Summa Canister 00102.

PROJECT/CLIENT	PROJECT LOCATION		DATE	WEATHER	PERSONNEL:
Pitsch Sanitary Landfill Tier 2 Sampling	Pitsch Sanitary Landfill Belding, MI		5/5/2021	Cloudy, 57 F	SCS: Zack Bishop SCS: Whit Martin
SUMMA CANISTER ID	00102*	00102*	00145	00145	00145
SAMPLE NO.	11	12	13	14	15
TOTAL CANISTER VACUUM (in. Hg)	26.5	26.5	26	26	26
CANISTER VOLUME (L)	6	6	6	6	6
CANISTER VACUUM/VOL (in. Hg/L)	4.42	4.42	4.33	4.33	4.33
AMBIENT TEMPERATURE (^{o}F)	57	57	57	57	57
BAROMETRIC PRESSURE	29.07	29.07	29.09	29.07	29.07
TIME: BEGIN PURGE	15:42	16:05	16:26	16:45	17:01
PURGE RATE (ml/min)	250	250	250	250	250
TIME: END PURGE	15:46	16:09	16:30	16:49	17:05
PURGE VOLUME (L)	1	1	1	1	1
	Gas Readings Before / After Sampling				
GEM: % METHANE	22.0 / 25.0	22.6 / 24.5	17.9 / 17.9	22.8 / 21.4	20.9 / 17.7
GEM: % CO2	14.1 / 13.8	15.5 / 16.9	14.8 / 16.7	11.2 / 12.3	22.4 / 23.9
GEM: % O2	0.6 / 0.1	0.3 / 0.0	0.7 / 0.0	2.5 / 2.3	4.1 / 3.7
GEM: % NITROGEN (calc)	63.3 / 61.1	61.6 / 58.6	66.5 / 65.4	63.5 / 64.0	52.6 / 54.7
CANISTER VAC: INITIAL (in. of Hg)	12.5	8	26	21	16
CANISTER VAC: FINAL (in. of Hg)	8.5	4	22	16	12
TIME: BEGIN FILL	15:47	16:10	16:31	16:52	17:07
SAMPLE FILL RATE (ml/min)	250	250	250	250	250
TIME: END FILL	15:51	16:14	16:35	16:56	17:11
SAMPLE VOLUME (L)	1	1	1	1	1
SAMPLE DEPTH (FT)	15	15	15	15	15

GEM Serial # _500437__

* Summa Canister 00102 was incorrectly transcribed on the Chain of Custody during shipment preparation to be sent to the lab.
The Tier II report mentions "Summa Canister 00172". These samples belong to the Summa Canister 00102.

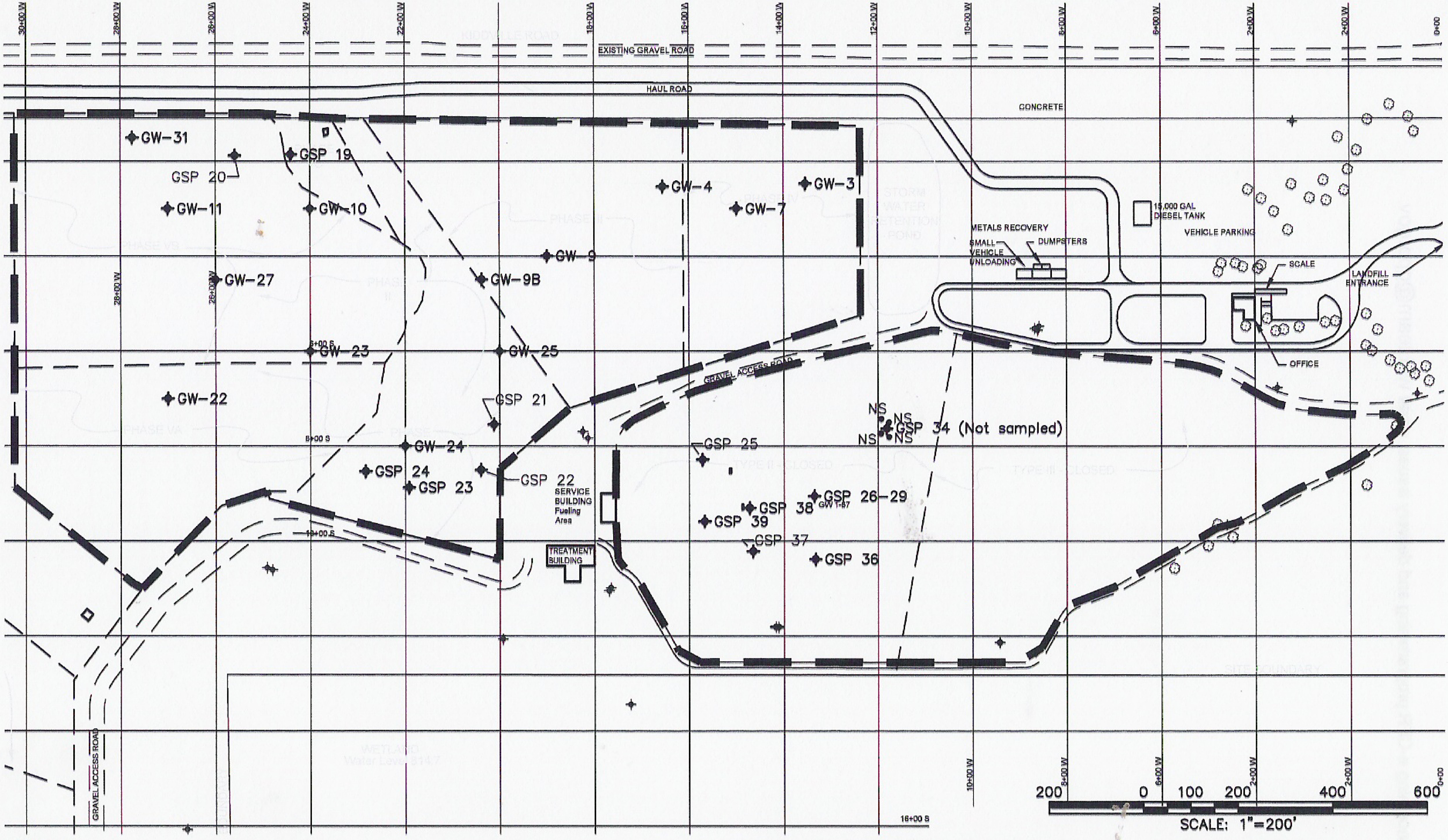
PROJECT/CLIENT	PROJECT LOCATION		DATE	WEATHER	PERSONNEL:
Pitsch Sanitary Landfill Tier 2 Sampling	Pitsch Sanitary Landfill Belding, MI		5/5/2021	Cloudy, 57-58 F	SCS: Zack Bishop SCS: Whit Martin
SUMMA CANISTER ID	00145	00358	00358	00358	00358
SAMPLE NO.	16	17	18	19	20
TOTAL CANISTER VACUUM (in. Hg)	26	26	26	26	26
CANISTER VOLUME (L)	6	6	6	6	6
CANISTER VACUUM/VOL (in. Hg/L)	4.33	4.33	4.33	4.33	4.33
AMBIENT TEMPERATURE (^{o}F)	57	58	57	57	57
BAROMETRIC PRESSURE	29.09	28.89	28.89	28.89	28.89
TIME: BEGIN PURGE	17:18	18:30	18:47	19:07	20:11
PURGE RATE (ml/min)	250	250	250	250	250
TIME: END PURGE	17:22	18:34	18:51	19:11	20:15
PURGE VOLUME (L)	1	1	1	1	1
	Gas Readings Before / After Sampling				
GEM: % METHANE	14.7 / 13.0	61.0 / 61.3	45.4 / 43.3	37.7 / 36.2	68.1 / 51.6
GEM: % CO2	19.6 / 19.5	32.4 / 33.2	23.4 / 22.6	18.6 / 30.9	24.4 / 19.9
GEM: % O2	3.5 / 3.8	0.0 / 0.0	0.0 / 3.6	3.2 / 0.0	1.0 / 4.9
GEM: % NITROGEN (calc)	62.2 / 63.7	6.6 / 5.5	31.5 / 30.5	40.2 / 32.9	6.5 / 23.6
CANISTER VAC: INITIAL (in. of Hg)	12	26	21	17	12
CANISTER VAC: FINAL (in. of Hg)	8	22	17	13	8
TIME: BEGIN FILL	17:24	18:37	18:53	19:13	20:18
SAMPLE FILL RATE (ml/min)	250	250	250	250	250
TIME: END FILL	17:28	18:41	18:57	19:17	20:22
SAMPLE VOLUME (L)	1	1	1	1	1
SAMPLE DEPTH (FT)	15	Gas Vent -- GW-24	Gas Vent -- GW-23	Gas Vent -- GW-10	Gas Vent -- GW-27

GEM Serial # _500437__

PROJECT/CLIENT	PROJECT LOCATION		DATE	WEATHER	PERSONNEL:
Pitsch Sanitary Landfill Tier 2 Sampling	Pitsch Sanitary Landfill Belding, MI		5/5/2021	Cloudy, 50-57 F	SCS: Zack Bishop SCS: Whit Martin
SUMMA CANISTER ID	00358	00344	00344	00344	
SAMPLE NO.	21	22	23	24	
TOTAL CANISTER VACUUM (in. Hg)	26	26	26	26	
CANISTER VOLUME (L)	6	6	6	6	
CANISTER VACUUM/VOL (in. Hg/L)	4.33	4.33	4.33	4.33	
AMBIENT TEMPERATURE (^{o}F)	57	52	51	50	
BAROMETRIC PRESSURE	29.07	29.07	29.01	28.81	
TIME: BEGIN PURGE	20:28	20:43	21:01	21:23	
PURGE RATE (ml/min)	250	250	250	250	
TIME: END PURGE	20:32	20:47	21:05	21:27	
PURGE VOLUME (L)	1	1	1	1	
	Gas Readings Before / After Sampling				
GEM: % METHANE	58.3 / 58.9	65.2 / 66.5	66.3 / 66.0	33.4 / 32.9	
GEM: % CO2	34.1 / 38.0	31.4 / 30.7	29.4 / 28.2	21.3 / 22.0	
GEM: % O2	2.0 / 0.0	0.0 / 0.0	0.3 / 1.7	0.8 / 0.5	
GEM: % NITROGEN (calc)	5.6 / 3.1	3.3 / 2.7	4.2 / 4.1	44.4 / 44.6	
CANISTER VAC: INITIAL (in. of Hg)	8	26	20	16	
CANISTER VAC: FINAL (in. of Hg)	3	22	16	11	
TIME: BEGIN FILL	20:33	20:48	21:07	21:32	
SAMPLE FILL RATE (ml/min)	250	250	250	250	
TIME: END FILL	20:37	20:52	21:11	21:36	
SAMPLE VOLUME (L)	1	1	1	1	
SAMPLE DEPTH (FT)	Gas Vent -- GW-22	Gas Vent -- GW-11	Gas Vent -- GW-31	Gas Vent -- GW-187	

GEM Serial # _500437__

I:\PROJECT\2012 Projects\23212020.00 Pitsch LF Tier 2\Deliverables\3rd Sampling Event\May 2013 Sampling Map.dwg Jun 05, 2013 – 3:03pm Layout Name: Layout1



LEGEND:

✦ GW-1 GAS VENT SAMPLING LOCATION

✦ GSP 35 GAS SAMPLING POINT

SCS ENGINEERS
CONSULTING ENGINEERS, INC.
2060 READING ROAD SUITE 200 CINCINNATI, OHIO 45202
PH. (513) 421-5353 FAX NO. (513) 421-2847

PROJ. NO.	CADD FILE:	DATE:	SCALE:
23212020.00	SAMPLING MAP	JUNE 2013	AS SHOWN

ATTACHMENT 1

SAMPLING LOCATION MAP

PITSCH SANITARY LANDFILL
7905 JOHNSON ROAD
BELDING, MICHIGAN 48809