

Ramsey, Marguerita (DEQ)

From: Melvin Dacres <Melvin.Dacres@glwater.org>
Sent: Wednesday, July 25, 2018 1:25 PM
To: DEQ-ROP
Subject: B2103-ROP Renewal Application
Attachments: ROP Renewal Application.pdf; B2103 ROP MARKED UP.doc; MALFUNCTION ABATEMENT PLAN (GLWA incinerators).pdf; MAP- BDF - Post RTO Scrubbers.pdf; Dryer CAM Plan 7.06.18 v2.pdf; 7-2017 GLWA_ACO_B2103_20170605.pdf

Melvin Dacres

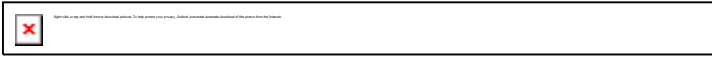
Chemist

Great Lakes Water Authority • 9300 W. Jefferson • Detroit, MI 48209

P: 313.297.0363

E: Melvin.Dacres@glwater.org

General Information: 844.455.GLWA (4592)





Wastewater Operating Services

9300 W. Jefferson
Detroit, Michigan 48209



July 23, 2018

Ms. Wilhemina McLemore
MDEQ Air Quality Division
Cadillac Place, Suite 2-300
3058 West Grand Boulevard
Detroit, MI 48202

Dear Ms. McLemore:

Re: Renewable Operating Permit (ROP) Renewal Application

In accordance to R 336.1210 (Rule 210), subrule 9, of Michigan's ROP program, the Great Lakes Water Authority (GLWA) is submitting an administratively complete ROP Renewal Application for the Water Resource Recovery Facility (WRRF). If you have any questions, you may contact me at (313) 297-4301, or e-mail me at Majid.Khan@glwater.org.

Sincerely,

Digitally signed by Majid
Khan
Date: 2018.07.23 11:52:40
-04'00'

Majid Khan
Director – Wastewater Operations

MK/md

Attachments

cc: Sue McCormick William Wolfson Suzanne Coffey
Randal Brown Lavonda Jackson Luther Blackburn
Annette Vines Lamarr Beden Wilhemina McLemore
Melvin Dacres Sajit George Chris Vanpoppelen
Ed Hogan File



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 B2103	SIC Code 9511	NAICS Code 221320	Existing ROP Number MI-ROP-B2103-2014d	Section Number (if applicable)
Source Name GLWA Water Resource Recovery Facility				
Street Address 9300 W. Jefferson Avenue				
City Detroit	State MI	ZIP Code 48209	County Wayne	
Section/Town/Range (if address not available)				
Source Description Wastewater Treatment				
<input checked="" type="checkbox"/> Check here if any of the above information is different than what appears in the existing ROP. Identify any changes on the marked-up copy of your existing ROP.				

OWNER INFORMATION

Owner Name Great Lakes Water Authority	Section Number (if applicable)			
Mailing address (<input type="checkbox"/> check if same as source address) Water Board Building 735 Randolph Street				
City Detroit	State MI	ZIP Code 48226	County Wayne	Country USA

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

SRN: B2103

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 Majid Khan		Title Director of Wastewater Operations		
Mailing address (<input checked="" type="checkbox"/> check if same as source address) 9300 W. Jefferson Avenue				
City Detroit	State MI	ZIP Code 48209	County Wayne	Country USA
Phone number (313) 297-4301		E-mail address Majid.Khan@glwater.org		

Contact 2 Name (optional) Melvin Dacres		Title Chemist		
Mailing address (<input checked="" type="checkbox"/> check if same as source address) 9300 W. Jefferson Avenue				
City Detroit	State MI	ZIP Code 48209	County Wayne	Country USA
Phone number (313) 297-0363		E-mail address Melvin.Dacres@glwater.org		

RESPONSIBLE OFFICIAL INFORMATION

Responsible Official 1 Name Majid Khan		Title Director of Wastewater Operations		
Mailing address (<input checked="" type="checkbox"/> check if same as source address) 9300 W. Jefferson Avenue				
City Detroit	State MI	ZIP Code 48209	County Wayne	Country USA
Phone number (313) 297-4301		E-mail address Majid.Khan@glwater.org		

Responsible Official 2 Name (optional) Luther Blackburn		Title Manager - Wastewater Operations		
Mailing address (<input checked="" type="checkbox"/> check if same as source address) 9300 W. Jefferson Avenue				
City Detroit	State MI	ZIP Code 48209	County Wayne	Country USA
Phone number (313) 297-0300		E-mail address Luther.Blackburn@glwater.org		


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

PART B: APPLICATION SUBMITTAL and CERTIFICATION by Responsible Official

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

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

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

Name and Title of the Responsible Official (Print or Type)	
Majid Khan – Director of Wastewater Operations	
<i>As a Responsible Official, I certify that, based on information and belief formed after reasonable inquiry, the statements and information in this application are true, accurate, and complete.</i>	
 <small>Digitally signed by Majid Khan Date: 2018.07.23 12:05:58 +04'00'</small>	7/23/2018
Signature of Responsible Official	Date

PART C: SOURCE REQUIREMENT INFORMATION

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

<p>C1. Actual emissions and associated data from <u>all</u> 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 <u>not</u> 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.</p>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<p>C2. Is this source subject to the federal regulations on ozone-depleting substances? (40 CFR Part 82)</p>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<p>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?</p>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<p>C4. Does the source belong to one of the source categories that require quantification of fugitive emissions? If Yes, identify the category on an AI-001 Form and include the fugitive emissions in the PTE calculations for the source. <i>See ROP Renewal Application instructions.</i></p>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<p>C5. Does this stationary source have the potential to emit (PTE) of 100 tons per year or more of any criteria pollutant (PM-10, PM 2.5, VOC, NOx, SO₂, CO, lead)? If Yes, include potential emission calculations for each identified pollutant on an AI-001 Form.</p>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<p>C6. Does this stationary source emit any hazardous air pollutants (HAPs) regulated by the federal Clean Air Act, Section 112? If Yes, include potential and actual emission calculations for HAPs on an AI-001 Form. Fugitive emissions must be included in HAP calculations.</p>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<p>C7. 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.</p>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<p>C8. 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?</p>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<p>C9. 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 the MDEQ, one must be included with the ROP renewal application on an AI-001 Form. Is a CAM plan included with this application?</p>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<p>C10. 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.</p>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<p>C11. 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.</p>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<input checked="" type="checkbox"/> Check here if an AI-001 Form is attached to provide more information for Part C. Enter AI-001 Form ID: AI-PartC4, AI-PartC5, AI-PartC6, AI-PartC9	

SRN:	Section Number (if applicable):
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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 201 Exemption Rule Citation [e.g. Rule 282(2)(b)(i)]	Rule 212(4) Citation [e.g. Rule 212(4)(c)]

Comments:

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

PART E: EXISTING ROP INFORMATION

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

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.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
E2. For each emission unit(s) identified in the existing ROP, <u>all</u> stacks with applicable requirements are to be reported in MAERS. Are there any stacks with applicable requirements for emission unit(s) identified in the existing ROP that were <u>not</u> reported in the most recent MAERS reporting year? If Yes, identify the stack(s) that was/were not reported on applicable MAERS form(s).	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<p>Comments: Emission unit EUINC02 was decommissioned on November 1, 2013. Emission unit EUINC06 was decommissioned on July 27, 2016. Emission units EUINC01, EUINC03, EUINC04, and EUINC05 were decommissioned on June 1, 2017. With all the emission units of Flexible Group FGComplex1 being decommissioned, the three ash silo units in Flexible Group FGC1ASH are no longer needed. These emission units are decommissioned on June 1, 2017.</p>	
<input type="checkbox"/> Check here if an AI-001 Form is attached to provide more information for Part E. Enter AI-001 Form ID: AI-	

PART F: PERMIT TO INSTALL (PTI) INFORMATION

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

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

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

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

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

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

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

Comments:

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

SRN:	Section Number (if applicable):
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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
<input type="checkbox"/> Rule 281(2)(h) or 285(2)(r)(iv) cleaning operation		
<input type="checkbox"/> Rule 287(2)(c) surface coating line		
<input type="checkbox"/> Rule 290 process with limited emissions		

Comments:

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

SRN:	Section Number (if applicable):
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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.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
H2. Are there any proposed administrative changes to any of the existing emission unit names, descriptions or control devices in the ROP? If Yes, describe the changes in questions H8 – H16 below and in the affected Emission Unit Table(s) in the mark-up of the ROP.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
H3. Does the source propose to add a new emission unit or flexible group to the ROP not previously identified in Parts F or G? If 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.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
H4. Does the source propose to add new state or federal regulations to the existing ROP? If Yes, on an AI-001 Form, identify each emission unit/flexible group that the new regulation applies to and identify <u>each</u> state or federal regulation that should be added. Also, describe the new requirements in questions H8 – H16 below and add the specific requirements to existing emission units/flexible groups in the mark-up of the ROP, create a new Emission Unit/Flexible Group Table, or add an AQD template table for the specific state or federal requirement.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
H5. Has a Consent Order/Consent Judgment (CO/CJ) been issued where the requirements were not incorporated into the existing ROP? If 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. AQD No. 7-2017	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> 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.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

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

<p>H8. Does the source propose to add, change and/or delete emission limit requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below.</p>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<ul style="list-style-type: none"> • FGC1ASH, FGCOMPLEX1, and FGDryerIncTrans are terminated due to the decommissioning of Complex 1 incinerators. FGCOMPLEX2 is terminated due to the operation of each Complex 2 incinerator with upgraded air quality control improvements. All conditions of each terminated flexible group are no longer applicable requirements. • For FGC2ASH, a testing method for particulate matter was deleted due to initial compliance being done already. The limit for visible emissions is not a future applicable requirement, but a current requirement. A correction in equipment for visible emissions has to be done for this same flexible group. Testing Method is added for visible emissions to correspond to continuous compliance testing. • For FGLIMESTORAGE, the wording for the visible emissions time period/operating scenario should be changed due to the fact that there is no continuous opacity monitoring system available to record opacity due to lime loading. Only visual observations should be done during loading. • For FGAQCI, the testing method used in SC V.1 for pollutants 1-15 is no longer needed since initial compliance has already been established. • For FG4M-INCIN, the testing methods used in SC V.1-2 for all the ten pollutants are no longer needed since initial compliance has already been established. • For FGDryerTrains, initial compliance has already been established for pollutants 4-12. Therefore, the testing method used in SC V.1 no longer is needed for these pollutants. For SO₂, two requirements from Consent order AQD 7-2017 should be added. For lead, only GC 13 would apply for testing method/monitoring. 	
<p>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.</p>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<ul style="list-style-type: none"> • FGC1ASH, FGCOMPLEX1, and FGDryerIncTrans are terminated due to the decommissioning Complex 1 incinerators. FGCOMPLEX2 is terminated due to the operation of each Complex 2 incinerator with upgraded air quality control improvements. All conditions of each terminated flexible group are no longer applicable requirements. • For FGAQCI, the monitoring method described in SC VI.8 is to be used to comply with this material limit. 	
<p>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.</p>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<ul style="list-style-type: none"> • FGC1ASH, FGCOMPLEX1, and FGDryerIncTrans are terminated due to the decommissioning Complex 1 incinerators. FGCOMPLEX2 is terminated due to the operation of each Complex 2 incinerator with upgraded air quality control improvements. All conditions of each terminated flexible group are no longer applicable requirements. • For FGAQCI, Hearth #1 is an afterburner and not a combustion chamber. For SC III.6, the sludge feed rate for FGAQCI is a daily facility-wide operating feed rate, approved by the AQD Detroit Office. For SC III.8, only 12-month rolling totals of the sludge feed for FGAQCI is necessary due to the terminated Flexible Group FGCOMPLEX2 and decommissioned Complex 1 incinerators. 	
<p>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.</p>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

- FGC1ASH, FGCOMPLEX1, and FGDryerIncTrans are terminated due to the decommissioning Complex 1 incinerators. FGCOMPLEX2 is terminated due to the operation of each Complex 2 incinerator with upgraded air quality control improvements. All conditions of each terminated flexible group are no longer applicable requirements.
- For SC IV.1b of FGCOLDCLEANERS, the word *plant* should be replaced with the word *facility*.
- For FGAQCI, Hearth #1 is an afterburner and not a combustion chamber. The devices to monitor and record oxygen and visible emissions have already been installed.
- For FG4M-INCIN, the devices to monitor and record the sewage sludge, Hearth #1 afterburner, pressure drop across the inlet and outlet of each scrubber, the liquid flow rate through each scrubber, and the liquid pH for each scrubber have already been installed.
- For FGDryerTrains, the impingement tray scrubber, RTO, and packed tower liquid scrubber have already been installed for each dryer train. A fabric filter collector has already been installed for each recycle bin.
- For FGDryerFacility, the devices to monitor and record the pH and oxidation-reduction potential of the scrubber liquid in each alkaline hypochlorite scrubber and other parameters identified in the approved malfunction abatement plan have already been installed.

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

- FGC1ASH, FGCOMPLEX1, and FGDryerIncTrans are terminated due to the decommissioning Complex 1 incinerators. FGCOMPLEX2 is terminated due to the operation of each Complex 2 incinerator with upgraded air quality control improvements. All conditions of each terminated flexible group are no longer applicable requirements.
- For FGC2ASH, initial compliance has been accomplished already for fugitive ash emissions.
- For FGLIMESTORAGE, Appendix 5 does not apply to this section.
- For FGAQCI, all the air quality control improvements have been done, and the initial testing of pollutants has been done within trial operation of each incinerator.
- For FG4M-INCIN, initial compliance with emission limits and standards of each pollutant in SC I has already been accomplished.
- For FGDryerTrains, testing has already been done within 180 days after commencement of trial operation of each dryer train for each pollutant in SC I. Two requirements from Consent Order AQD 7-2017 have been added to deal with SO2 emission compliance.

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

- FGC1ASH, FGCOMPLEX1, and FGDryerIncTrans are terminated due to the decommissioning Complex 1 incinerators. FGCOMPLEX2 is terminated due to the operation of each Complex 2 incinerator with upgraded air quality control improvements. All conditions of each terminated flexible group are no longer applicable requirements.
- For FGC2ASH, Method 22 is not done as part of the daily operational duties. This is only used during performance testing. Site-specific monitoring plan for ash handling system has already been developed and submitted. Appendices 3 and 4 do not apply to this section.
- For FGLIMESTORAGE, stating that inspections of baghouse shall be conducted on a regular basis should be enough of a requirement.
- For FGAQCI, Hearth #1 is an afterburner and not a combustion chamber. Language of SC VI.6 should reflect the approved method of calculating a daily facility-wide operating sludge feed rate for the entire incineration complex. Monitoring and recording of sludge feed for each calendar month and the 12-month rolling time period ending in that month is only to be done for this flexible group and not FGCOMPLEX2 (which has been terminated) nor the decommissioned Complex 1 incinerators.
- For FG4M-INCIN, the language for SC VI.1 should reflect the approved method of calculating a daily facility-wide operating sludge feed rate for the entire incineration complex. Hearth #1 is an afterburner and not a combustion chamber.
- For FGDryerTrains, monitoring and recording of parameters of packed tower liquid scrubber is already being done for each dryer train.
- For FG2013Project, the NO2 ambient air monitoring program has been going on since 2015. Until the end of the monitoring program, data collection will continue to occur.

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

- FGC1ASH, FGCOMPLEX1, and FGDryerIncTrans are terminated due to the decommissioning Complex 1 incinerators. FGCOMPLEX2 is terminated due to the operation of each Complex 2 incinerator with upgraded air quality control improvements. All conditions of each terminated flexible group are no longer applicable requirements.
- For FGAQCI, EUINC02 was decommissioned on November 1, 2013.
- For FG2013Project, a NO2 ambient air monitoring plan has already been submitted, and program is ongoing.

SRN:

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

- FGC1ASH, FGCOMPLEX1, and FGDryerIncTrans are terminated due to the decommissioning Complex 1 incinerators. FGCOMPLEX2 is terminated due to the operation of each Complex 2 incinerator with upgraded air quality control improvements. All conditions of each terminated flexible group are no longer applicable requirements.

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

- FGC1ASH, FGCOMPLEX1, and FGDryerIncTrans are terminated due to the decommissioning Complex 1 incinerators. FGCOMPLEX2 is terminated due to the operation of each Complex 2 incinerator with upgraded air quality control improvements. All conditions of each terminated flexible group are no longer applicable requirements.
- For SOURCE-WIDE CONDITIONS, the word *plant* should be replaced with the word *facility*. For the Fugitive Dust Control Plan, the term *Wastewater Treatment Plant* should be replaced with *Water Resource Recovery Facility*.
- For EULIMEPAD, the word *plant* should be replaced with the word *facility*. Requirement SC IX.2 should be deleted because the transfer points are covered, and no spillage of sludge is occurring to the outside.
- For FGAQCI, all air quality control improvements for each Complex2 incinerator have been completed and the special conditions of FGCOMPLEX2 are no longer applicable. The most recent MAP was approved on November 29, 2017. This will replace the MAP dated March 22, 2007. EUINC02 was decommissioned on November 1, 2013, which was way before the start of the upgraded Complex 2 incinerators.
- For FG4M-INCIN, the requirements of this flexible group have been in effect since March 21, 2016. Air pollution control device inspections were done right after scrubber upgrades. A site-specific monitoring plan has been developed and approved.

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-Parth



**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.

Form Type AI-001	SRN B2103
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1. Operator's Additional Information ID AI PartC4

Additional Information

2. Is This Information Confidential?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
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3. Narrative

Potential to Emit Fugitive Dust Emission Totals (Paved Roads)

$$E = k \times (SL)^{0.91} \times (W)^{1.02}$$

E = particulate emission factor (in lbs/ vehicle mile traveled)
k= particle size multiplier (in lbs/vehicle mile traveled)
SL = road surface silt loading (grams per square meter) (g/m2)
W = average weight of the vehicles traveling the road (in tons)

PM
 $0.011 \times (0.6)^{0.91} \times (4.42)^{1.02} = 0.031$ lbs/ vehicle mile traveled
 0.031 lbs//vehicle mile traveled x 3456.53 vehicle mile traveled/year = 107.15 lbs/year
 107.15 lbs/year x 1 ton/2000 lbs = 0.054 tons/year

PM 2.5
 $0.00054 \times (0.6)^{0.91} \times (4.42)^{1.02} = 0.0015$ lbs/vehicle mile traveled
 0.0015 lbs/vehicle mile traveled x 3456.53 vehicle mile traveled/year = 5.18 lbs/year
 5.18 lbs/year x 1 ton/2000 lbs = 0.0026 tons/year

PM 10
 $0.0022 \times (0.6)^{0.91} \times (4.42)^{1.02} = 0.0063$ lbs/vehicle mile traveled
 0.0063 lbs/vehicle mile traveled x 3456.53 vehicle mile traveled/year = 21.78 lbs/year
 21.78 lbs/year x 1 ton/2000 lbs = 0.011 tons/year



**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.

Form Type AI-001	SRN B2103
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1. Operator's Additional Information ID AI PartC4

Additional Information

2. Is This Information Confidential?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
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3. Narrative

Potential to Emit Fugitive Dust Emission Totals (Unpaved Roads)

$$E = k(s/12)^a(W/3)^b$$

E = particulate emission factor (in lbs/vehicle mile traveled)
 k= particle size multiplier (in lbs/vehicle mile traveled)
 s = surface material silt content (%)
 W = mean vehicle weight (tons)
 a, b are empirical constants depending on particle size

PM
 $4.9 \times (4.8/12)^{0.7} \times (6.29/3)^{0.45} = 1.53 \text{ lbs/vehicle mile traveled}$
 $1.53 \text{ lbs/vehicle mile traveled} \times 3456.53 \text{ vehicle mile traveled/year} = 5288.49 \text{ lbs/year}$
 $5288.49 \text{ lbs/year} \times 1 \text{ ton}/2000 \text{ lbs} = 2.64 \text{ tons/year}$

PM 2.5
 $0.15 \times (4.8/12)^{0.9} \times (6.29/3)^{0.45} = 0.092 \text{ lbs/vehicle mile traveled}$
 $0.092 \text{ lbs/vehicle mile traveled} \times 3456.53 \text{ vehicle mile traveled/year} = 318 \text{ lbs/year}$
 $318 \text{ lbs/year} \times 1 \text{ ton}/2000 \text{ lbs} = 0.16 \text{ tons/year}$

PM10
 $1.5 \times (4.8/12)^{0.9} \times (6.29/3)^{0.45} = 0.92 \text{ lbs/vehicle mile traveled}$
 $0.92 \text{ lbs/vehicle mile traveled} \times 3456.53 \text{ vehicle mile traveled/year} = 3180.01 \text{ lbs/year}$
 $3180.01 \text{ lbs/year} \times 1 \text{ ton}/2000 \text{ lbs} = 1.59 \text{ tons/year}$



**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.

Form Type AI-001	SRN B2103
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1. Operator's Additional Information ID AI PartC5

Additional Information

2. Is This Information Confidential?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
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3. Narrative FGAQCI (covers emission units EUINC07, EUINC08, EUINC09, EUINC10, EUINC11, EUINC12, EUINC13, EUINC14) Potential to Emit Criteria Pollutants Emission Totals (> 100 tons per year): CO 1,522.4 tons per year (Permit Limit) NOx 663.4 tons per year (Permit Limit)
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**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.

Form Type AI-001	SRN B2103
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1. Operator's Additional Information ID AI PartC6

Additional Information	
2. Is This Information Confidential?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
3. Narrative	
FGAQCl (covers emission units EUINC07, EUINC08, EUINC09, EUINC10, EUINC11, EUINC12, EUINC13, EUINC14)	
Potential to Emit HAP Emission Totals	
Dioxins/Furans (total mass basis) $13302.25 \text{ dscf/min} \times 5 \text{ ng/dscm} \times (1 \text{ lb}/453.6 \times 10^9 \text{ ng}) \times (1 \text{ dscm}/35.31 \text{ dscf}) \times (1 \text{ ton}/2000 \text{ lb}) \times (60 \text{ min}/1 \text{ hr}) \times (8760 \text{ hr}/1 \text{ yr}) = 1.091 \times 10^{-6} \text{ tons/yr}$	
Dioxins/Furans (total toxic equivalency basis) $13302.25 \text{ dscf/min} \times 0.32 \text{ ng/dscm} \times (1 \text{ lb}/453.6 \times 10^9 \text{ ng}) \times (1 \text{ dscm}/35.31 \text{ dscf}) \times (1 \text{ ton}/2000 \text{ lb}) \times (60 \text{ min}/1 \text{ hr}) \times (8760 \text{ hr}/1 \text{ yr}) = 6.984 \times 10^{-8} \text{ tons/yr}$	
Mercury $13287.63 \text{ dscf/min} \times 0.28 \text{ mg/dscm} \times (1 \text{ lb}/453600 \text{ mg}) \times (1 \text{ dscm}/35.31 \text{ dscf}) \times (1 \text{ ton}/2000 \text{ lb}) \times (60 \text{ min}/1 \text{ hr}) \times (8760 \text{ hr}/1 \text{ yr}) = 0.610 \text{ tons/yr}$	
Cadmium $13287.63 \text{ dscf/min} \times 0.095 \text{ mg/dscm} \times (1 \text{ lb}/453600 \text{ mg}) \times (1 \text{ dscm}/35.31 \text{ dscf}) \times (1 \text{ ton}/2000 \text{ lb}) \times (60 \text{ min}/1 \text{ hr}) \times (8760 \text{ hr}/1 \text{ yr}) = 0.021 \text{ tons/yr}$	
Lead $13287.63 \text{ dscf/min} \times 0.30 \text{ mg/dscm} \times (1 \text{ lb}/453600 \text{ mg}) \times (1 \text{ dscm}/35.31 \text{ dscf}) \times (1 \text{ ton}/2000 \text{ lb}) \times (60 \text{ min}/1 \text{ hr}) \times (8760 \text{ hr}/1 \text{ yr}) = 0.065 \text{ tons/yr}$	
Page of	



**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.

Form Type AI-001	SRN B2103
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1. Operator's Additional Information ID AI ParH

Additional Information

2. Is This Information Confidential?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
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3. Narrative Description and Emission Unit changes

For EMISSION UNIT CONDITIONS, there are three natural gas-fired boiler with a heat input capacity of 16.33 MMBTU/hr being used. The unit labels for those boilers are the following: EUBOILER1, EUBOILER2, EUBOILER3. The boilers listed in the current ROP have never been used.

For FLEXIBLE GROUP CONDITIONS, FGC1ASH, FGCOMPLEX1, and FGDryerIncTrans are terminated due to the decommissioning Complex 1 incinerators. FGCOMPLEX2 is terminated due to the operation of each Complex 2 incinerator with upgraded air quality control improvements. All condition and pollution control equipment descriptions of each terminated flexible group are no longer applicable requirements. The description for FGNSPSBOILERS should reflect that there are three boilers subject to the requirement in NSPS Subpart Dc. The description change for FGAQCI reflects the air quality control improvement of the current scrubber system for each incinerator. Description of pollution control equipment for FGAQCI should reflect the current scrubber system, not the old system. The conditions of FG4M-INCIN are currently in effect, so the description about effective date should be deleted. Description of pollution control equipment for FG4M-INCIN should reflect the current scrubber system, not the old system.

**MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION**

EFFECTIVE DATE: January 31, 2014
REVISION DATES: June 13, 2014; October 16, 2015; January 1, 2016; August 29, 2017

ISSUED TO

GREAT LAKES WATER AUTHORITY
WATER RESOURCE RECOVERY FACILITY
State Registration Number (SRN): B2103

LOCATED AT

9300 W. Jefferson Avenue, Detroit, Michigan 48209-2696

RENEWABLE OPERATING PERMIT

Permit Number: MI-ROP-B2103-2014d

Expiration Date: January 31, 2019

Administratively Complete ROP Renewal Application
Due Between July 31, 2017 and July 31, 2018

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

SOURCE-WIDE PERMIT TO INSTALL

Permit Number: MI-PTI-B2103-2014d

This Permit to Install (PTI) is issued in accordance with and subject to Section 5505(5) of Act 451. Pursuant to Michigan Air Pollution Control Rule 214a, the terms and conditions herein, identified by the underlying applicable requirement citation of Rule 201(1)(a), constitute a federally enforceable PTI. The PTI terms and conditions do not expire and remain in effect unless the criteria of Rule 201(6) are met. Operation of all emission units identified in the PTI is subject to all applicable future or amended rules and regulations pursuant to Act 451 and the federal Clean Air Act.

Michigan Department of Environmental Quality

Wilhemina McLemore, Detroit 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 Environmental Quality (MDEQ) 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 will be identified for each ROP term or condition. All terms and conditions that are included in a PTI, are streamlined or subsumed, 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.

A. GENERAL CONDITIONS

Permit Enforceability

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

General Provisions

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

and known as the Freedom of Information Act, the person may also be required to furnish the records directly to the USEPA together with a claim of confidentiality. **(R 336.1213(1)(e))**

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

Equipment & Design

9. Any collected air contaminants shall be removed as necessary to maintain the equipment at the required operating efficiency. The collection and disposal of air contaminants shall be performed in a manner so as to minimize the introduction of contaminants to the outer air. Transport of collected air contaminants in Priority I and II areas requires the use of material handling methods specified in Rule 370(2). **(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. Except as provided in Subrules 2, 3, and 4 of Rule 301, states in part; “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 Rule 301(1)(a) or (b) unless otherwise specified in this ROP.” The grading of visible emissions shall be determined in accordance with Rule 303. **(R 336.1301(1) in pertinent part):**
 - a. A 6-minute average of 20 percent opacity, except for one 6-minute average per hour of not more than 27 percent opacity.
 - b. A limit specified by an applicable federal new source performance standard.
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). **(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(4))**

Monitoring/Recordkeeping

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

Certification & Reporting

18. Except for the alternate certification schedule provided in Rule 213(3)(c)(iii)(B), any document required to be submitted to the department as a term or condition of this ROP shall contain an original certification by a responsible official which states that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete. **(R 336.1213(3)(c))**
19. A responsible official shall certify to the appropriate AQD District Office and to the USEPA that the stationary source is and has been in compliance with all terms and conditions contained in the ROP except for deviations that have been or are being reported to the appropriate AQD District Office pursuant to Rule 213(3)(c). This certification shall include all the information specified in Rule 213(4)(c)(i) through (v) and shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the certification are true, accurate, and complete. The USEPA address is: USEPA, Air Compliance Data - Michigan, Air and Radiation Division, 77 West Jackson Boulevard, Chicago, Illinois 60604. **(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.

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. **(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))**

- 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(9))**
33. Pursuant to Rule 216(1)(b)(iii), Rule 216(2)(d) and Rule 216(4)(d), after a change has been made, and until the department takes final action, the permittee shall comply with both the applicable requirements governing the change and the ROP terms and conditions proposed in the application for the modification. During this time period, the permittee may choose to not comply with the existing ROP terms and conditions that the application seeks to change. However, if the permittee fails to comply with the ROP terms and conditions proposed in the application during this time period, the terms and conditions in the ROP are enforceable. **(R 336.1216(1)(c)(iii), R 336.1216(2)(d), R 336.1216(4)(d))**

Reopenings

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

Renewals

35. For renewal of this ROP, an administratively complete application shall be considered timely if it is received by the department not more than 18 months, but not less than 6 months, before the expiration date of the ROP. **(R 336.1210(7))**

Stratospheric Ozone Protection

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

Risk Management Plan

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

Emission Trading

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

Permit To Install (PTI)

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

Footnotes:

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

Consent Orders

The conditions contained in this ROP for which a Consent Order is the only identified underlying applicable requirement shall be considered null and void upon the effective date of termination of the Consent Order. The effective date of termination is defined for the purposes of this condition as the date upon which the Termination Order is signed by the Chief of the AQD.

B. SOURCE-WIDE CONDITIONS

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

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

SOURCE-WIDE CONDITIONS

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. Beryllium	10 grams	24-hour period	All process equipment at the facility, including equipment covered by other permits, grand-fathered equipment and exempt equipment.	Appendix 4	40 CFR 61.32(a)
2. Mercury	3,200 grams	24-hour period	All process equipment at the facility, including equipment covered by other permits, grand-fathered equipment and exempt equipment.	SC V.1, Appendix 4	40 CFR 61.52(b)

II. MATERIAL LIMIT(S)

Material	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
NA	NA	NA	NA	NA	NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

NA

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

V. TESTING/SAMPLING

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

- The permittee shall test sewage sludge samples from the incinerator feed system once per calendar month for mercury content using EPA Reference Method 105. If the measured mercury content from the incinerator feed system exceeds 1.43 mg/kg, then the permittee shall notify the District Supervisor. Test results shall be submitted to the District Supervisor. **(40 CFR 61.52(b), 40 CFR 61.53(d)(2), 40 CFR 61.54(a), 40 CFR Part 503.43, 40 CFR Part 503.46)**

See Appendix 5

VI. MONITORING/RECORDKEEPING

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

1. The permittee shall keep records of the fugitive dust control measures taken at the facility, utilizing the format in Appendix 4.1. **(Act 451, Part 55 §324.5524), (Consent Order MDEQ SIP No. 11-1993)**

See Appendix 4

VII. REPORTING

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**
2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(R 336.1213(3)(c)(i))**
3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

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

Stack & Vent ID	Maximum Exhaust Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
NA	NA	NA	NA

IX. OTHER REQUIREMENT(S)

1. The permittee shall implement and maintain a Fugitive Dust Control Plan, including the following provisions:
 1. Paved Road
 - a) Daily sweeping, washing, or vacuuming in the material handling area on days when material handling takes place
 - b) Weekly sweeping, washing or vacuuming – All other paved roadways
 - c) The frequency of the above treatment in a & b can be exempted when at least one of the following conditions occurs:
 - i. Daily precipitation exceeds 0.1 in.
 - ii. Daily high temperature does not exceed 32° F.
 - iii. Road salt is applied and for 48 hours thereafter
 - iv. Freezing conditions are anticipated
 - v. No bulk material handling operations are conducted.

(Consent Order MDEQ SIP No. 11-1993), (Act 451, Part 55 §324.5524)
2. Gravel Parking - Add gravel cover as needed. **(Consent Order MDEQ SIP No. 11-1993), (Act 451, Part 55 §324.5524)**

3. Incineration Complexes I and II - Watering daily to the following area
 - a) Five Ash Silos
 - b) Gravity Discharge**(Consent Order MDEQ SIP No. 11-1993), (Act 451, Part 55 §324.5524)**
4. Unpaved roads, paved roads, storage piles, and material handling, and open areas and lots, created after the effective date of the consent order (dated May 19, 1993) shall meet the same requirements as similar area sources specifically identified in Appendix 4.1. **(Consent Order MDEQ SIP No. 11-1993), (Act 451, Part 55 §324.5524)**
5. The permittee shall notify the Division within 30 calendar days following the quarter in which any new area sources were created and the notification shall include a description of any new area source. **(R336.1213(3)), (Consent Order MDEQ SIP No. 11-1993)**
6. The permittee shall not retain dewatered sludge on the facility site for more than 12 hours, except when landfill opportunities are limited, such as weekends and holidays. **(R336.1901)¹, (Act 451, Part 55 §324.5524)**
7. The sludge from the exterior of the vehicles hauling sludge shall be washed at intervals at the facility. Such washings shall be routed to the treatment facility. **(R336.1901)¹, (Act 451, Part 55 §324.5524)**
8. The permittee shall wash and clean all roadways on a daily basis or more frequent if odor occurs to prevent accumulations of sludge or the generation of odors. **(R336.1901)¹, (Act 451, Part 55 §324.5524)**
9. The conditions contained in this RO permit for which a Consent Order is the only identified applicable requirement shall be considered null and void upon the effective date of the termination of the Consent Order. The effective date of termination is defined for the purposes of this condition as the date upon which the Termination Order is signed by the Chief of Air Quality Division. **(Consent Order MDEQ SIP No. 11-1993)**
- 10 The permittee shall comply with the fugitive dust control plan as described below:

GREAT LAKES WATER AUTHORITY-WATER RESOURCE RECOVERY FACILITY
 FUGITIVE DUST CONTROL PLAN

Wind Erosion and Traffic Emissions
 Roads, Parking Lots, and Open Areas

Type of Surface Usage	PAVED ROAD	GRAVEL ROAD	PAVED PARKING	GRAVEL PARKING	CONSTRUCTION AREA
SURFACE AREA (Square Feet)	713,361	4,531	145,307	20,575	445,254
Average Vehicle Speed (MPH)	10	10			
PASSENGER CARS & SMALL TRUCKS					
Average number per day	90	15			
Average feet traveled/vehicle	32,000	1,100			
MED. DUTY VEHICLES (3-15 TONS)					
Average number per day	10	10			
Average Feet traveled/vehicle	12,000	1,100			
HEAVY DUTY VEHICLES (>15 Tons)					

Average Number per day	20	10
Average feet traveled/vehicle	6,000	1,100

Sweep, wash, or vacuuming for material handling areas daily and for other roadways weekly.

(Act 451, Part 55 §324.5524),(Consent Order MDEQ SIP No. 11-1993, Fugitive Control Plan, May, 1993)

Footnotes:

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

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

C. EMISSION UNIT CONDITIONS

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

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

EMISSION UNIT SUMMARY TABLE

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

Emission Unit ID	Emission Unit Description (Including Process Equipment & Control Device(s))	Installation Date/ Modification Date	Flexible Group ID
EUINC07	Multiple hearth sewage sludge incinerator combusts dewatered municipal sewage sludge with the aid of natural gas burners to reduce its volume. Residual ash is sent to storage silos or lagoon before transport to landfill. Emissions are controlled by an impingement tray wet scrubber followed by a venturi scrubber and a mist eliminator. (PTI No. 61-13A)	11/01/1970 / 11/01/2013 / 7/7/2015	FGAQCI FG4M-INCIN FG2013Project
EUINC08	Multiple hearth sewage sludge incinerator combusts dewatered municipal sewage sludge with the aid of natural gas burners to reduce its volume. Residual ash is sent to storage silos or lagoon before transport to landfill. Emissions are controlled by an impingement tray wet scrubber followed by a venturi scrubber and a mist eliminator. (PTI No. 61-13A)	11/01/1970 / 11/01/2013 / 7/7/2015	FGAQCI FG4M-INCIN FG2013Project
EUINC09	Multiple hearth sewage sludge incinerator combusts dewatered municipal sewage sludge with the aid of natural gas burners to reduce its volume. Residual ash is sent to storage silos or lagoon before transport to landfill. Emissions are controlled by an impingement tray wet scrubber followed by a venturi scrubber and a mist eliminator. (PTI No. 61-13A)	11/01/1970 / 11/01/2013 / 7/7/2015	FGAQCI FG4M-INCIN FG2013Project

Emission Unit ID	Emission Unit Description (Including Process Equipment & Control Device(s))	Installation Date/ Modification Date	Flexible Group ID
EUINC10	Multiple hearth sewage sludge incinerator combusts dewatered municipal sewage sludge with the aid of natural gas burners to reduce its volume. Residual ash is sent to storage silos or lagoon before transport to landfill. Emissions are controlled by an impingement tray wet scrubber followed by a venturi scrubber and a mist eliminator. (PTI No. 61-13A)	11/01/1970 / 11/01/2013 / 7/7/2015	FGAQCI FG4M-INCIN FG2013Project
EUINC11	Multiple hearth sewage sludge incinerator combusts dewatered municipal sewage sludge with the aid of natural gas burners to reduce its volume. Residual ash is sent to storage silos or lagoon before transport to landfill. Emissions are controlled by an impingement tray wet scrubber followed by a venturi scrubber and a mist eliminator. (PTI No. 61-13A)	11/01/1970 / 11/01/2013 / 7/7/2015	FGAQCI FG4M-INCIN FG2013Project
EUINC12	Multiple hearth sewage sludge incinerator combusts dewatered municipal sewage sludge with the aid of natural gas burners to reduce its volume. Residual ash is sent to storage silos or lagoon before transport to landfill. Emissions are controlled by an impingement tray wet scrubber followed by a venturi scrubber and a mist eliminator. (PTI No. 61-13A)	11/01/1970 / 11/01/2013 / 7/7/2015	FGAQCI FG4M-INCIN FG2013Project
EUINC13	Multiple hearth sewage sludge incinerator combusts dewatered municipal sewage sludge with the aid of natural gas burners to reduce its volume. Residual ash is sent to storage silos or lagoon before transport to landfill. Emissions are controlled by an impingement tray wet scrubber followed by a venturi scrubber and a mist eliminator. (PTI No. 61-13A)	11/01/1970 / 11/01/2013 / 7/7/2015	FGAQCI FG4M-INCIN FG2013Project
EUINC14	Multiple hearth sewage sludge incinerator combusts dewatered municipal sewage sludge with the aid of natural gas burners to reduce its volume. Residual ash is sent to storage silos or lagoon before transport to landfill. Emissions are controlled by an impingement tray wet scrubber followed by a venturi scrubber and a mist eliminator. (PTI No. 61-13A)	11/01/1970 / 11/01/2013 / 7/7/2015	FGAQCI FG4M-INCIN FG2013Project
EUC2ASH01	System for conveying ash from Complex 2 sludge incinerators and storing it prior to transport to sanitary landfill. Emissions are controlled by a fabric filter.	11/01/1970	FGC2ASH

Emission Unit ID	Emission Unit Description (Including Process Equipment & Control Device(s))	Installation Date/ Modification Date	Flexible Group ID
EUC2ASH02	System for conveying ash from Complex 2 sludge incinerators and storing it prior to transport to sanitary landfill. Emissions are controlled by a fabric filter.	11/01/1970	FGC2ASH
EULIMESTOR1	Storage device for lime used to stabilize residuals hauled to landfill. Emissions are controlled by a pulse jet baghouse.	11/01/1983 / 05/12/2005	FGLIMESTORAGE
EULIMESTOR2	Storage device for lime used to stabilize residuals hauled to landfill. Emissions are controlled by a pulse jet baghouse.	11/01/1983 / 05/12/2005	FGLIMESTORAGE
EULIMESTOR3	Storage device for lime used to stabilize residuals hauled to landfill. Emissions are controlled by a pulse jet baghouse.	11/1/1983 / 05/12/2005	FGLIMESTORAGE
EUGEN-D1A	Caterpillar Model 3512 diesel-fired emergency generator, rated at 1,500kW.	06/01/2007	FGENGINES, FCIENGINES
EUGEN-D1B	Caterpillar Model 3512 diesel-fired emergency generator, rated at 1,500kW.	06/01/2007	FGENGINES, FGCIENGINES
EUGEN-D2	Caterpillar Model 3508 diesel-fired emergency generator, rated at 1,000kW.	06/01/2007	FGENGINES, FGCIENGINES
EUGEN-D4	Caterpillar Model C32 diesel-fired emergency generator, rated at 1,000kW.	06/01/2007	FGENGINES, FGCIENGINES
EUGEN-D5	Caterpillar Model C15 diesel-fired emergency generator, rated at 400kW.	06/01/2007	FGENGINES, FGCIENGINES
EUGEN-D6	Caterpillar Model 1103C-33G1 diesel-fired emergency generator, rated at 20kW.	06/01/2007	FGENGINES, FGCIENGINES
EUGEN-G1	Caterpillar Model G3406 NA natural gas-fired emergency generator, rated at 150kW.	06/01/2007	FGENGINES
EUGEN-G2	Caterpillar Model G3406 NA natural gas-fired emergency generator, rated at 150kW.	06/01/2007	FGENGINES
EUGEN-G3	Ford Model G30F3 natural gas-fired emergency generator, rated at 30kW.	06/01/2007	FGENGINES
EUGEN-G4	Ford Model G20F3 natural gas-fired emergency generator, rated at 20kW.	06/01/2007	FGENGINES
EUGEN-G5	Ford Model G30F3 natural gas-fired emergency generator, rated at 30kW.	06/01/2007	FGENGINES
EUGEN-G6	Ford Model G20F3 natural gas-fired emergency generator, rated at 20kW.	06/01/2007	FGENGINES
EUGEN-G8	Ford Model G40F3 natural gas-fired emergency generator, rated at 30kW.	06/01/2007	FGENGINES
EUGEN-G9	Ford Model G20F3 natural gas-fired emergency generator, rated at 20kW.	06/01/2007	FGENGINES
EUGEN-G10	Caterpillar Model G3516 LE natural gas-fired emergency generator, rated at 1,040kW.	06/01/2007	FGENGINES
EUGEN-P1	Portable diesel-fired emergency generator, rated at 70kW.	06/01/2007	FGENGINES, FGCIENGINES
EUGEN-P2	Portable diesel-fired emergency generator, rated at 70kW.	06/01/2007	FGENGINES, FGCIENGINES
EUBOILER1	A natural gas-fired boiler with a heat input capacity of 16.33 MMBTU/hr. This boiler is identified as Boiler #1.	01/01/2004	FGNSPSBOILERS

Emission Unit ID	Emission Unit Description (Including Process Equipment & Control Device(s))	Installation Date/ Modification Date	Flexible Group ID
EUBOILER2	A natural gas-fired boiler with a heat input capacity of 33 MMBTU/hr. This boiler is identified as Boiler #2.	01/01/2004	FGNSPSBOILERS
EUBOILER3	A natural gas-fired boiler with a heat input capacity of 16.33 MMBTU/hr. This boiler is identified as Boiler #3.	01/01/2004	FGNSPSBOILERS
EULIMEPAD	The old sludge/lime mixing facility and the Lime Pad have been replaced with indoor Central Offloading Facility (COF) and a new outdoor Lime Pad facility. Belt conveyors transfer sludge cake from Complex 1 and Complex 2 dewatering units to three holding tanks and the cake is then transferred to three cake mixers where lime from three silos are added by gravity to mixers. All the cake mixers are connected to a scrubber, where any residual dust and gases are scrubbed. The mixture is dropped directly into trucks for transport to a landfill. Occasionally, the mixture of cake and lime is dropped into the Lime Pad area, where scum or ash is added and mixed with front loaders. Lime Pad is an outdoor three-sided concrete/steel mixing area used to prepare residuals for disposal in a sanitary landfill. The mixture is allowed to stabilize, then loaded into trucks for transport to a landfill.	10/01/1983 / 05/12/2005	NA
EUDryerTrainA	Biosolids dryer train consisting of a triple-pass rotary natural gas-fired dryer equipped with a low-NO _x burner and exhaust recirculation, a cyclone product collector, a vibrating screener, a recycle bin, and a crusher. Emissions from the dryer train's cyclone exhaust through a three-stage impingement tray scrubber followed by a regenerative thermal oxidizer, and then a packed tower liquid counter flow scrubber. Emissions from the recycle bin are controlled with a fabric filter collector. (PTI No. 61-13A)	11/01/2013 7/7/2015 12/31/2017	FGDryerTrains, FGDryerFacility, FG2013Project
EUDryerTrainB	Biosolids dryer train consisting of a triple-pass rotary natural gas-fired dryer equipped with a low-NO _x burner and exhaust recirculation, a cyclone product collector, a vibrating screener, a recycle bin, and a crusher. Emissions from the dryer train's cyclone exhaust through a three-stage impingement tray scrubber followed by a regenerative thermal oxidizer, and then a packed tower liquid counter flow scrubber. Emissions from the recycle bin are controlled with a fabric filter collector. (PTI No. 61-13A)	11/01/2013 7/7/2015 12/31/2017	FGDryerTrains, FGDryerFacility, FG2013Project

Emission Unit ID	Emission Unit Description (Including Process Equipment & Control Device(s))	Installation Date/ Modification Date	Flexible Group ID
EUDryerTrainC	Biosolids dryer train consisting of a triple-pass rotary natural gas-fired dryer equipped with a low-NO _x burner and exhaust recirculation, a cyclone product collector, a vibrating screener, a recycle bin, and a crusher. Emissions from the dryer train's cyclone exhaust through a three-stage impingement tray scrubber followed by a regenerative thermal oxidizer, and then a packed tower liquid counter flow scrubber. Emissions from the recycle bin are controlled with a fabric filter collector. (PTI No. 61-13A)	11/01/2013 7/7/2015 12/31/2017	FGDryerTrains, FGDryerFacility, FG2013Project
EUDryerTrainD	Biosolids dryer train consisting of a triple-pass rotary natural gas-fired dryer equipped with a low-NO _x burner and exhaust recirculation, a cyclone product collector, a vibrating screener, a recycle bin, and a crusher. Emissions from the dryer train's cyclone exhaust through a three-stage impingement tray scrubber followed by a regenerative thermal oxidizer, and then a packed tower liquid counter flow scrubber. Emissions from the recycle bin are controlled with a fabric filter collector. (PTI No. 61-13A)	11/01/2013 7/7/2015 12/31/2017	FGDryerTrains, FGDryerFacility, FG2013Project
EUSolidsSilo1	Storage silo for dried biosolids product, with approximate capacity of 800 dry tons. (PTI No. 61-13A)	11/01/2013 7/7/2015	FGDryerFacility, FG2013Project
EUSolidsSilo2	Storage silo for dried biosolids product, with approximate capacity of 800 dry tons. (PTI No. 61-13A)	11/01/2013 7/7/2015	FGDryerFacility, FG2013Project
EUSolidsSilo3	Storage silo for dried biosolids product, with approximate capacity of 800 dry tons. (PTI No. 61-13A)	11/01/2013 7/7/2015	FGDryerFacility, FG2013Project
EUSolidsSilo4	Storage silo for dried biosolids product, with approximate capacity of 800 dry tons. (PTI No. 61-13A)	11/01/2013 7/7/2015	FGDryerFacility, FG2013Project
EUWaterHeater	Provides hot water for the biosolids drying facility. Heat input duty approximately 0.15 MMBTU/hr. (PTI No. 61-13A)	11/01/2013 7/7/2015	FGDryerFacility, FG2013Project
EUAirHandling	Provides comfort heat for office and shop area of the biosolids drying facility. Heat input duty approximately 0.80 MMBTU/hr. (PTI No. 61-13A)	11/01/2013 7/7/2015	FGDryerFacility, FG2013Project
EUMakeUpAir	The four make-up air units provide comfort heat for the process area of the biosolids drying facility. Heat input duty approximately 5.121 MMBTU/hr per unit. (PTI No. 61-13A)	11/01/2013 7/7/2015	FGDryerFacility, FG2013Project

**EULIMEPAD
 EMISSION UNIT CONDITIONS**

DESCRIPTION

The old sludge/lime mixing facility and the Lime Pad have been replaced with indoor Central Offloading Facility (COF) and a new outdoor Lime Pad facility. Belt conveyors transfer sludge cake from Complex 1 and Complex 2 dewatering units to three holding tanks and the cake is then transferred to three cake mixers where lime from three silos are added by gravity to mixers. All the cake mixers are connected to a scrubber, where any residual dust and gases are scrubbed. The mixture is dropped directly into trucks for transport to a landfill. Occasionally, the mixture of cake and lime is dropped into the Lime Pad area, where scum or ash is added and mixed with front loaders. Lime Pad is an outdoor three-sided concrete/steel mixing area used to prepare residuals for disposal in a sanitary landfill. The mixture is allowed to stabilize, then loaded into trucks for transport to a landfill.

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
NA	NA	NA	NA	NA	NA

II. MATERIAL LIMIT(S)

Material	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
NA	NA	NA	NA	NA	NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

NA

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

V. TESTING/SAMPLING

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

NA

See Appendix 5

VI. MONITORING/RECORDKEEPING

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

NA

VII. REPORTING

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**
2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(R 336.1213(3)(c)(i))**
3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

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

Stack & Vent ID	Maximum Exhaust Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
NA	NA	NA	NA

IX. OTHER REQUIREMENT(S)

1. All trucks hauling away sludge or blended sludge off site from facility shall have their wheels cleaned after the trucks are loaded, so as to prevent sludge trackout off of facility property. **(R336.1213(3))**

[MD1]

Footnotes:

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

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

D. FLEXIBLE GROUP CONDITIONS

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

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

FLEXIBLE GROUP SUMMARY TABLE

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

Flexible Group ID	Flexible Group Description	Associated Emission Unit IDs
FGLIMESTORAGE	This flexible group includes the storage devices for lime that is used to stabilize residuals hauled to landfill.	EGLIMESTOR1, EGLIMESTOR2, EGLIMESTOR3
FGENGINES	Seventeen (17) emergency generators.	EUGEN-D1A, EUGEN-D1B, EUGEN-D2, EUGEN-D4, EUGEN-D5, EUGEN-D6, EUGEN-G1, EUGEN-G2, EUGEN-G3, EUGEN-G4, EUGEN-G5, EUGEN-G6, EUGEN-G8, EUGEN-G9, EUGEN-G10, EUGEN-P1, EUGEN-P2
FGCIENGINES	Five (5) compression ignition, diesel-fired engines that are subject to specific provisions of the New Source Performance Standards for Stationary Compression Ignition Internal Combustion Engines (40 CFR Part 60, Subpart IIII).	EUGEN-D1A, EUGEN-D1B, EUGEN-D2, EUGEN-D5, EUGEN-D6
FGNSPSBOILERS	Three (3) small boilers that are subject to the requirement in NSPS Subpart Dc to track fuel usage rates.	EUBOILER1, EUBOILER2, EUBOILER3,
FGCOLDCLEANERS	Any cold cleaner that is grandfathered or exempt from Rule 201 pursuant to Rule 278 and Rule 281(h) or Rule 285(r)(iv). Existing cold cleaners were placed into operation prior to July 1, 1979. New cold cleaners were placed into operation on or after July 1, 1979.	
FGAQCI	This flexible group covers the Complex 2 incinerators for which the air quality control improvements (AQCI) have been completed. Emissions are controlled by an impingement tray wet scrubber followed by a venturi scrubber and a mist eliminator.. (PTI No. 61-13A)	EUINC07, EUINC08, EUINC09, EUINC10, EUINC11, EUINC12, EUINC13, EUINC14

Flexible Group ID	Flexible Group Description	Associated Emission Unit IDs
FG4M-INCIN	This flexible group covers all sewage sludge incinerators subject to 40 CFR Part 60, Subpart M. (PTI No. 61-13A)	EUINC07, EUINC08, EUINC09, EUINC10, EUINC11, EUINC12, EUINC13, EUINC14
FGDryerTrains	This flexible group covers all four dryer trains in the biosolids drying facility. (PTI No. 61-13A)	EUDryerTrainA, EUDryerTrainB, EUDryerTrainC, EUDryerTrainD
FGDryerFacility	This flexible group covers the entire biosolids drying facility. In addition to the dryer trains, the storage silos, and the biosolids drying facility roadways, it includes the following equipment inside the building to prepare feed to the dryer trains: eight sludge grinders (two for each dryer train), eight electrically-powered dewatering centrifuges (two for each dryer train), a cake bin and enclosed pug mill for each dryer train, and conveyors to transfer materials. The facility also has a hot water heater, an air handling unit, and make-up air units for the building, all natural gas-fired. All process area building ventilation exhaust is routed through four alkaline hypochlorite scrubbers. (PTI No. 61-13A)	EUDryerTrainA, EUDryerTrainB, EUDryerTrainC, EUDryerTrainD, EUSolidsSilo1, EUSolidsSilo2, EUSolidsSilo3, EUSolidsSilo4, EUWaterHeater, EUAirHandling, EUMakeUpAir
FG2013Project	This flexible group covers all the upgraded incinerators and the biosolids drying facility. It addresses the emissions of the overall project, which consists of the incinerator upgrades and the biosolids drying facility. (PTI No. 61-13A)	EUINC07, EUINC08, EUINC09, EUINC10, EUINC11, EUINC12, EUINC13, EUINC14, EUDryerTrainA, EUDryerTrainB, EUDryerTrainC, EUDryerTrainD, EUSolidsSilo1, EUSolidsSilo2, EUSolidsSilo3, EUSolidsSilo4, EUWaterHeater, EUAirHandling, EUMakeUpAir

**FGC2ASH
 FLEXIBLE GROUP CONDITIONS**

DESCRIPTION

Two ash conveying and storage systems for conveying ash from the Complex 2 sludge incinerators and storing it prior to transport to sanitary landfill.

Emission Units: EUC2ASH01, EUC2ASH02

POLLUTION CONTROL EQUIPMENT

Fabric filters

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. Particulate Matter	0.2 pounds per 1,000 pounds of exhaust air	As determined by the average of three one hour test runs.	FGC2ASH	, SC VI.1	R336.1331(3)
2. Visible emissions	Presence of visible emissions for no more than 5 percent of the hourly observation period	Three one hour observation periods	FGC2ASH	SC V.1, SC VI.1	40 CFR Part 60, Subpart MMMM

II. MATERIAL LIMIT(S)

Material	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
NA	NA	NA	NA	NA	NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The pressure drop across each baghouse shall not exceed 10 inches of water. **(R336.1213(2))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. 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 have the option of demonstrating continuous compliance with the emission limits and standards for fugitive emissions from ash handling operations using a performance test. If the permittee elects to choose the option of performance testing to demonstrate initial and continuous compliance with the emission limits for the pollutants previously listed, performance tests shall be conducted on an annual basis for each pollutant (between 11 and 13 calendar months following the previous performance test), except as provided in 40 CFR 60.5205(a)(3) and (e). The performance tests must be conducted using the test methods, averaging methods and minimum sampling volumes or durations specified in Table 2 or 3 of 40 CFR Part 60, Subpart M, and according to the testing, monitoring and calibration requirements specified in 40 CFR 60.5220(a). Not less than 30 days prior to the anticipated test date, a complete stack testing plan shall be submitted to the AQD District Supervisor for approval. The permittee may elect to choose, in lieu of performance testing, to demonstrate continuous compliance with the emission limit using a continuous emissions monitoring system as described in 40 CFR 60.5205(b). **(40 CFR 60.5205(a) and (b))**

See Appendix 5

VI. MONITORING/RECORDKEEPING

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

1. The permittee shall comply with the following conditions while operating any ash silo in FGC2ASH:
(R336.1213(3), 40 CFR Part 60, Subpart M)
 - a. The permittee shall monitor and record, on a daily basis, the pressure drop across the baghouse serving the ash silo operation.
 - b. The permittee shall perform and record, on a daily basis, a visible emissions observation to determine the presence or absence of visible emissions. This may be performed by either a certified or non-certified reader.
 - c. If visible emissions are observed, it should be recorded along with the corrective action.

[MD2]

[MD3]

[MD4]

VII. REPORTING

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**
2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(R 336.1213(3)(c)(i))**
3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

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

Stack & Vent ID	Maximum Exhaust Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SVC2ASH1	20 ²	119.5 ²	R336.1201(1)
2. SVC2ASH2	20 ²	119.5 ²	R336.1201(1)

IX. OTHER REQUIREMENT(S)

NA

Footnotes:

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

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

**FGLIMESTORAGE
 FLEXIBLE GROUP CONDITIONS**

DESCRIPTION

This flexible group includes the storage devices for lime that is used to stabilize residuals hauled to landfill.

Emission Units: EULIMESTOR1, EULIMESTOR2, EULIMESTOR3

POLLUTION CONTROL EQUIPMENT

Pulse jet fabric filter baghouse.

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. Particulate Matter	0.1 pounds per 1,000 pounds of exhaust air	As determined by the average of three one hour test runs.	FGLIMESTORAGE	SC VI.1 – SC VI.3	R336.1331(1)(c)
2. Visible Emissions	5% opacity	Visual Observation periods during loading	FGLIMESTORAGE	SC VI.3	R336.1301(1)(c)

II. MATERIAL LIMIT(S)

Material	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
NA	NA	NA	NA	NA	NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

NA

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

V. TESTING/SAMPLING

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

NA

[MD5]

VI. MONITORING/RECORDKEEPING

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

- The permittee shall conduct regular inspections for the purpose of determining the operating condition of the baghouse, and, if necessary, the reasons for malfunction or failure, using monitoring and recordkeeping procedures outlined in Appendix 3 and 4. (R336.1213(3))
- The permittee shall monitor and record the pressure drop across the baghouse during the lime loading. (R336.1213(3))

- The permittee shall perform and record visible emission observations during daylight hours when lime is loaded into the silo to determine the presence or absence of visible emissions. If visible emission exceeds 5%, the permittee shall also record the corrective actions along with the visible emission reading. **(R336.1213(3))**

See Appendices 3 and 4

VII. REPORTING

- Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**
- Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(R 336.1213(3)(c)(i))**
- Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

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

Stack & Vent ID	Maximum Exhaust Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SVLIMESTOR1	10 ²	85 ²	R336.1201(1)
2. SVLIMESTOR2	10 ²	85 ²	R336.1201(1)
3. SVLIMESTOR3	10 ²	85 ²	R336.1201(1)

IX. OTHER REQUIREMENT(S)

- The permittee shall repair or replace any defective parts discovered during the monthly preventive maintenance inspection or place unit out of service. **(R336.1213(3))**

Footnotes:

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

**FGENGINES
 FLEXIBLE GROUP CONDITIONS**

DESCRIPTION

Seventeen emergency generators

Emission Units: EUGEN-D1A, EUGEN-D1B, EUGEN-D2, EUGEN-D4, EUGEN-D5, EUGEN-D6, EUGEN-G1, EUGEN-G2, EUGEN-G3, EUGEN-G4, EUGEN-G5, EUGEN-G6, EUGEN-G8, EUGEN-G9, EUGEN-G10, EUGEN-P1, EUGEN-P2

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. NO _x	36 tons per year ²	12 month rolling time period as determined at the end of each calendar month.	FGENGINES	SC III.2, SC VI.1, SC VI.3, SC VI.5	R336.1205

The NO_x limit is based on the engine-specific emission factors listed in Appendix 7, or determined from emissions testing, whichever is greater.

II. MATERIAL LIMIT(S)

Material	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
NA	NA	NA	NA	NA	NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

- The sulfur content of the diesel fuel used in any of the generators in FGENGINES shall not exceed 15 ppm (0.0015) percent by weight. **(R336.1205, R336.1402(1), 40 CFR 60.4207, 40 CFR 80.510(b))**
- The permittee shall not operate FGENGINES for more than 500 hours each per 12-month rolling time period as determined at the end of each calendar month.² **(R336.1205, R336.1225, R336.1702(a))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

V. TESTING/SAMPLING

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

NA

VI. MONITORING/RECORDKEEPING

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

1. The permittee shall monitor in a satisfactory manner the hours of operation for FGEngines on a monthly basis.² (R336.1205, R336.1225, R336.1702(a))
2. The permittee shall complete all required calculations in a format acceptable to the AQD District Supervisor by the last day of the calendar month, for the previous calendar month, unless otherwise specified in any recordkeeping, reporting or notification special condition. ² (R336.1205)
3. The permittee shall keep, in a satisfactory manner, monthly and previous 12-month NO_x emission calculation records for FGEngines, as required by Special Condition I.1. The permittee shall keep all records on file for a period of at least five years and make them available to the Department upon request. ² (R336.1205)
4. The permittee shall keep records of the fuel oil sulfur content, in percent by weight, for each shipment of fuel oil received. The permittee shall keep all records on file for a period of at least five years and make them available to the Department upon request. ² (R336.1205)
5. The permittee shall keep, in a satisfactory manner, a written log of the monthly hours of operation of FGEngines. The permittee shall keep all records on file for a period of at least five years and make them available to the Department upon request. ² (R336.1205, R336.1225, R336.1702(a))

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))
2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. (R 336.1213(3)(c)(i))
3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year. (R 336.1213(4)(c))

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

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

Stack & Vent ID	Maximum Exhaust Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SV-D1A	8 ¹	13.2 ¹	R336.1225
2. SV-D1B	8 ¹	13.2 ¹	R336.1225
3. SV-D2	8 ¹	13.2 ¹	R336.1225
4. SV-D4	8 ¹	13.5 ¹	R336.1225
5. SV-D5	9 ¹	8.4 ¹	R336.1225
6. SV-D6	3 ¹	6 ¹	R336.1225
7. SV-P1	4 ¹	9 ¹	R336.1225
8. SV-P2	4 ¹	9 ¹	R336.1225
9. SV-G1	5 ¹	12 ¹	R336.1225
10. SV-G2	5 ¹	12 ¹	R336.1225
11. SV-G3	3.4 ¹	5.2 ¹	R336.1225
12. SV-G4	2.5 ¹	4.83 ¹	R336.1225

Stack & Vent ID	Maximum Exhaust Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
13. SV-G5	3.4 ¹	5.2 ¹	R336.1225
14. SV-G6	2.5 ¹	4.83 ¹	R336.1225
15. SV-G8	3.4 ¹	5.2 ¹	R336.1225
16. SV-G9	2.5 ¹	4.83 ¹	R336.1225
17. SV-G10	7.1 ¹	13.2 ¹	R336.1225

IX. OTHER REQUIREMENT(S)

1. The permittee shall comply with the provisions of the federal Standards of Performance for New Stationary Sources as specified in 40 CFR Part 60 Subpart A, Subpart IIII and Subpart JJJJ, as they apply to the engines in FGENGINES. **(40 CFR Part 60 Subparts A, IIII & JJJJ)**
2. The permittee shall comply with the provisions of the National Emission Standards for Hazardous Air Pollutants, as specified in 40 CFR, Part 63, Subpart A and Subpart ZZZZ, as they apply to the engines in FGENGINES. **(40 CFR Part 63 Subparts A and ZZZZ, 40 CFR 63.6595)**

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).

**FGCIENGINES
 FLEXIBLE GROUP CONDITIONS**

DESCRIPTION

Five (5) compression ignition, diesel-fired engines that are subject to specific provisions of the New Source Performance Standards for Stationary Compression Ignition Internal Combustion Engines (40 CFR Part 60, Subpart IIII).

Emission Units: EUGEN-D1A, EUGEN-D1B, EUGEN-D2, EUGEN-D5, EUGEN-D6

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. NMHC + NO _x	9.5 g/KW-hr (7.1 g/hp-hr)	Hourly	EUGEN-D6	SCV.1, SCVI.2	40 CFR 60.4205(a)
2. HC	1.3 g/KW-hr (1.0 g/hp-hr)	Hourly	EUGEN-D5, EUGEN-D2	SCV.1, SCVI.2	40 CFR 60.4205(a)
3. NO _x	9.2 g/KW-hr (6.9 g/hp-hr)	Hourly	EUGEN-D5, EUGEN-D2	SCV.1, SCVI.2	40 CFR 60.4205(a)
4. NO _x	17.0 g/KW-hr (12.7 g/hp-hr) when the maximum test speed is less than 130 rpm; $45.0 \times N^{-0.20}$ when the maximum test speed is at least 130 but less than 2000 rpm (where N is the maximum test speed of the engine in rpm); 9.8 g/KW-hr (7.3 g/hp-hr) when the maximum test speed is 2000 rpm or more.	Hourly	EUGEN-D1A, EUGEN-D1B	SCV.1, SCVI.2	40 CFR 60.4205(a), 40 CFR 94.8(a)(1)
4. CO	11.4 g/KW-hr (8.5 g/hp-hr)	Hourly	EUGEN-D5, EUGEN-D2	SCV.1, SCVI.2	40 CFR 60.4205(a)
5. CO	5.5 g/KW-hr (0.41 g/hp-hr)	Hourly	EUGEN-D6	SCV.1, SCVI.2	40 CFR 60.4205(a)
6. PM	0.54 g/KW-hr (0.40 g/hp-hr)	Hourly	EUGEN-D5, EUGEN-D2	SCV.1, SCVI.2	40 CFR 60.4205(a)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
7. PM	0.80 g/KW-hr (0.60 g/hp-hr)	Hourly	EUGEN-D6	SCV.1, SCVI.2	40 CFR 60.4205(a)

II. MATERIAL LIMIT(S)

Material	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
NA	NA	NA	NA	NA	NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The sulfur content of the diesel fuel used in any of the engines in FGICENGINES shall not exceed 15 ppm (0.0015) percent by weight. **(R336.1205, R336.1402(1), 40 CFR 60.4207, 40 CFR 80.510(b))**
2. The permittee shall not operate FGCIENGINES for more than 500 hours each per 12-month rolling time period as determined at the end of each calendar month. The 500 hours includes the 100 hours for the purpose of necessary maintenance checks and readiness testing as described in SC III.3. **(R 336.1205(1)(a) & (3), R 336.1225, R 336.1702(a), R 336.2803, R 336.2804, 40 CFR 52.21 (c) & (d))**
3. The permittee may operate the engines in FGICENGINES for no more than 100 hours per 12-month rolling time period as determined at the end of each calendar month for the purpose of necessary maintenance checks and readiness testing, provided that the tests are recommended by Federal, State, or local government, the manufacturer, the vendor, or the insurance company associated with the engine. Permittee may petition the Department for approval of additional hours to be used for maintenance checks and readiness testing. A petition is not required if the owner or operator maintains records indicating that Federal, State, or local standards require maintenance and testing of emergency internal combustion engines beyond 100 hours per year. The engines in FGICENGINES may operate up to 50 hours per year in non-emergency situations, but those 50 hours are counted towards the 100 hours per year provided for maintenance and testing. The 50 hours per year for non-emergency situations cannot be used for peak shaving or to generate income for a facility to supply non-emergency power as part of a financial arrangement with another entity. **(40 CFR 60.4211(f))**
4. The permittee shall install, maintain, and operate each of the engines in FGICENGINES according to the manufacturer written instructions, or procedures developed by the owner/operator and approved by the engine manufacturer, over the entire life of the engine. **(R 336.1205(1)(a) & (3), R 336.1225, R 336.1911, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d), 40 CFR 60.4206, 40 CFR 60.4211)**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall equip and maintain each engine in FGCIENGINES with non-resettable hours meters to track the operating hours. **(R 336.1205(1)(a) & (3), R 336.1225, 40 CFR 60.4209)**

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 conduct an initial performance test for the engines in FGCIENGINES within one year after startup of the engines to demonstrate compliance with the emission limits in 40 CFR 60.4205 unless the engines have been certified by the manufacturer and the permittee maintains the engine as required by 40 CFR Part 60 Subpart IIII. If a performance test is required, the performance tests shall be conducted according to 40 CFR 60.4212 (less than 30 liters) or 40 CFR 60.4213 (greater than 30 liters). No less than 30 days prior to testing, a complete test plan shall be submitted to the AQD. The final plan must be approved by the AQD prior

to testing. Verification of emission rates includes the submittal of a complete report of the test results to the AQD within 60 days following the last date of the test. **(40 CFR 60.4211, 40 CFR 60.4212, 40 CFR Part 60 Subpart IIII)**

VI. MONITORING/RECORDKEEPING

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

1. The permittee shall complete all required calculations in a format acceptable to the AQD District Supervisor by the last day of the calendar month, for the previous calendar month, unless otherwise specified in any recordkeeping, reporting or notification special condition. **(R 336.1205(1)(a) & (3), R 336.2803, R 336.2804, 40 CFR 52.21 (c) & (d))**
2. The permittee shall keep, in a satisfactory manner, a record of testing required in SC V.1 or manufacturer certification documentation indicating that the engines in FGCIENGINES meet the applicable emission limitations contained in the federal Standards of Performance for New Stationary Sources 40 CFR Part 60 Subpart IIII. The permittee shall keep all records on file and make them available to the Department upon request. **(40 CFR 60.4211)**
3. The permittee shall monitor and record the total hours of operation and the hours of operation during non-emergencies for the engines in FGCIENGINES, on a monthly and 12-month rolling time period basis, in a manner acceptable to the District Supervisor, Air Quality Division. The permittee shall document how many hours are spent for emergency operation of the engines in FGCIENGINES, including what classified the operation as emergency and how many hours are spent for non-emergency operation. **(R 336.1205(1)(a) & (3), 40 CFR 60.4211, 40 CFR 60.4214)**
4. The permittee shall keep, in a satisfactory manner, fuel supplier certification records or fuel sample test data, for each delivery of diesel fuel oil used in the engines in FGCIENGINES, demonstrating that the fuel sulfur content meets the requirement of 40 CFR 80.510(b). The certification or test data shall include the name of the oil supplier or laboratory, and the sulfur content of the fuel oil. **(R 336.1205(1)(a) & (3), R 336.1402(1), 40 CFR 80.510(b))**
5. The permittee shall monitor and record in a satisfactory manner the diesel fuel usage rate for the engines in FGCIENGINES on a monthly and 12-month rolling time period basis. The permittee shall keep all records on file and make them available to the Department upon request. **(R 336.1205(1)(a) & (3), R 336.1225, R 336.1702(a), R 336.2803, R 336.2804, 40 CFR 52.21 (c) & (d))**

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))**
2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(R 336.1213(3)(c)(i))**
3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

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

Stack & Vent ID	Maximum Exhaust Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SV-D1A	8 ¹	13.2 ¹	R336.1225
2. SV-D1B	8 ¹	13.2 ¹	R336.1225
3. SV-D2	8 ¹	13.2 ¹	R336.1225
4. SV-D5	9 ¹	8.4 ¹	R336.1225
5. SV-D6	3 ¹	6 ¹	R336.1225

IX. OTHER REQUIREMENT(S)

1. The permittee shall comply with the provisions of the federal Standards of Performance for New Stationary Sources as specified in 40 CFR Part 60 Subpart A and Subpart IIII, as they apply to the engines in FGCIENGINES. **(40 CFR Part 60 Subparts A & IIII)**
2. The permittee shall comply with the provisions of the National Emission Standards for Hazardous Air Pollutants, as specified in 40 CFR, Part 63, Subpart A and Subpart ZZZZ, as they apply to the engines in FGCIENGINES. **(40 CFR Part 63 Subparts A and ZZZZ, 40 CFR 63.6595)**

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).

**FGNSPSBOILERS
 FLEXIBLE GROUP CONDITIONS**

DESCRIPTION

Three (3) small natural gas-fired boilers that are subject to the requirement in NSPS Subpart Dc to track fuel usage rates.

Emission Units: EUBOILER1, EUBOILER2, EUBOILER3,

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
NA	NA	NA	NA	NA	NA

II. MATERIAL LIMIT(S)

Material	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
NA	NA	NA	NA	NA	NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall only fire natural gas in the boilers that make up FGNSPSBOILERS. **(R 336.1213(3))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

V. TESTING/SAMPLING

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

NA

VI. MONITORING/RECORDKEEPING

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

1. The permittee shall record and maintain records of natural gas usage in each boiler on a calendar month basis. In lieu of recording the actual fuel usage rates, the permittee may record potential fuel usage based on the maximum design capacity of a boiler. **(40 CFR 60.48c(g))**

VII. REPORTING

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**
2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(R 336.1213(3)(c)(i))**

3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year. (R 336.1213(4)(c))

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

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

Stack & Vent ID	Maximum Exhaust Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
NA	NA	NA	NA

IX. OTHER REQUIREMENT(S)

NA

Footnotes:

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

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

FGCOLDCLEANERS FLEXIBLE GROUP CONDITIONS

DESCRIPTION

Any cold cleaner that is grandfathered or exempt from Rule 201 pursuant to Rule 278 and Rule 281(h) or Rule 285(r)(iv). Existing cold cleaners were placed into operation prior to July 1, 1979. New cold cleaners were placed into operation on or after July 1, 1979.

Emission Unit: NA

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

NA

II. MATERIAL LIMIT(S)

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

III. PROCESS/OPERATIONAL RESTRICTION(S)

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

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The cold cleaner must meet one of the following design requirements:
 - a. The air/vapor interface of the cold cleaner is no more than ten square feet. **(R 336.1281(h))**
 - b. The cold cleaner is used for cleaning metal parts and the emissions are released to the general infacility environment. **(R 336.1285(r)(iv))**
2. The cold cleaner shall be equipped with a device for draining cleaned parts. **(R 336.1611(2)(b), R 336.1707(3)(b))**
3. All new and existing cold cleaners shall be equipped with a cover and the cover shall be closed whenever parts are not being handled in the cold cleaner. **(R 336.1611(2)(a), R 336.1707(3)(a))**
4. The cover of a new cold cleaner shall be mechanically assisted if the Reid vapor pressure of the solvent is more than 0.3 psia or if the solvent is agitated or heated. **(R 336.1707(3)(a))**
5. If the Reid vapor pressure of any solvent used in a new cold cleaner is greater than 0.6 psia; or, if any solvent used in a new cold cleaner is heated above 120 degrees fahrenheit, then the cold cleaner must comply with at least one of the following provisions:
 - a. The cold cleaner must be designed such that the ratio of the freeboard height to the width of the cleaner is equal to or greater than 0.7. **(R 336.1707(2)(a))**

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

V. TESTING/SAMPLING

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

VII. REPORTING

- 1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**
- 2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(R 336.1213(3)(c)(i))**
- 3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

NA

IX. OTHER REQUIREMENT(S)

NA

Footnotes:

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

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

**FGAQCI
FLEXIBLE GROUP CONDITIONS**

DESCRIPTION

This flexible group covers the Complex 2 incinerators for which the air quality control improvements (AQCI) have been completed. It consists of eight (8) multiple hearth sewage sludge incinerators, each with an impingement tray wet scrubber followed by a venturi scrubber and a mist eliminator. (PTI No. 61-13A)

Emission Units: EUINC07, EUINC08, EUINC09, EUINC10, EUINC11, EUINC12, EUINC13, EUINC14

POLLUTION CONTROL EQUIPMENT

For each incinerator: an impingement type wet scrubber followed by a venturi scrubber and a mist eliminator.

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. Particulate Matter	80 milligrams per dry standard cubic meter ^{a 2}	Test protocol*	Each incinerator in FGAQCI	GC 13,	R 336.1331, R 336.2801(ee)
2. PM2.5	1.20 lb/hr ²	Test protocol*	Each incinerator in FGAQCI	GC 13,	R 336.2801(ee), 40 CFR 52.21(c) & (d)
3. PM10	1.20 lb/hr ²	Test protocol*	Each incinerator in FGAQCI	GC 13,	R 336.2801(ee), 40 CFR 52.21(c) & (d)
4. Hydrogen chloride	1.2 ppmv dry ^{a 1}	Test protocol*	Each incinerator in FGAQCI	GC 13,	R 336.1224
5. Carbon monoxide	3,800 ppmv dry ^{a 2}	Test protocol*	Each incinerator in FGAQCI	GC 13,	R 336.2801(ee), 40 CFR 52.21(d)
6. VOC	3.20 lb/hr ²	Test protocol*	Each incinerator in FGAQCI	GC 13,	R 336.2801(ee), R 336.1702(a)
7. Dioxins/furans (total mass basis) ^{b, c}	5.0 nanograms per dry standard cubic meter ^{a, 1}	Test protocol*	Each incinerator in FGAQCI	GC 13,	R 336.1224
8. Dioxins/furans (toxic equivalency basis) ^{b, c}	0.32 nanograms per dry standard cubic meter ^{a, 1}	Test protocol*	Each incinerator in FGAQCI	GC 13,	R 336.1224
9. Mercury	0.28 milligrams per dry standard cubic meter ^{a, 1}	Test protocol*	Each incinerator in FGAQCI	GC 13,	R 336.1224
10. Nitrogen oxides	220 ppmv dry ^{a 2}	Test protocol*	Each incinerator in FGAQCI	GC 13,	R 336.2801(ee), 40 CFR 52.21(c) & (d)
11. Sulfur Dioxide	26 ppmv dry ^{a 2}	Test protocol*	Each incinerator in FGAQCI	GC 13,	R 336.2801(ee)
12. H ₂ SO ₄	1.3 lb/hr ²	Test protocol*	Each incinerator in FGAQCI	GC 13,	R 336.1224, R 336.2801(ee) 40 CFR 52.21(b)(3)(i)
13. Cadmium	0.095 milligrams per dry standard cubic meter ^{a, 1}	Test protocol*	Each incinerator in FGAQCI	GC 13,	R 336.1224, R 336.1225(2)
14. Lead	0.30 milligrams per dry standard cubic meter ^{a 2}	Test protocol*	Each incinerator in FGAQCI	GC 13,	R 336.2801(ee), 40 CFR 52.21(d)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
15. Fluorides	1.73 lb/hr ²	Test protocol*	Each incinerator in FGAQCI	GC 13,	R 336.2801(ee)
16. PM	46.6 tpy ²	12-month rolling time period as determined at the end of each calendar month	FGAQCI	SC VI.7	R 336.1205(1), R 336.2801(ee)
17. PM10	59.6 tpy ²	12-month rolling time period as determined at the end of each calendar month	FGAQCI	SC VI.7	R 336.1205(1), R 336.2801(ee)
18. PM2.5	58.3 tpy ²	12-month rolling time period as determined at the end of each calendar month	FGAQCI	SC VI.7	R 336.1205(1), R 336.2801(ee), 40 CFR 52.21(b)(3)(i)
19. CO	1,522.4 tpy ²	12-month rolling time period as determined at the end of each calendar month	FGAQCI	SC VI.7	R 336.1205(1), R 336.2801(ee)
20. NO _x	663.4 tpy ²	12-month rolling time period as determined at the end of each calendar month	FGAQCI	SC VI.7	R 336.1205(1), R 336.2801(ee)
21. SO ₂	37.6 tpy ²	12-month rolling time period as determined at the end of each calendar month	FGAQCI	SC VI.7	R 336.1205(1), R 336.2801(ee)
22. VOC	64.8 tpy ²	12-month rolling time period as determined at the end of each calendar month	FGAQCI	SC VI.7	R 336.1205(1), R 336.2801(ee)
23. Lead	0.54 tpy ²	12-month rolling time period as determined at the end of each calendar month	FGAQCI	SC VI.7	R 336.1205(1), R 336.2801(ee)
24. CO _{2e}	237,275 tpy ²	12-month rolling time period as determined at the end of each calendar month	FGAQCI	SC VI.7	R 336.1205(1), 40 CFR 52.21(b)(3)(i)
25. H ₂ SO ₄	25.9 tpy ²	12-month rolling time period as determined at the end of each calendar month	FGAQCI	SC VI.7	R 336.1205(1), R 336.2801(ee)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
26. Fluorides	35.0 tpy ²	12-month rolling time period as determined at the end of each calendar month	FGAQCI	SC VI.7	R 336.1205(1), R 336.2801(ee)

^a All emission limits are measured at 7 percent oxygen, dry basis, at standard conditions. For the emission limits in this table, standard conditions means a temperature of 68 °F (20 °C) and a pressure of 1 atmosphere (101.3 kilopascals).
^b Dioxins/furans means tetra- through octa-chlorinated dibenzo-p-dioxins and dibenzofurans.
^c The permittee has the option to comply with either the dioxin/furan limit on a total mass basis or the dioxin//furan emission limit on a toxic equivalency basis.
^{*} Test protocol shall specify averaging time.

II. MATERIAL LIMIT(S)

Material	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. Total sludge feed	129,564 dry tons per year ²	12-month rolling time period as determined at the end of each calendar month	FGAQCI	SC VI.8	R 336.1205(1), R 336.1225(1), R 336.1225(2), R 336.2801(ee), 40 CFR 52.21(b)(3)(i)

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall not operate any incinerator in FGAQCI unless the associated venturi scrubber, impingement tray wet scrubber, and mist eliminator are installed, maintained, and operating in a satisfactory manner.² (R 336.1224, R 336.1910)
2. The permittee shall not feed sludge to any incinerator in FGAQCI unless the parameters listed below are within the ranges specified in the approved malfunction abatement plan (MAP), except for limited periods while attempting to restore a parameter to its specified range, as provided for in the approved MAP.²
 - a. Water flow rate for each scrubber in the associated scrubber train.
 - b. Differential pressure across the inlet and outlet of each scrubber in the associated scrubber train.
 - c. Hearth #1 afterburner temperature
(R 336.1224, R 336.1702(a), R 336.1910)
3. The permittee shall not operate any incinerator in FGAQCI unless an update to the malfunction abatement plan (MAP) for the incineration process has been submitted within 180 days of commencing trial operation of the first incinerator in FGAQCI, and the updated MAP is implemented and maintained. If at any time the MAP fails to address or inadequately addresses an event that meets the characteristics of a malfunction, the permittee shall amend the MAP within 45 days after such an event occurs. The permittee shall also amend the MAP within 45 days if new equipment is installed or upon request from the District Supervisor. The permittee shall submit the MAP and any amendments to the MAP to the AQD District Supervisor for review and approval. If the AQD does not notify the permittee within 90 days of submittal, the MAP or amended MAP shall be considered approved. Until an amended plan is approved, the permittee shall implement corrective procedures or operational changes to achieve compliance with all applicable emission limits.² (R 336.1911)

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall calibrate, maintain, and operate in a satisfactory manner, a device to monitor and record the parameters specified below for each incinerator in FGAQCI and its associated scrubber train.²

- a. Water flow rate for each scrubber in the associated scrubber train.
 - b. Differential pressure across the inlet and outlet of each scrubber in the associated scrubber train.
 - c. Hearth #1 afterburner temperature
(R 336.1224, R 336.1702(a), R 336.1910)
2. The permittee shall calibrate, maintain and operate in a satisfactory manner, a device to monitor and record the oxygen emissions for each incinerator in FGAQCI on a continuous basis.² **(R 336.1224, R 336.2801(ee), 40 CFR 52.21(b)(3)(i))**
 3. The permittee shall calibrate, maintain, and operate in a satisfactory manner, a device to monitor and record the visible emissions from each incinerator in FGAQCI on a continuous basis.² **(R 336.1301)**

V. TESTING/SAMPLING

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

1. NA

VI. MONITORING/RECORDKEEPING

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

1. The permittee shall continuously monitor and record, in a satisfactory manner, the oxygen emissions from each incinerator in FGAQCI. The permittee shall operate each Continuous Emission Monitoring System (CEMS) to meet the timelines, requirements and reporting detailed in Appendix B.² **(R 336.1224, R 336.2801(ee), 40 CFR 52.21(b)(3)(i))**
2. The permittee shall continuously monitor and record, in a satisfactory manner, the visible emissions from each incinerator in FGAQCI. The permittee shall operate each COM system to meet the timelines, requirements and reporting detailed in Appendix 3.3.C.² **(R 336.1301, Consent Order MDNRE SIP No. 11-1993)**
3. The permittee shall conduct periodic inspections of each incinerator in FGAQCI as provided in the approved MAP, except during periods when the incinerator is out of service (in cold standby mode). The permittee shall keep records of all inspections and actions taken in response to the inspections on file at the facility and make them available to the Department upon request.² **(R 336.1910, R 336.1911)**
4. The permittee shall monitor and record, in a satisfactory manner, all of the following for each incinerator in FGAQCI on a daily basis, except during periods when the incinerator is out of service (in cold standby mode). The permittee shall keep all records on file at the facility and make them available to the Department upon request.²
 - a. Water flow rate through the associated scrubber train.
 - b. Differential pressure across the inlet and outlet of each scrubber in the associated scrubber train.
 - c. Hearth #1 afterburner temperature
(R 336.1910)
5. The permittee shall monitor and record, in a satisfactory manner, all other parameters identified in the approved malfunction abatement plan for FGAQCI, at the frequency identified in the plan, except during periods when there is no sludge in the incinerator. The permittee shall keep all records on file at the facility and make them available to the Department upon request.² **(R 336.1911)**
6. The permittee shall calculate, the daily facility-wide operating sludge feed rate for FGAQCI, as dry tons per hour, except during periods when there is no sludge in the incinerator. The permittee shall keep all records on file at the facility and make them available to the Department upon request.² **(R 336.1910)**
7. The permittee shall calculate the emission rates of the pollutants listed below from FGAQCI monthly, both for the calendar month and for the 12-month rolling time period ending that month, using a method acceptable to the AQD District Supervisor. The permittee shall keep all records on file at the facility

and make them available to the Department upon request.² (R 336.1205(1), R 336.2801(ee), 40 CFR 52.21(b)(3)(i))

- a. PM
- b. PM10
- c. PM2.5
- d. CO
- e. NO_x
- f. SO₂
- g. VOC
- h. Lead
- i. CO_{2e}
- j. H₂SO₄
- k. Fluorides

For FGAQCI, the permittee shall monitor and record the sludge feed for each calendar month and the 12-month rolling time period ending that month, as dry tons per month, except during periods when there is no sludge in the incinerator. The permittee shall keep all records on file at the facility and make them available to the Department upon request.² (R336.1205(1), R 336.2801(ee), 40 CFR 52.21(b)(3)(i))

VII. REPORTING

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. (R 336.1213(3)(c)(ii))
2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. 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. Within 30 days after completion of the installation, construction, reconstruction, relocation, or modification authorized by this Permit to Install for each incinerator in FGAQCI, the permittee or the authorized agent pursuant to Rule 204, shall notify the AQD District Supervisor, in writing, of the completion of the activity. Completion of the installation, construction, reconstruction, relocation, or modification is considered to occur not later than commencement of trial operation of the incinerator as part of FGAQCI.² (R 336.1201(7)(a))

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

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

Stack & Vent ID	Maximum Exhaust Diameter/Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SVSTACK07	39 ²	254 ²	R 336.1225, 40 CFR 52.21(c) & (d)
2. SVSTACK08	39 ²	254 ²	R 336.1225, 40 CFR 52.21(c) & (d)
3. SVSTACK09	39 ²	254 ²	R 336.1225, 40 CFR 52.21(c) & (d)
4. SVSTACK10	39 ²	254 ²	R 336.1225, 40 CFR 52.21(c) & (d)
5. SVSTACK11	39 ²	254 ²	R 336.1225, 40 CFR 52.21(c) & (d)
6. SVSTACK12	39 ²	254 ²	R 336.1225, 40 CFR 52.21(c) & (d)
7. SVSTACK13	39 ²	254 ²	R 336.1225, 40 CFR 52.21(c) & (d)

Stack & Vent ID	Maximum Exhaust Diameter/Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
8. SVSTACK14	39 ²	254 ²	R 336.1225, 40 CFR 52.21(c) & (d)

IX. OTHER REQUIREMENT(S)

1. Except during periods when an incinerator is out of service (cold standby mode), the permittee shall implement a MAP and record incidents of high opacity and inappropriate hearth temperatures as well as corrective actions and updates to the MAP. The most recent revision of the MAP , shall be implemented. All maintenance activities regarding the MAP shall be recorded and made available to AQD upon request.² **(R 336.1911, Consent Order No. 17-2006)**

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).

FG4M-INCIN FLEXIBLE GROUP CONDITIONS

DESCRIPTION

This flexible group covers all sewage sludge incinerators subject to the 40 CFR Part 60, Subpart Mmmm emission guidelines through Rule 972 (R 336.1972). (PTI No. 61-13A)

Emission Units: EUINC07, EUINC08, EUINC09, EUINC10, EUINC11, EUINC12, EUINC13, EUINC14

POLLUTION CONTROL EQUIPMENT

For each incinerator: an impingement tray wet scrubber followed by a venturi scrubber and a mist eliminator.

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. Particulate Matter	80 milligrams per dry standard cubic meter ^{a 2}	Test protocol*	Each incinerator in FG4M-INCIN	SC V.1-3, VI.5, VI.6, VI.9	R 336.1972, 40 CFR 60.5165
2. Hydrogen chloride	1.2 ppmv dry ^{a 2}	Test protocol*	Each incinerator in FG4M-INCIN	SC V.1-3, VI.5-7, VI.9	R 336.1972, 40 CFR 60.5165
3. Carbon monoxide	3,800 ppmv dry ^{a 2}	Test protocol*	Each incinerator in FG4M-INCIN	SC V.1-3, VI.3, VI.9	R 336.1972, 40 CFR 60.5165
4. Dioxins/furans (total mass basis) ^{b, c}	5.0 nanograms per dry standard cubic meter ^{a 2}	Test protocol*	Each incinerator in FG4M-INCIN	SC V.1-3, VI.3, VI.9	R 336.1972, 40 CFR 60.5165
5. Dioxins/furans (toxic equivalency basis) ^{b, c}	0.32 nanograms per dry standard cubic meter ^{a 2}	Test protocol*	Each incinerator in FG4M-INCIN	SC V.1-3, VI.3, VI.9	R 336.1972, 40 CFR 60.5165 40 CFR 60.5185(c)
6. Mercury	0.28 milligrams per dry standard cubic meter ^{a 2}	Test protocol*	Each incinerator in FG4M-INCIN	SC V.1-3, VI.9	R 336.1972, 40 CFR 60.5165
7. Oxides of nitrogen	220 ppmv dry ^{a 2}	Test protocol*	Each incinerator in FG4M-INCIN	SC V.1-3, VI.3, VI.9	R 336.1972, 40 CFR 60.5165
8. Sulfur Dioxide	26 ppmv dry ^{a 2}	Test protocol*	Each incinerator in FG4M-INCIN	SC V.1-3, VI.5-7, VI.9	R 336.1972, 40 CFR 60.5165
9. Cadmium	0.095 milligrams per dry standard cubic meter ^{a 2}	Test protocol*	Each incinerator in FG4M-INCIN	SC V.1-3, VI.5, VI.6, VI.9	R 336.1972, 40 CFR 60.5165
10. Lead	0.30 milligrams per dry standard cubic meter ^{a 2}	Test protocol*	Each incinerator in FG4M-INCIN	SC V.1-3, VI.5, VI.6, VI.9	R 336.1972, 40 CFR 60.5165

^a All emission limits are measured at 7 percent oxygen, dry basis, at standard conditions. For the emission limits in this table, standard conditions are defined in 40 CFR 60.5250.

^b Dioxins/furans are defined in 40 CFR 60.5250.

^c The permittee has the option to comply with either the dioxin/furan limit on a total mass basis or the dioxin/furan emission limit on a toxic equivalency basis.

* Test protocol shall specify averaging time.

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. Use of the bypass stack associated with an incinerator in FG4M-INCIN at any time that sewage sludge is being charged to that incinerator is an emissions standards deviation for all of the pollutants listed in Special Conditions I.1 through I.10.² **(R 336.1972, 40 CFR 60.5220(d))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. For each pollutant and incinerator for which the permittee has chosen the compliance demonstration option specified in SC V.2 or V.4, the permittee shall install, calibrate, maintain and operate in a satisfactory manner, a device to monitor and record the pollutant emissions from the incinerator on a continuous basis.² **(R 336.1972, 40 CFR 60.13, 40 CFR 60.5220(b)(3))**
2. **The permittee shall calibrate, maintain, and operate in a satisfactory manner a device to measure sewage sludge for FG4M-INCIN on a continuous basis.² (R 336.1972)**
3. The permittee shall calibrate maintain and operate in a satisfactory manner, a device to monitor and record the Hearth #1 afterburner temperature for each incinerator in FG4M-INCIN on a continuous basis.² **(R 336.1910, R 336.1972, 40 CFR 60.5200, R 336.1972, 40 CFR 60.5170(a))**
4. The permittee shall calibrate, maintain and operate in a satisfactory manner, a device to monitor and record the pressure drop across the inlet and outlet of each scrubber in each scrubber train for FG4M-INCIN on a continuous basis.² **(R 336.1910, R 336.1972, 40 CFR 60.5200, R 336.1972, 40 CFR 60.5170(b))**
5. The permittee shall calibrate, maintain and operate in a satisfactory manner, a device to monitor and record the liquid flow rate through each scrubber in each scrubber train for FG4M-INCIN on a continuous basis.² **(R 336.1910, R 336.1972, 40 CFR 60.5200, R 336.1972, 40 CFR 60.5170(b))**
6. The permittee shall calibrate, maintain and operate in a satisfactory manner, a device to monitor and record the liquid pH for each scrubber in each scrubber train for FG4M-INCIN on a continuous basis.² **(R 336.1910, R 336.1972, 40 CFR 60.5200, R 336.1972, 40 CFR 60.5170(b))**

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 have the option of demonstrating continuous compliance with the emission limits and standards for particulate matter, hydrogen chloride, carbon monoxide, dioxins/furans (total mass or toxic equivalency basis), mercury, nitrogen oxides, sulfur dioxide, cadmium and lead using a performance test. If the permittee elects to choose the option of performance testing to demonstrate continuous compliance with the emission limits for the pollutants previously listed, performance tests shall be conducted on an annual basis for each pollutant (between 11 and 13 calendar months following the previous performance test), except as provide in 40 CFR 60.5205(a)(3) and (e). The performance tests shall be conducted using the test methods, averaging methods and minimum sampling volumes or durations specified in Table 3 of 40 CFR Part 60, Subpart M, and according to the testing, monitoring and calibration requirements specified in 40 CFR 60.5220(a). Stack testing procedures and the location of stack testing ports shall be in accordance with the applicable federal Reference Methods, 40 CFR Part 60 Appendix A. Not less than 30 days prior to the anticipated test date, a complete stack testing plan shall be submitted to the AQD Technical Programs Unit and District Office for approval. The AQD must approve the final plan prior to testing.² **(R 336.1972, 40 CFR 60.5205(a))**
2. In lieu of conducting the performance tests specified in Special Condition V.3, the permittee may elect to demonstrate continuous compliance with the emission limits for particulate matter, hydrogen chloride, carbon

monoxide, dioxins/furans, mercury, nitrogen oxides, sulfur dioxide, cadmium and lead by substituting the use of a continuous emissions monitoring system (CEMS) for any or all of these pollutants in accordance with the requirements of 40 CFR 60.5205(b). A continuous automated sampling system can be used in lieu of performance tests to demonstrate continuous compliance with the mercury or dioxin/furans emission limits. Should the permittee discontinue use of the CEMS to demonstrate continuous compliance with an emission limit for an incinerator, then a performance test, as specified in SC V.3, shall be performed before discontinuing use of the CEMS.² **(R 336.1972, 40 CFR 60.5205(b))**

3. As specified in 40 CFR 60.5190, the permittee shall establish the following parameters from the performance tests specified in SC V.1 and V.3:
 - a. A minimum combustion chamber operating temperature (or minimum afterburner temperature) for each incinerator.
 - b. A minimum pressure drop across each wet scrubber in each scrubber train.
 - c. A minimum scrubber liquid flow rate (measured at the inlet to each wet scrubber in each scrubber train).
 - d. A minimum scrubber liquid pH for each wet scrubber in each scrubber trainEach established parameter shall be equal to the lowest 4-hour average of the parameter measured during the most recent performance test demonstrating compliance with all applicable emission limits. The permittee shall keep records on file at the facility for a period of five years.² **(R 336.1972, 40 CFR 60.5190)**
4. The use of a bypass stack during a performance test invalidates the results of the performance test.² **(R 336.1972, 40 CFR 60.5220(d))**

See Appendix 5

VI. MONITORING/RECORDKEEPING

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

1. The permittee shall monitor and record the sewage sludge feed to the incinerators in FG4M-INCIN on a continuous basis, and calculate the daily facility-wide sewage sludge feed rate of FG4M-INCIN for all hours of operation during each 24-hour period. The permittee shall keep all records on file at the facility and make them available to the Department upon request.² **(R 336.1972, 40 CFR 60.5170(f)(1))**
2. The permittee shall monitor and record the moisture content (as a weight percent) of the sewage sludge by taking a grab sample of the sewage sludge, on a daily basis, for the purpose of recording the range of moisture content. If the permittee takes more than one grab sample in a day, then the daily average moisture content for the number of grab samples taken shall be calculated. The permittee shall keep all records on file at the facility and make them available to the Department upon request.² **(R 336.1972, 40 CFR 60.5170(f)(2))**
3. The permittee shall monitor and record the Hearth #1 afterburner temperature for each incinerator in FG4M-INCIN on a continuous basis. Measurements of the Hearth #1 afterburner temperature shall be recorded every 15 minutes. The permittee shall keep all records on file at the facility and make them available to the Department upon request.² **(R 336.1972, 40 CFR 60.5170(a))**
4. The permittee shall develop and submit to the AQD District Supervisor a site-specific monitoring plan for each continuous monitoring system required by 40 CFR Part 60 Subpart M. ² **(R 336.1972, 40 CFR 60.5200)**
5. The permittee shall monitor and record, on a continuous basis, the pressure drop across the inlet and outlet of each scrubber in each scrubber train serving any incinerator in operation. Measurements of the pressure drop shall be recorded every 15 minutes. The permittee shall keep all records on file at the facility and make them available to the Department upon request.² **(R 336.1972, 40 CFR 60.5170(b))**
6. The permittee shall monitor and record, on a continuous basis, the liquid flow rate through each scrubber in the scrubber train serving any incinerator in operation. Measurements of the scrubber liquid flow rate for each scrubber in the scrubber train shall be recorded every 15 minutes. The permittee shall keep all records on file at the facility and make them available to the Department upon request.² **(R 336.1972, 40 CFR 60.5170(b), 40 CFR 60.5230)**

7. The permittee shall monitor and record, on a continuous basis, the scrubber liquid pH for each scrubber in the scrubber train serving any incinerator in operation. Measurements of the scrubber liquid pH for each scrubber in the scrubber train shall be recorded every 15 minutes. The permittee shall keep all records on file at the facility and make them available to the Department upon request.² **(R 336.1972, 40 CFR 60.5170(b), 40 CFR 60.5230)**
8. The permittee shall keep records of any notifications to the AQD District Supervisor required by SC VII.1 and VII.2. The permittee shall keep all records on file at the facility and make them available to the Department upon request.² **(R 336.1972, 40 CFR 60.5230(g)(1))**
9. For each pollutant and incinerator for which the permittee has chosen the compliance demonstration option specified in SC V.2 or V.4, the permittee shall continuously monitor and record, in a satisfactory manner, the pollutant emissions from the incinerator. The permittee shall operate each Continuous Emission Monitoring System (CEMS) to meet the timelines, requirements and reporting detailed in Appendix A and shall use the CEMS data to demonstrate compliance with the applicable emission limit in SC I.1-10.² **(R 336.1972, 40 CFR 60.13, 40 CFR 60.5165, 40 CFR 60.5185(c), 40 CFR 60.5220(b)(3))**

See Appendices 3 and 4

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 notify the AQD District Supervisor, in writing, one month before starting use of a continuous emissions monitoring system to demonstrate continuous compliance with an emission limit in SC I.1-10.² **(R 336.1972, 40 CFR 60.5220(b)(1))**
5. The permittee shall notify the AQD District Supervisor, in writing, one month before stopping use of a continuous emissions monitoring system to demonstrate compliance with an emission limit in SC I.1-10.² **(R 336.1972, 40 CFR 60.5220(b)(1))**

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

NA

IX. OTHER REQUIREMENT(S)

1. The permittee shall implement and comply with the Operator Training and Qualification provisions as specified in 40 CFR 60.5130 through 60.5160.² **(R 336.1972, 40 CFR 60.5130, 40 CFR 60.5135, 40 CFR 60.5140, 40 CFR 60.5145, 40 CFR 60.5150, 40 CFR 60.5155, 40 CFR 60.5160)**

2. The permittee shall comply with all applicable provisions of the Standards of Performance for New Stationary Sources for Existing Sewage Sludge Incineration Units, as specified in 40 CFR Part 60, Subparts A and Mmmm.² **(R 336.1972, 40 CFR Part 60, Subparts A and Mmmm)**
3. The emission limits and standards of 40 CFR Part 60, Subparts A and Mmmm, apply to each emission unit in FG4M-INCIN at all times the emission unit is operating and during periods of malfunction. The emission limits and standards apply to emissions from a bypass stack or vent while sewage sludge is in the combustion chamber (i.e. until the sewage sludge feed to the combustor has been cut off for a period of time not less than the sewage sludge incineration residence time).² **(R 336.1972, 40 CFR 60.5165)**

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).

**FGDryerTrains
 FLEXIBLE GROUP CONDITIONS**

DESCRIPTION

This flexible group covers all four dryer trains in the biosolids drying facility. (PTI No. 61-13A)

Emission Units: EUDryerTrainA, EUDryerTrainB, EUDryerTrainC, EUDryerTrainD

POLLUTION CONTROL EQUIPMENT

Each dryer train has its own emission controls:

- Three-stage impingement scrubber
- Regenerative thermal oxidizer (RTO)
- Packed tower liquid counter flow scrubber

Each recycle bin has its own emission control device:

- Fabric filter collector

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. PM	0.005 gr/dscf ²	Test protocol*	Each recycle bin in FGDryerTrains	GC 13, SC VI.4-5	R 336.1331
2. PM10	0.005 gr/dscf ²	Test protocol*	Each recycle bin in FGDryerTrains	GC 13, SC VI.4-5	40 CFR 52.21(c) & (d)
3. PM2.5	0.005 gr/dscf ²	Test protocol*	Each recycle bin in FGDryerTrains	GC 13, SC VI.4-5	40 CFR 52.21(c) & (d)
4. NO _x	3.95 lb/hr ²	Test protocol*	Each dryer train in FGDryerTrains	SC V.1	40 CFR 52.21(c) & (d)
5. CO	3.67 lb/hr ²	Test protocol*	Each dryer train in FGDryerTrains	SC V.1, SC VI.2	40 CFR 52.21(d)
6. PM	1.22 lb/hr ²	Test protocol*	Each dryer train in FGDryerTrains	SC V.1, SC VI.2	R 336.1331(c)
7. PM10	1.63 lb/hr ²	Test protocol*	Each dryer train in FGDryerTrains	SC V.1, SC VI.2	40 CFR 52.21(c) & (d)
8. PM2.5	1.14 lb/hr ²	Test protocol*	Each dryer train in FGDryerTrains	SC V.1, SC VI.2	40 CFR 52.21(c) & (d)
9. SO ₂	0.82 lb/hr ²	Test protocol*	Each dryer train in FGDryerTrains	SC V.2-3 SC VI.3	R 336.1407(a)
10. VOC	1.68 lb/hr ²	Test protocol*	Each dryer train in FGDryerTrains	SC VI.2	R 336.1702(a)
11. Lead	2.5 × 10 ⁻⁴ lb/hr ²	Test protocol*	Each dryer train in FGDryerTrains	GC 13	40 CFR 52.21(d)
12. H ₂ S	0.38 lb/hr ¹	Test protocol*	Each dryer train in FGDryerTrains	SC VI.2	R 336.1224

* Test protocol shall specify averaging time.

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The total operating time for all dryer trains in FGDryerTrains shall not exceed 31,536 hours per 12-month rolling time period as determined at the end of each calendar month. For this condition, a dryer train shall be considered to be operating whenever the dryer is processing sludge cake.² **(R 336.1205(1), R 336.1225(2), R 336.2801(ee), 40 CFR 52.21(b)(3)(i), 40 CFR 52.21(c) & (d))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall not operate any dryer train in FGDryerTrains unless the associated impingement tray scrubber and RTO are maintained and operated in a satisfactory manner.² **(R 336.1224, R 336.1702(a), R 336.1910)**
2. , The permittee shall not operate any dryer train in FGDryerTrains unless the associated packed tower liquid scrubber is maintained and operated in a satisfactory manner. **(R 336.1213(3), R 336.1910)**
3. The permittee shall not transfer material to any recycle bin in FGDryerTrains unless the associated fabric filter collector is maintained and operated in a satisfactory manner.² **(R 336.1910)**
4. The permittee shall calibrate, maintain, and operate in a satisfactory manner, devices for each drying train in FGDryerTrains to monitor and record the parameters listed below, on a continuous basis, during operation of the dryer train.² **(R 336.1224, R 336.1702(a), R 336.1910)**
 - a. Temperature in the RTO combustion chamber
 - b. Liquid flow rate to the impingement tray scrubber
 - c. Pressure drop across the impingement tray scrubber
 - d. Pressure drop across the recycle bin fabric filter collector
5. , The permittee shall calibrate, maintain, and operate in a satisfactory manner, devices for each drying train in FGDryerTrains to monitor the parameters listed below, on a continuous basis, during operation of the dryer train. **(R 336.1213(3), R 336.1910)**
 - a. Liquid flow rate to the packed tower liquid scrubber
 - b. The pH of the scrubber liquid in each packed tower liquid scrubber.

V. TESTING/SAMPLING

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

1.
 1. The permittee shall periodically verify NO_x, CO, PM, PM₁₀, and PM_{2.5}, emission rates from all dryer trains in FGDryerTrains by testing at owner's expense, in accordance with Department requirements. No less than 30 days prior to each test, the permittee shall submit a complete test plan to the AQD Technical Programs Unit and District Office. The AQD must approve each final plan prior to testing. Verification of emission rates includes the submittal of a complete report of the test results to the AQD Technical Programs Unit and District Office within 60 days following the last date of the test. Periodic verification of emission rates shall comply with the following:² **(R 336.1331(c), R 336.2001, R 336.2003, R 336.2004)**
 - a. The permittee shall conduct the first tests required by this condition no later than 30 months after commencement of trial operation of the first dryer train in FGDryerTrains,
 - b. Every two years, the permittee shall conduct testing for two dryer trains. The test plan submitted for approval for each test shall identify the dryer trains to be tested.
 - c. The permittee shall rotate the dryer trains tested so that each dryer train is tested at least once every six years. If extenuating circumstances preclude meeting this requirement for a particular test, the submitted test plan shall describe the extenuating circumstances and request that this requirement be waived for that test.
 2. On an annual basis, the permittee shall submit a test plan to test each dryer train in FGDryerTrains for SO₂ to the AQD Technical Programs Unit and District Office for approval prior to testing. Within 30 days after AQD approval of submitted test plan, the permittee shall conduct testing for SO₂ FGDryerTrains. Not less than 7

days prior to any testing which will be used to demonstrate compliance, the permittee or an authorized agent, shall notify the AQD Technical Programs Unit and the District Office, in writing, of the time and place of the tests and who shall conduct them. A representative of the AQD shall have the opportunity to witness the tests. Within 60 days after the test completion, the permittee shall submit to the AQD Technical Programs Unit and the District Office a test report that includes the test data and results. (Consent Order AQD 7-2017)

3. After 3 consecutive annual testing events demonstrating compliance with the FGDryerTrains SO₂ emission limit, the Authority may return to the testing schedule required by MI-ROP-B2103-2014d, as amended. (Consent Order AQD 7-2017)

See Appendix 5

VI. MONITORING/RECORDKEEPING

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

1. The permittee shall keep, in a satisfactory manner, a log of the monthly and 12-month rolling time period hours of operation for the dryer trains in FGDryerTrains. The permittee shall keep all records on file at the facility and make them available to the Department upon request.² **(R 336.1205(1), R 336.2801(ee), 40 CFR 52.21(b)(3)(i), 40 CFR 52.21(c) & (d))**
2. The permittee shall monitor and record, in a satisfactory manner, the parameters listed below for each drying train in FGDryerTrains on the specified basis. The permittee shall keep all records on file at the facility and make them available to the Department upon request.² **(R 336.1224, R 336.1702(a), R 336.1910)**
 - a. Temperature in the RTO combustion chamber, whenever a dryer train is exhausting to the RTO, on a continuous basis
 - b. Liquid flow rate to the impingement tray scrubber, once each day that the dryer train operates
 - c. Pressure drop across the impingement tray scrubber, once each day that the dryer train operates
3. , The permittee shall monitor and record, in a satisfactory manner, the parameters listed below for each drying train in FGDryerTrains on the specified basis. The permittee shall keep all records on file at the facility and make them available to the Department upon request. **(R 336.1213(3), R 336.1910)**
 - a. Liquid flow rate to the packed tower liquid scrubber, once each day that the dryer train operates
 - b. The pH of scrubber liquid in each packed tower liquid scrubber, once each shift that the scrubber operates.
4. The permittee shall monitor and record, in a satisfactory manner, the pressure drop across each recycle bin fabric filter collector on a weekly basis, during operation of the associated dryer train. The permittee shall keep all records on file at the facility and make them available to the Department upon request.² **(R 336.1910)**
5. The permittee shall conduct a daily visible emissions check of each recycle bin's stack during routine operating conditions. For this condition, such checks do not have to be in accordance with Method 9. If a check reveals any visible emissions from a stack other than uncombined water vapor, the permittee shall inspect the fabric filter collector associated with the stack and perform any maintenance required to eliminate visible emissions. The permittee shall keep records of the results of the daily visible emissions check and of any maintenance performed after visible emissions are observed. The permittee shall keep these records on file and make them available to the AQD upon request.² **(R 336.1910)**

See Appendices 3 and 4

VII. REPORTING

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

2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(R 336.1213(3)(c)(i))**
3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

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

Stack & Vent ID	Maximum Exhaust Diameter/Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SVDryerTrainA	30 ²	130 ²	R 336.1225, 40 CFR 52.21(c) & (d)
2. SVDryerTrainB	30 ²	130 ²	R 336.1225, 40 CFR 52.21(c) & (d)
3. SVDryerTrainC	30 ²	130 ²	R 336.1225, 40 CFR 52.21(c) & (d)
4. SVDryerTrainD	30 ²	130 ²	R 336.1225, 40 CFR 52.21(c) & (d)
5. SVRecycleBinA	8 ²	130 ²	40 CFR 52.21(c) & (d)
6. SVRecycleBinB	8 ²	130 ²	40 CFR 52.21(c) & (d)
7. SVRecycleBinC	8 ²	130 ²	40 CFR 52.21(c) & (d)
8. SVRecycleBinD	8 ²	130 ²	40 CFR 52.21(c) & (d)

IX. OTHER REQUIREMENT(S)

NA

Footnotes:

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

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

FGDryerFacility
FLEXIBLE GROUP CONDITIONS

DESCRIPTION

This flexible group covers the entire biosolids drying facility. In addition to the dryer trains, the storage silos, and the biosolids drying facility roadways, it includes the following equipment inside the building to prepare feed to the dryer trains: eight sludge grinders (two for each dryer train), eight electrically-powered dewatering centrifuges (two for each dryer train), a cake bin and enclosed pug mill for each dryer train, and conveyors to transfer materials. The facility also has a hot water heater, an air handling unit, and make-up air units for the building, all natural gas-fired. All process area building ventilation exhaust is routed through four alkaline hypochlorite scrubbers. (PTI No. 61-13A)

Emission Units: EUDryerTrainA, EUDryerTrainB, EUDryerTrainC, EUDryerTrainD, EUSolidsSilo1, EUSolidsSilo2, EUSolidsSilo3, EUSolidsSilo4, EUWaterHeater, EUAirHandling, EUMakeUpAir

POLLUTION CONTROL EQUIPMENT

All building ventilation exhaust is routed through four alkaline hypochlorite scrubbers.

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. NO _x	71.5 tpy ²	12-month rolling time period as determined at the end of each calendar month	FGDryerFacility	SC VI.2	R 336.1205(1), R 336.2801(ee)
2. CO	65.7 tpy ²	12-month rolling time period as determined at the end of each calendar month	FGDryerFacility	SC VI.2	R 336.1205(1), R 336.2801(ee)
3. PM	20.0 tpy ²	12-month rolling time period as determined at the end of each calendar month	FGDryerFacility	SC VI.2	R 336.1205(1), R 336.2801(ee)
4. PM ₁₀	26.9 tpy ²	12-month rolling time period as determined at the end of each calendar month	FGDryerFacility	SC VI.2	R 336.1205(1), R 336.2801(ee)
5. PM _{2.5}	19.2 tpy ²	12-month rolling time period as determined at the end of each calendar month	FGDryerFacility	SC VI.2	R 336.1205(1), R 336.2801(ee), 40 CFR 52.21(b)(3)(i)
6. CO _{2e}	90,361 tpy ²	12-month rolling time period as determined at the end of each calendar month	FGDryerFacility	SC VI.2	R 336.1205(1), 40 CFR 52.21(b)(3)(i)

7. Visible emissions from all truck traffic at the biosolids drying facility shall not exceed five (5) percent opacity. Compliance shall be demonstrated using Test Method 9D as defined in Section 324.5525(j) of Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Act 451).² (R 336.1301)

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall keep each pug mill's cover closed when the pug mill is in operation, except as necessary for operation, inspection, and maintenance.² **(R 336.1910)**
2. The permittee shall not feed biosolids to any dryer train in FGDryerFacility unless a malfunction abatement plan (MAP) as described in Rule 911(2), for all FGDryerFacility operations has been submitted, and is implemented and maintained. If at any time the MAP fails to address or inadequately addresses an event that meets the characteristics of a malfunction, the permittee shall amend the MAP within 45 days after such an event occurs. The permittee shall also amend the MAP within 45 days, if new equipment is installed or upon request from the AQD District Supervisor. The permittee shall submit the MAP and any amendments to the MAP to the AQD District Supervisor for review and approval. If the AQD does not notify the permittee within 90 days of submittal, the MAP or amended MAP shall be considered approved. Until an amended plan is approved, the permittee shall implement corrective procedures or operational changes to achieve compliance with all applicable emission limits.² **(R 336.1911)**
3. Whenever trucks are loaded with material from the silos in FGDryerFacility, the permittee shall apply non-volatile oil to the material being transferred, to minimize the generation of fugitive dust.² **(R 336.1371, R 336.1372, Act 451 324.5524)**
4. The permittee shall only transfer material to silos in FGDryerFacility through enclosed conveyors.² **(R 336.1910)**
5. The total natural gas-burning time for all equipment in EUMakeUpAir shall not exceed 16,000 hours per 12-month rolling time period as determined at the end of each calendar month. For this condition, "natural gas burning time" means time when natural gas burners are consuming fuel.² **(R 336.1205(1), 40 CFR 52.21(c) & (d))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall pave all roadways at FGDryerFacility and maintain them in good condition, to minimize the generation of fugitive dust.² **(R 336.1205(1), R 336.1371, R 336.1372, R 336.2801(ee))**
2. The permittee shall calibrate, maintain, and operate in a satisfactory manner, devices to monitor and record the parameters specified below for equipment in FGDryerFacility:² **(R 336.1910, R 336.1911)**
 - a. The pH of the scrubber liquid in each alkaline hypochlorite scrubber.
 - b. The oxidation-reduction potential (ORP) of the scrubber liquid in each alkaline hypochlorite scrubber.
 - c. All other parameters identified in the approved malfunction abatement plan for FGDryerFacility, at the frequency identified in the plan

V. TESTING/SAMPLING

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

NA

VI. MONITORING/RECORDKEEPING

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

1. The permittee shall complete all required calculations in a format acceptable to the AQD District Supervisor by the last day of the calendar month, for the previous calendar month, unless otherwise specified in any monitoring/recordkeeping special condition.² **(R 336.1205(1))**
2. The permittee shall calculate the emission rates of the pollutants listed below from FGDryerFacility monthly, both for the calendar month and for the 12-month rolling time period ending that month, using a method

acceptable to the AQD District Supervisor. The permittee shall keep all records on file at the facility and make them available to the Department upon request.² **(R 336.1205(1), R 336.2801(ee), 40 CFR 52.21(b)(3)(i))**

- a. NO_x
- b. CO
- c. PM
- d. PM₁₀
- e. PM_{2.5}
- f. CO_{2e}

3. The permittee shall monitor and record, in a satisfactory manner, the parameters listed below for FGDryerFacility, on the specified basis. The permittee shall keep all records on file at the facility and make them available to the Department upon request.² **(R 336.1910, R 336.1911)**
 - a. The pH of the scrubber liquid in each alkaline hypochlorite scrubber, once each shift that the scrubber operates.
 - b. The oxidation-reduction potential (ORP) of the scrubber liquid in each alkaline hypochlorite scrubber, once each shift that the scrubber operates.
 - c. All other parameters identified in the approved malfunction abatement plan for FGDryerFacility, on the basis identified in the plan.
4. The permittee shall keep, in a satisfactory manner, a log of all actions taken to comply with SC IV.1. The permittee shall keep all records on file at the facility and make them available to the Department upon request.² **(R 336.1205(1), R 336.1371, R 336.1372, R 336.2801(ee))**
5. The permittee shall keep, in a satisfactory manner, a log of the monthly and 12-month rolling time period hours of operation of EUMakeUpAir. The permittee shall keep all records on file at the facility and make them available to the Department upon request.² **(R 336.1205(1), 40 CFR 52.21(c) & (d))**

See Appendices 3 and 4

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. Within 30 days after completion of the installation, construction, reconstruction, relocation, or modification authorized by this Permit to Install for FGDryerFacility, the permittee or the authorized agent pursuant to Rule 204, shall notify the AQD District Supervisor, in writing, of the completion of the activity. Completion of the installation, construction, reconstruction, relocation, or modification is considered to occur not later than commencement of trial operation of any dryer in FGDryerFacility, which is considered to occur when the permittee first feeds sludge cake to any dryer.² **(R 336.1201(7)(a))**

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

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

Stack & Vent ID	Maximum Exhaust Diameter/Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SVScrubber1	60 ²	80 ²	40 CFR 52.21(c) & (d)
2. SVScrubber2	60 ²	80 ²	40 CFR 52.21(c) & (d)
3. SVScrubber3	60 ²	80 ²	40 CFR 52.21(c) & (d)
4. SVScrubber4	60 ²	80 ²	40 CFR 52.21(c) & (d)
5. SVWaterHeater	12 ²	60 ²	R 336.1225, 40 CFR 52.21(c) & (d)
6. SVAirHandling	8 ²	60 ²	R 336.1225, 40 CFR 52.21(c) & (d)

IX. OTHER REQUIREMENT(S)

NA

Footnotes:

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

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

**FG2013Project
 FLEXIBLE GROUP CONDITIONS**

DESCRIPTION

This flexible group covers all the upgraded incinerators and the biosolids drying facility. (PTI No. 61-13A)

Emission Units: EUINC07, EUINC08, EUINC09, EUINC10, EUINC11, EUINC12, EUINC13, EUINC14, EUDryerTrainA, EUDryerTrainB, EUDryerTrainC, EUDryerTrainD, EUSolidsSilo1, EUSolidsSilo2, EUSolidsSilo3, EUSolidsSilo4, EUWaterHeater, EUAirHandling, EUMakeUpAir

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. NO _x	735.0 tpy ²	12-month rolling time period as determined at the end of each calendar month	FG2013Project	SC VI.1	R 336.1205(1), R 336.2801(ee)
2. CO	1,588.1 tpy ²	12-month rolling time period as determined at the end of each calendar month	FG2013Project	SC VI.1	R 336.1205(1), R 336.2801(ee)
3. PM	66.6 tpy ²	12-month rolling time period as determined at the end of each calendar month	FG2013Project	SC VI.1	R 336.1205(1), R 336.2801(ee)
4. PM ₁₀	86.5 tpy ²	12-month rolling time period as determined at the end of each calendar month	FG2013Project	SC VI.1	R 336.1205(1), R 336.2801(ee)
5. PM _{2.5}	77.5 tpy ²	12-month rolling time period as determined at the end of each calendar month	FG2013Project	SC VI.1	R 336.1205(1), R 336.2801(ee), 40 CFR 52.21(b)(3)(i)
6. CO _{2e}	327,636 tpy ²	12-month rolling time period as determined at the end of each calendar month	FG2013Project	SC VI.1	R 336.1205(1), 40 CFR 52.21(b)(3)(i)

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

NA

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

V. TESTING/SAMPLING

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

NA

VI. MONITORING/RECORDKEEPING

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

1. The permittee shall calculate the emission rates of the pollutants listed below from FG2013Project monthly, both for the calendar month and for the 12-month rolling time period ending that month, using a method acceptable to the AQD District Supervisor. The permittee shall keep all records on file at the facility and make them available to the Department upon request.² **(R 336.1205(1), R 336.2801(ee), 40 CFR 52.21(b)(3)(i))**
 - a. NO_x
 - b. CO
 - c. PM
 - d. PM10
 - e. PM2.5
 - f. CO_{2e}
2. The permittee shall conduct an ambient air monitoring program for NO₂ in a manner and with instrumentation approved by the AQD Air Monitoring Unit. Monitoring shall consist of at least two air monitoring locations. The permittee shall conduct monitoring in accordance with the plan for three years or until one year of acceptable data collection shows that the ambient air concentrations of NO₂ are no higher than 50% of the applicable 1-hour and annual NO₂ National Ambient Air Quality Standards, whichever comes first. "Acceptable data collection" means fully quality assured and no less than 75% complete.² **(40 CFR 52.21(d))**

See Appendices 3 and 4

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 all ambient air monitoring data records to the AQD Air Monitoring Unit in an acceptable format within 30 days following the end of the month in which the data were collected.² **(40 CFR 52.21(d))**

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

NA

IX. OTHER REQUIREMENT(S)

NA

Footnotes:

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

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

E. NON-APPLICABLE REQUIREMENTS

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

APPENDICES

Appendix 1: Abbreviations and Acronyms

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

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

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

The following monitoring procedures, methods, or specifications are the details to the monitoring requirements identified and referenced in flexible group FGLIMESTORAGE.

3.1 BAGHOUSE INSPECTIONS

1. Inspections shall be conducted during scheduled outages or downtimes, and immediately after observing visible emissions or pressure drops outside the normal range, but not less frequently than every six months. (R336.1213(3))
2. The operational condition, and if necessary, reasons for failure or malfunction of the filters, metal housings, fans, blowers, hopper bottom discharge valve, reverse air dampers or pulse jets, access doors and gaskets (whichever is applicable) shall be determined during the inspection. (R336.1213(3))
3. Any repairs and corrective actions needed to address the causes of malfunction or failure shall be performed promptly to maintain compliance. (R336.1213(3))
4. Permittee shall perform regular maintenance inspections of the baghouses which shall include visual inspection of the fabric filters for security of attachment, holes or tears in the fabric filters for security of attachment, holes or tears in the fabric and evidence of dust leakage. R336.1213(3))

3.2.A. POLLUTANT MONITORING FOR 40 SUBPART 60 SUBPART MMMM, Continuous Emission Monitoring System (CEMS) Requirements

1. Within 30 calendar days of submitting the written notification required by FG4M-INCIN SC VII.1, the permittee shall submit two copies of a Monitoring Plan to the AQD, for review and approval. The Monitoring Plan shall include drawings or specifications showing proposed locations and descriptions of the required CEMS.
2. Within 150 calendar days of submitting the written notification required by FG4M-INCIN SC VII.1, the permittee shall submit two copies of a complete test plan for the CEMS to the AQD for approval.
3. Within 180 calendar days of submitting the written notification required by FG4M-INCIN SC VII.1, the permittee shall complete the installation and testing of the CEMS.
4. Within 60 days of completion of testing, the permittee shall submit to the AQD two copies of the final report demonstrating the CEMS complies with the requirements of the corresponding Performance Specifications (PS) in the following table.

Pollutants with a Promulgated PS	Applicable PS
PM	11
HCl	13
CO	4
Mercury	12A or 12B

Pollutants with a Promulgated PS	Applicable PS
Nitrogen oxides	2
SO ₂	2
Oxygen	3

Pollutants without a promulgated PS	Applicable PS
Cadmium	NA*
Lead	NA*
Dioxins/furans	NA*

- * Upon promulgation of a PS for this pollutant, the promulgated PS becomes an “applicable PS” for this appendix.
5. The span value shall be 2.0 times the lowest emission standard or as specified in the federal regulations.
 6. Each CEMS shall be installed, calibrated, maintained, and operated in accordance with the procedures set forth in 40 CFR 60.13 and the above-listed PS of Appendix B to 40 CFR Part 60.
 7. Each calendar quarter, the permittee shall perform the Quality Assurance Procedures of the CEMS set forth in Appendix F of 40 CFR Part 60. Within 30 days following the end of each calendar quarter, the permittee shall submit the results to the AQD in the format of the data assessment report (Figure 1, Appendix F).
 8. In accordance with 40 CFR 60.7(c) and (d), the permittee shall submit two copies of an excess emission report (EER) and summary report in an acceptable format to the AQD, within 30 days following the end of each calendar quarter. The Summary Report shall follow the format of Figure 1 in 40 CFR 60.7(d). The EER shall include the following information:
 - a) A report of each exceedance above the limits specified in the conditions of this permit. This includes the date, time, magnitude, cause and corrective actions of all occurrences during the reporting period.
 - b) A report of all periods of CEMS downtime and corrective action.
 - c) A report of the total operating time of the incinerator served by the CEMS during the reporting period.
 - d) A report of any periods that the CEMS exceeds the instrument range.
 - e) If no exceedances or CEMS downtime occurred during the reporting period, the permittee shall report that fact.

The permittee shall keep all monitoring data on file for a period of at least five years and make them available to the AQD upon request.

3.2.B. OXYGEN MONITORING FOR FGAQCI, Continuous Emission Monitoring System (CEMS) Requirements

1. The span value shall be 2.0 times the lowest emission standard or as specified in the federal regulations.
2. The CEMS shall be installed, calibrated, maintained, and operated in accordance with the procedures set forth in 40 CFR 60.13 and PS 3 of Appendix B to 40 CFR Part 60.
3. Each calendar quarter, the permittee shall perform the Quality Assurance Procedures of the CEMS set forth in Appendix F of 40 CFR Part 60. Within 30 days following the end of each calendar quarter, the permittee shall submit the results to the AQD in the format of the data assessment report (Figure 1, Appendix F).
4. In accordance with 40 CFR 60.7(c) and (d), the permittee shall submit two copies of an excess emission report (EER) and summary report in an acceptable format to the AQD, within 30 days following the end of

each calendar quarter. The Summary Report shall follow the format of Figure 1 in 40 CFR 60.7(d). The EER shall include the following information:

- a) A report of all periods of CEMS downtime and corrective action.
- b) A report of the total operating time of the incinerator during the reporting period.
- c) A report of any periods that the CEMS exceeds the instrument range.
- d) If no exceedances or CEMS downtime occurred during the reporting period, the permittee shall report that fact.

The permittee shall keep all monitoring data on file for a period of at least five years and make them available to the AQD upon request.

3.2.C. VISIBLE EMISSIONS MONITORING FOR FGAQCI, Continuous Opacity Monitoring System (COMS) Requirements

1. The span value shall be 2.0 times the lowest emission standard or as specified in the federal regulations.
2. The COMS shall be installed, calibrated, maintained, and operated in accordance with the procedures set forth in 40 CFR 60.13 and PS 1 of Appendix B, 40 CFR Part 60.
3. The permittee shall perform an annual audit of the COMS using the procedures set forth in USEPA Publication 450/4-92-010, "Performance Audits Procedures for Opacity Monitors", or a procedure acceptable to AQD. Within 30 days after the completion of the audit, the results of the annual audit shall be submitted to the AQD.
4. In accordance with 40 CFR 60.7(c) and (d), the permittee shall submit two copies of an excess emission report (EER) and summary report in an acceptable format to Air Quality Division, within 30 days following the end of each calendar quarter. The Summary Report shall follow the format of Figure 1 in 40 CFR 60.7(d). The EER shall include the following information:
 - a) A report of all periods of COMS downtime and corrective action.
 - b) A report of the total operating time of the incinerator during the reporting period.
 - c) If no exceedances or COMS downtime occurred during the reporting period, the permittee shall report that fact.

The permittee shall keep all monitoring data on file for a period of at least five years and make them available to the AQD upon request.

Appendix 4. Recordkeeping

The permittee shall use the following approved formats and procedures for the recordkeeping requirements referenced in the Source Wide Requirements and flexible group FGLIMESTORAGE. Alternative formats must be approved by the AQD District Supervisor.

For Requirements in FGLIMESTORAGE

BAGHOUSE INSPECTIONS

- A. A log of the inspections, cause(s) of malfunctions or failures, repairs made and corrective actions taken shall be maintained on file for a period of at least five years. **(R336.1213(3))**
- B. The permittee shall keep records of the preventive maintenance inspections. These records shall include the date and time of inspection, name of person making the inspection, identification of the unit inspected, conditions of the unit and descriptions of any corrective action taken. These records shall be maintained for a minimum of five years and made available to the Division upon request. **(R336.1213(3))**

For Requirements under Source Wide Requirements

Mercury and Beryllium

- 1. The permittee shall retain records of emission test results and other data needed to determine total emissions of beryllium at the facility for a minimum of five years and made available, upon request, for inspection, by the Division. **(40CFR 61.33(e))**
- 2. The permittee shall retain records of emission test results and other data needed to determine total emissions of mercury at the facility for a minimum of five years and made available, upon request, for inspection, by the Division. **(40CFR 61.53(d)(6))**

Appendix 4.1: Recordkeeping (continued)

The permittee shall use the following approved formats and the procedures for the recordkeeping requirements referenced in Source Wide Requirements.

- 1. The permittee shall keep records of implementation of requirements specified in the fugitive dust control program described below and for all requirements of the Consent Orders, Civil Actions and Consent Judgments described in Table B. These records shall be kept on file at the facility for the most recent five-year period and shall be made available to the Division upon request. **(R336.1213(3)), (Consent Order MDEQ SIP No. 11-1993)**

ADDENDUM

(Act 451, Part 55 324.5524), (Consent Order MDEQ SIP No. 11-1993, Fugitive Control Plan, May, 1993)

RECORDKEEPING FOR FUGITIVE DUST SOURCES

REQUIRED RECORDS

UNPAVED ROADS/LOTS

1. DATE OF TREATMENT
2. CONTROL MEASURE USED
3. RESPONSIBLE PERSON'S INITIALS
4. NAME OF PRODUCT APPLIED
5. AMOUNT OF SOLUTION/WATER APPLIED
6. DILUTION RATIO
7. ROAD SEGMENT/LOT IDENTIFICATION

PAVED ROADS/LOTS

1. DATE OF TREATMENT
2. CONTROL MEASURE USED
3. RESPONSIBLE PERSON'S INITIALS
4. ROAD SEGMENT/LOT IDENTIFICATION

STORAGE PILES/MATERIAL HANDLING

1. DATE OF TREATMENT
2. CONTROL MEASURE USED
3. RESPONSIBLE PERSON'S INITIALS
4. DILUTION RATIO (IF APPLICABLE)
5. AMOUNT DUST SUPPRESSANT/WATER APPLIED
6. IDENTIFICATION OF PILE/MATERIAL HANDLING OPERATION TREATED
7. EQUIPMENT USED

OPTIONAL RECORDS

WEATHER CONDITIONS

1. PRECIPITATION
2. TEMPERATURE
3. WIND DIRECTION AND VELOCITY

Appendix 5. Testing Procedures

The following table lists the test methods that are to be used, in accordance with 40 CFR Part 60, Subpart M, to satisfy the testing requirements for FG4M-INCIN and FGC2ASH.

Pollutant	Test Method	Minimum sampling volumes or durations
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Pollutant	Test Method	Minimum sampling volumes or durations
Particulate matter	EPA Reference Test Method 5 at 40 CFR part 60, appendix A-3; Method 26A or Method 29 at 40 CFR part 60, appendix A-8; Method 201 or 202	3-run average (collect a minimum volume of 0.75 dry standard cubic meters per run)
Hydrogen chloride	EPA Reference Test Method 26 or 26A at 40 CFR part 60, appendix A-8	3-run average (For Method 26, collect a minimum volume of 200 liters per run. For Method 26 A, collect a minimum volume of 1 dry standard cubic meters per run)
Carbon Monoxide	EPA Reference Test Method 10, 10A, or 10B at 40 CFR part 60, appendix A-4	3-run average (collect sample for a minimum duration of one hour per run)
Dioxins/furans (total mass basis)	EPA Reference Test Method 23 at 40 CFR part 60, appendix A-7	3-run average (collect a minimum volume of 1 dry standard cubic meters per run)
Mercury	EPA Reference Test Method 29 at 40 CFR part 60, appendix A-8; Method 30B at 40 CFR part 60, appendix A-8; or ASTH D6784-02 (Reapproved 2008)	3-run average (For Method 29 and ASTM D6784-02 (Reapproved 2008), collect a minimum volume of 1 dry standard cubic meters per run. For Method 30B, collect a minimum sample as specified in Method 30B at 40 CFR part 60, appendix A-8)
Oxides of nitrogen	EPA Reference Test Method 7 or 7E at 40 CFR part 60, appendix A-4	3-run average (Collect sample for a minimum duration of one hour per run)
Sulfur dioxide	EPA Reference Test Method 6 or 6C at 40 CFR part 40, appendix A-4; or ANSI/ASME PTC 19.10-1981	3-run average (For Method 6, collect a minimum volume of 200 liters per run. For Method 6C, collect sample for a minimum duration of one hour per run)
Cadmium	EPA Reference Test Method 29 at 40 CFR part 60, appendix A-8	3-run average (collect a minimum volume of 1 dry standard cubic meters per run)
Lead	EPA Reference Test Method 29 at 40 CFR part 60, appendix A-8	3-run average (collect a minimum volume of 1 dry standard cubic meters per run)
Fugitive emissions from ash handling	Visible emission test (Method 22 of appendix A-7 of this part).	Three 1-hour observation periods.

Appendix 6. Permits to Install

The following ROP amendments or modifications were issued after the effective date of previously issued ROP No. MI-ROP-B2103-2014.

Permit to Install Number	ROP Revision Application Number/Issuance Date	Description of Change	Corresponding Emission Unit(s) or Flexible Group(s)
61-13	201400048/ June 13, 2014	Incorporate Permit to Install (PTI) No. 61-13.	FGAQCI FG4M-INCIN FGDryerTrains FGDryerFacility FG2013Project
61-13A	201500119/ October 16, 2015	Incorporate PTI No. 61-13A. PTI 61-13A is modification of PTI No. 61-13 to allow more flexibility for sludge processing during the early stages of operating the biosolids drying facility. The applicant proposed no changes to the equipment configuration, no changes to emission controls, and no changes to allowed emissions, stack parameters, or stack locations.	FGAQCI FG4M-INCIN FGDryerTrains FGDryerFacility FG2013Project
NA	201700081 / August 29, 2017	The facility installed a Packed tower liquid counter flow scrubber to each dryer train (EUDryerTrainA, EUDryerTrainB, EUDryerTrainC, and EUDryerTrainD) using exemption R 336.1285(2)(e) to further reduce SO ₂ emissions. With the installation of the new control equipment, the Detroit District Office requested Conditions be added to FGDryerTrains, so the equipment is operated and maintained properly.	EUDryerTrainA, EUDryerTrainB, EUDryerTrainC, EUDryerTrainD, FGDryerTrains

Appendix 7. Emission Calculations

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

Engine-Specific Emission Factors

Emission Unit ID	Emission Unit Description	NO _x emissions @ 100% load (lb/hr)
EU-D1A	Caterpillar 3512 diesel fired 1500 kW generator	28.98
EU-D1B	Caterpillar 3512 diesel fired 1500 kW generator	28.98
EU-D2	Caterpillar 3508 diesel fired 1000 kW generator	29.67
EU-D4	Caterpillar C32 diesel fired 1000 kW generator	18.83
EU-D5	Caterpillar C15 diesel fired 400 kW generator	5.93
EU-D6	Caterpillar 1103C-33G1 diesel fired 20 kW generator	0.28
EU-P1	Portable diesel fired 70 kW generator	0.98
EU-P2	Portable diesel fired 70 kW generator	0.98
EU-G1	Caterpillar G3406 NA natural gas fired 150 kW generator	5.75
EU-G2	Caterpillar G3406 NA natural gas fired 150 kW generator	5.75
EU-G3	Ford G30F3 natural gas fired 30 kW generator	0.78
EU-G4	Ford G20F3 natural gas fired 20 kW generator	0.49
EU-G5	Ford G30F3S natural gas fired 30 kW generator	0.78

Emission Unit ID	Emission Unit Description	NOx emissions @ 100% load (lb/hr)
EU-G6	Ford G20F3 natural gas fired 20 kW generator	0.49
EU-G8	Ford G40F3 natural gas fired 30 kW generator	0.78
EU-G9	Ford G20F3 natural gas fired 20 kW generator	0.49
EU-G10	Caterpillar G3516 LE natural gas fired 1040 kW generator	6.45

The permittee shall calculate NOx emissions for each engine by multiplying the hours of operation for each engine by its respective engine-specific emission factor listed above, or as determined from testing, whichever is greater.

Appendix 8. Reporting

A. Annual, Semiannual, and Deviation Certification Reporting

The permittee shall use the MDEQ Report Certification form (EQP 5736) and MDEQ 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

The permittee shall use the following approved formats and procedures for the reporting requirements referenced in Source Wide Requirements. Alternative formats must be approved by the AQD District Supervisor.

For Source Wide Requirements

- Beginning with the calendar quarter starting on October 1, 1993, and quarterly thereafter, the Permittee shall submit to the Division a report identifying each day in which any emission limit, operational requirement, or recordkeeping requirement, was not met.
(R336.1213(3)), (Consent Order MDEQ SIP No. 11-1993)
- The report specified in Condition 1 (above) shall, for each instance, explain the reason that the emission limit, operational requirement, or recordkeeping requirement was not met, the duration of the event, the remedial action taken, and a description of the steps which were taken to prevent recurrence.
(R336.1213(3)), (Consent Order MDEQ SIP No. 11-1993)
- The report specified in Condition 1 (above) shall be submitted within 30 days following the end of the calendar quarter in which data were collected.
(R336.1213(3)), (Consent Order MDEQ SIP No. 11-1993)

Appendix 9. Malfunction Abatement Plans

The following Malfunction Abatement Plans detail the Preventative Maintenance Programs for FGAQCI and FGDryerFacility

[MD6]

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Incineration Process Malfunction Abatement Plan

The City of Detroit Wastewater Treatment Plant

This document contains the Incineration Process Malfunction Abatement Plan to be used at the City of Detroit's Wastewater Treatment Plant, 9300 West Jefferson Avenue, Detroit, Michigan 48209. The plan's purpose is to assure compliance with the emission limit on opacity in the event of a malfunction or failure of any part of the process that affects opacity.

Rule 911 of the State of Michigan Air Pollution Control Rules requires the DWWTP to have a Malfunction Abatement Plan in place, "to prevent, detect, and correct malfunctions or equipment failures resulting in emissions exceeding any applicable emission limitation." The emission limitation this plan is concerned with is the opacity limitation of 20 percent. The rule requires that the plan specify, at a minimum:

- a) A complete preventative maintenance program, including identification of the supervisory personnel responsible for overseeing the inspection, maintenance and repair of air-cleaning devices, a description of the items or conditions that shall be inspected, the frequency of these inspections or repairs, and an identification of the major replacement parts that shall be maintained in inventory for quick replacement.
- b) An identification of the source and air-cleaning device operating variables that shall be monitored to detect a malfunction or failure, the normal operating range of these variables, and a description of the method of monitoring or surveillance procedures.
- c) A description of the corrective procedures or operational changes that shall be taken in the event of a malfunction or failure to achieve compliance with the applicable emission limits.

The plan is divided into four sections in tabular format:

1. Represented by **Table 1, Key Monitored Process Parameters**, this section relates to R 336.1911 (2)(b) and delineates, "the source and air-cleaning device operating variables that shall be monitored to detect a malfunction or failure, the normal operating range of these variables, and a description of the method of monitoring or surveillance procedures."

The first column of Table 1 shows the reference number which is used to link the malfunction range (condition) of Table 2 items and maintenance activities in Table 3 with one or more process parameters given in Table 1. The Operations personnel at the DWWTP have determined, through experience, the incineration process parameters whose variance has a direct effect on the opacity of incineration emissions. These parameters are shown in column 2 of Table 1.

Columns 3 to 7 contain information regarding the device or method used to monitor a given process parameter in column 2, the location of such device, the frequency of monitoring, the normal range of the process parameter and the malfunction range for a given parameter.

The value of a given parameter is indicative of either normal operation or

malfunction or failure of the process. Table 1 contains fields for both the normal operating range and the malfunction range for each monitored process parameter. If any of these parameter's values fall within the particular parameter's malfunction range, remedial action must be taken to prevent a deviation from the emission limitation

2. Represented by **Table 2, Malfunction Abatement Summary**, this section relates to R 336.1911 (2)(c) and is an, "identification of the source and air-cleaning device operating variables that shall be monitored to detect a malfunction or failure, the normal operating range of these variables, and a description of the method of monitoring or surveillance procedures." This table details the action(s) to be taken in the event that one or more of the monitored Process Parameters value(s) in Table #1 enters its malfunction range.

As an example, assume the oxygen level has fallen below 4 percent. Using Table 1, it is determined that <4% oxygen is indicative of a malfunction. *Oxygen Level %*, in the first row of Table 1, has a *Process Parameter Reference Number* of "1." Using this reference number and Table 2, it is determined that there are three possible causes for this condition (low oxygen). The operator need only determine which of the three is the actual cause and take the action recommended in the *Remedial Action* column corresponding to the cause.

All opacity exceedances and the corrective action(s) taken will be recorded. Records of each operator adjustment to prevent an opacity exceedance need not be recorded.

3. **Table 3, Preventative Maintenance Summary**, is a summary of the preventative maintenance to be performed on devices whose failure may contribute to opacity deviations. The maintenance program relates to requirement (2)(a) of R 336.1911.

As an example, refer to the first row of Table 3. The induced draft fan affects process parameters associated with Process Parameter Reference Numbers 1-6, 9 and 11. These reference numbers are used to reference Table 1's first column which indicates that Oxygen Level (%), Temperature, Draft Pressure, Feed Rate, Hopper Depth, Auxiliary Combustion Air Damper, Manual Opacity Monitor Calibrations and Slag Buildup are all affected if the induced draft fan malfunctions. The frequency of PM activity applies to units that are operating. Records of PM activity will be maintained.

4. **Table 4, Spare Parts List**, lists parts that are in inventory for use in the maintenance of devices listed in Table 3. This table, along with Table 3, relates to requirement (2)(a) of R 336.1911. For convenience, the attached

spare parts list may detail supplier name and supplier part number. However, the Detroit Wastewater Treatment Plant reserves the right to purchase spare parts from any company offering an acceptable substitute. The quantity of parts included in this section is a suggested number of spares. The Detroit Wastewater Treatment Plant reserves the right to have suppliers expedite delivery of parts from their factory or warehouse in lieu of storing onsite.

The intended function of the malfunction abatement plan (MAP) is, “to prevent, detect, and correct malfunctions or equipment failures resulting in emissions exceeding any applicable emission limitation.” The emission limitation is 20% opacity.

Definition of Acronyms

PLC – Programmable Logic Controller
OCS – Ovation Control System
SFE – Screened Final Effluent (process water used where water is needed)
DWWTP – Detroit Wastewater Treatment Plant
I.D. Fan – Induced Draft Fan
MAP – Malfunction Abatement Plan
COMS – Continuous Opacity Monitoring System
P.M. – Preventative Maintenance
ID – Inside diameter
OD – Outside diameter
C1 – Incineration Complex One
CII – Incineration Complex Two
IS – In-Service
I/O – Input/Output

Incineration Process Malfunction Abatement Plan
 The City of Detroit Wastewater Treatment Plant

Table 1 - Key Monitored Process Parameters

Process Parameter Reference Number	Process Parameter	Monitoring Device or Method	Location of Monitor	Frequency of Monitoring	Normal Operating Range	Malfunction Range
1	Oxygen Level (%)	Oxygen Analyzer	Breach/Hearth #3	Continuous	1 – 12%	<1%
2	Hearth #1 Temperature	Thermocouple	Hearth #1	Continuous	1100 – 1500 °F.	<900 °F.
3	Combustion Zone Temperature	Thermocouple	Combustion zone hearths	Continuous	1200 – 1950 °F.	<1200 °F. or >1950 °F.
4	Draft Pressure	Pressure gauge	Breach/Hearth #5	Continuous	0.0 to -1.5 in. of H ₂ O	> +0.0 inches of H ₂ O
5	Feed Rate	Weightometers	Conveyor belts	Continuous	Complex I: 0-16 wet tons/hr; Complex II: 0-20 wet tons/hr	Complex I >16 wet tons/hr; Complex II >20 wet tons/hr
6	Total Scrubber System Inlet-Outlet Differential Pressure	Pressure gauges	Venturi section inlet and tray section outlet	Continuous	>18 inches of H ₂ O column	<18 inches of H ₂ O column
7	Scrubber Water Flow	Flow meters	Control Room	Continuous	3 – 4 SFE pumps in-service	< 3 SFE pumps in-service
8	Sludge Combustion Air Supply	Shaft return air and auxiliary air dampers	Control Room	Continuous	0 to 100% open	Unresponsive
9	Slag Buildup	Visual	Combustion zone hearths and center shaft	As needed	All holes open and center shaft clearance okay	≥ 25% holes blocked. Center shaft clearance not okay.
10	Ash Buildup on Bottom Hearth	Visual	Complex I – basement Complex II – first floor	As needed	Empty (no buildup)	Plugged drop hole
11	Opacity	Opacity monitor	Roof	Continuous	Below 20%	No reading or constant low or high readings

Incineration Process Malfunction Abatement Plan
 The City of Detroit Wastewater Treatment Plant

Table 2 – Malfunction Abatement Summary

Process Parameter Reference Number	Condition	Possible Cause(s)	Means of Detection	Corrective Procedures
1	Low oxygen	Too many burners I.S.	PLC/OCS	Reduce burner firing rates or number of burners in use
1	Low oxygen	Low draft pressure	PLC/OCS	Increase draft pressure setpoint
1	Low oxygen	Process control problems	PLC/OCS	Increase oxygen set point, or manually increase air damper openings
2	Low hearth #1 temperature	Feed rate increase or lower cake solids	PLC/OCS	Increase upper hearth burner firing rates and/or reduce feed rate if necessary
3	Low combustion temperatures	Low burner use profiles	PLC/OCS	Increase number of burners in use and/or firing rates as needed.
3	Low combustion temperatures	Feed rate increase or lower cake solids	PLC/OCS	Increase number of burners in use and/or firing rates as needed. Or, if necessary, reduce feed rate.
3	High combustion temperatures	Lost feed, burner use profile, or change in cake solids	PLC/OCS	Restore feed or reduce number of burners and/or firing rates
4	Low or high draft	Various process changes	PLC/OCS	Increase or decrease draft pressure set point as needed
5	No feed	Conveyor(s) stopped or hopper bridging	PLC/OCS & visual inspections	Restart conveyors and/or clear hopper bridging. Check screw speed settings
5	Too much feed	Not enough incinerators	Visual Inspection	Put more incinerators in-service / decrease feed
5	Hopper bridging	Cake containing an excessive amount of polymer	Visual Inspection	Run the hopper until it is empty (this eliminates the bridging)
6	Low scrubber system differential pressure	Various process changes	PLC/OCS	Increase draft and venturi differential pressure set points
7	Low scrubber water flow rate	Incorrect settings or loss in water supply pressure	PLC/OCS	Increase flow settings and/or restore water supply pressure
8	Low or no sludge combustion air supply	Oxygen control system or air damper problems	PLC/OCS	Open air dampers in manual mode and visually check damper action, open lower hearth peep holes if necessary

Incineration Process Malfunction Abatement Plan
 The City of Detroit Wastewater Treatment Plant

Table 2 – Malfunction Abatement Summary

Process Parameter Reference Number	Condition	Possible Cause(s)	Means of Detection	Corrective Procedures
9	Slag buildup	High combustion zone temperatures	PLC/OCS/Visual	De-slag affected hearths and/or center shaft sections if needed
10	Ash buildup on bottom hearth	Ash system not removing ash	PLC/OCS/Visual	Check ash system. If not working, stop feed, stop shaft and control burnout, and place incinerator out-of-service before corrective maintenance begins
11	Opacity monitor malfunction	Electrical or dirty lenses	PLC/OCS	Place incinerator out-of-service for instrument corrective maintenance
Any	Preventative Maintenance	Other components shut off as a result of P.M.	PLC/OCS	Control burnout and place incinerator in standby mode prior to PM

Incineration Process Malfunction Abatement Plan
 City of Detroit Wastewater Treatment Plant

Table 3 – Preventative Maintenance Summary – Tasks Common to both Complex I and Complex II

Process Parameter Reference Number	Maintained Equipment	Preventative Maintenance Task	Frequency	Responsible Supervisor (Title)
4, 5, 6	Induced draft fan	Electrical inspection	Annually	EWG Sub-Foreman
		Oil lubrication & sensory check	Annually	Plant Maintenance Sub-Foreman
		Oil change - bearings	Annually	Plant Maintenance Sub-Foreman
1, 2, 3	Incinerator gas burner	Mechanical inspection of burners	Quarterly	Plant Maintenance Sub-Foreman
2, 3, 4, 5	Main stack damper	Electrical & pneumatic system checks	Quarterly	Operations
4	Scrubber damper	Check	Quarterly	Plant Maintenance Sub-Foreman
1, 2, 3, 5, 9, 11	Center shaft system	Lube and mechanical check	Monthly	Plant Maintenance Sub-Foreman
1, 2, 3, 4, 9, 11	Burner air fan	Oil level and mechanical inspection	Quarterly	Plant Maintenance Sub-Foreman
		Mechanical check – drive belt	Quarterly	Plant Maintenance Sub-Foreman
11	All opacity monitors	Opacity monitor P.M.	Monthly	WSCIT Sub-Foreman

Incineration Process Malfunction Abatement Plan
 City of Detroit Wastewater Treatment Plant

Table 3 – Preventative Maintenance Summary – Tasks Common to both Complex I and Complex II

Process Parameter Reference Number	Maintained Equipment	Preventative Maintenance Task	Frequency	Responsible Supervisor (Title)		
6, 7, 11	SFE pumps	Electrical inspection	Annually	EWG Sub-Foreman		
		Mechanical inspection	Bi – Annually	Plant Maintenance Sub-Foreman		
		Operator inspection – Butterfly valve leakage	Quarterly	Operations - HSPO		
		Gear drive – Bearing oil change, anchor bolt check	Annually	Plant Maintenance Sub-Foreman		
		Bearing housing inspection on strainers	Annually	Plant Maintenance Sub-Foreman		
		Electrical inspection	Annually	EWG Sub-Foreman		
		Flexible coupling – Lube, operation & alignment check	Bi – Annually	Plant Maintenance Sub-Foreman		
		Bearing housing inspection	Bi – Annually	Plant Maintenance Sub-Foreman		
		2, 3, 5, 9, 11	Weightometer for belt # 15-1 Weightometer for belt # 15-2 Weightometer for belt # 15-3 Weightometer for belt # 15-4 Weightometer for belt # 15-5 Weightometer for belt # 15-6 Weightometer for belt # X-9 Weightometer for belt # P 7 & 8	Calibration/Inspection	Monthly	WSCIT Sub-Foreman

Incineration Process Malfunction Abatement Plan
 City of Detroit Wastewater Treatment Plant

Table 3 – Preventative Maintenance Summary – Tasks Common to both Complex I and Complex II

Process Parameter Reference Number	Maintained Equipment	Preventative Maintenance Task	Frequency	Responsible Supervisor (Title)
2, 3, 5, 9, 11	Weightometer for belt # P 9 & 10	Calibration/Inspection	Monthly	WSCIT Sub-Foreman
	Weightometer for belt # P 11 & 12			
	Weightometer for belt # P 13 & 14			
	Weightometer for belt # K-1 & 2			
	Weightometer for belt # L-1 & 2			
	Weightometer for belt # Q-7 & 8			
	Weightometer for belt # Q-9 & 10			
	Weightometer for belt # Q-11 & 12			
	Weightometer for belt # Q-13 & 14			
	Weightometer for belt # M-1 & 2			
1, 11	Weightometer for belt # N-1 & 2		Monthly	
	Incinerator #1 Oxygen Analyzers			
	Incinerator #2 Oxygen Analyzers			
	Incinerator #3 Oxygen Analyzers			
	Incinerator #4 Oxygen Analyzers			

Incineration Process Malfunction Abatement Plan
 City of Detroit Wastewater Treatment Plant

Table 3 – Preventative Maintenance Summary – Tasks Common to both Complex I and Complex II

Process Parameter Reference Number	Maintained Equipment	Preventative Maintenance Task	Frequency	Responsible Supervisor (Title)
1, 11	Incinerator #5 Oxygen Analyzers	Calibration/Inspection	Monthly	WSCIT Sub-Foreman
	Incinerator #6 Oxygen Analyzers			
	Incinerator #7A Oxygen Analyzer			
	Incinerator #7B Oxygen Analyzer			
	Incinerator #8A Oxygen Analyzer			
	Incinerator #8B Oxygen Analyzer			
	Incinerator #9A Oxygen Analyzer			
	Incinerator #9B Oxygen Analyzer			
	Incinerator #10A Oxygen Analyzer			
	Incinerator #10B Oxygen Analyzer			
	Incinerator #11A Oxygen Analyzer			
	Incinerator #11B Oxygen Analyzer			
	Incinerator #12A Oxygen Analyzer			
Incinerator #12B Oxygen Analyzer				
Incinerator #13A Oxygen Analyzer				

Incineration Process Malfunction Abatement Plan
 City of Detroit Wastewater Treatment Plant

Table 3 – Preventative Maintenance Summary – Tasks Common to both Complex I and Complex II				
Process Parameter Reference Number	Maintained Equipment	Preventative Maintenance Task	Frequency	Responsible Supervisor (Title)
1, 11	Incinerator #13B Oxygen Analyzer	Calibration/Inspection	Monthly	WSCIT Sub-Foreman
	Incinerator #14A Oxygen Analyzer			
	Incinerator #14B Oxygen Analyzer			

Incineration Process Malfunction Abatement Plan
 City of Detroit Wastewater Treatment Plant

Table 3 – Preventative Maintenance Summary – Tasks Peculiar to Incineration Complex II

Equipment Component Reference Number	Maintained Equipment	Preventative Maintenance Task	Frequency	Responsible Supervisor (Title)
4, 6, 7, 11	Venturi nozzle	Nozzle inspection	Semi-annually	Plant Maintenance Sub-Foreman
1, 2, 3, 4, 8	Auxiliary combustion air fan	Electrical inspection	Annually	EWG Sub-Foreman
		Mechanical check -- belt drive	Semi-annually	Plant Maintenance Sub-Foreman

Incineration Process Malfunction Abatement Plan
 City of Detroit Wastewater Treatment Plant

Table 4 – Spare Parts Identification

Maintained Equipment	Description of Part	EMPAC or Mfg. Part Number	Quantity
Complex 2 Induced Draft Fan	Adapter, Bearing: 2-5/16" bore	000000000004203	2
	Bearing, Pillow Block: SKF FSAF 517	000000000007966	2
	Bearing, Roller: tapered with race	000000000003456	1
	Coupling, Flexible: Type crowned tooth	000000000000240	1
	Ring, Stabilizing: SKF SR17	000000000013075	1
Incinerator Gas Burners	Seal, Ring: (grease) ID 2.938" OD 3.565"	000000000008361	4
	Actuator, Valve #EA5300000-000013	000000000005499	15
C2 Central Shaft Cooling Air Fan	Belt, V-drive: Dayco P/N 5VX950	000000000002134	2
	Belt, V-drive: Dayco P/N 5VX950	000000000002134	2
Incinerator Drive Reducers	Limiter, Incinerator: Torque 409/3	000000000508320	1
	Belt, V-drive: Goodyear	000000000008796	2
Auxiliary Combustion Air Fan	Damper, Fan: Burner air fan #73-NH	000000000002496	1
	Adapter, Incinerator	000000000002731	8
Complex 1 Incinerator Piping/Hoses	Coupling, Hose: 1 1/4" type D female	000000000009922	8
	Hose, Incinerator	000000000003045	8
	Nozzle, Incinerator	000000000003964	2
	Nozzle, Spray	000000000007157	8

Incineration Process Malfunction Abatement Plan
 City of Detroit Wastewater Treatment Plant

Table 4 – Spare Parts Identification

Maintained Equipment	Description of Part	EMPAC or Mfg. Part Number	Quantity
Complex 1 Shaft Cooling Air Fan	Belt, V-drive: Goodyear P/N C-90	000000000006584	3
	Sheave, Std V-belt: C/3 Grooves Type B-2	000000000004562	1
	Sheave, Std V-belt: C Groove 3 Type B2	000000000005484	1
Complex 1 Burner Air Fan	Bearing, Pillow Block: w/col ball	000000000010269	2
	Belt, V-drive: Wedge cog type	000000000009397	6
	Sheave, Std V-belt: 5V-belt grooves 6	000000000008123	1
	Sheave, Std V-belt: 6 groove OD 9"	000000000013117	1
	Adapter, Bearing: 3-15/16" bore	000000000003642	2
	Bearing, Pillow Block: Linkbelt	000000000007546	2
Complex 1 Induced Draft Fan	Bearing, Pillow Block: 3-15/16" bore	000000000012520	2
	Bearing, Roller: Spherical tapered	000000000004311	1
	Coupling, Flexible Fan: End bore 3-15/16"	000000000000524	1
Opacity Monitor	Connector Kit, Multi I/O	000000000508334	1
	Purge Filters	000000000508289	1
	Lens Cleaning Fluid	000000000508336	1

Incineration Process Malfunction Abatement Plan
 City of Detroit Wastewater Treatment Plant

Table 4 – Spare Parts Identification

Maintained Equipment	Description of Part	EMPAC or Mfg. Part Number	Quantity
Opacity Monitor	Dessicator (Head)	00000000508637	1
	Dessicator (Retro)	00000000508636	1
	Alignment Tool	00000000508295	1
SFE Pump	O-Ring, 0.139 X-sect/ 3.359 ID	2611895 116	1
	O-Ring, 0.139 X-sect/26.500 ID	2612202 116	1
	Bearing, sleeve 3-11/16 4-3/16	2623773 186	1
	Bearing, sleeve 3-11/16 4-3/16	2623774 186	2
	Bearing, sleeve 3-11/16 4-3/16	2623775 186	3
	Ring, lateral bowl wear (core #262 32HXB)	2624327 118	1
	Core, lateral bowl wear ring 32HXB	2628537 222	1
	Bearing, sleeve 3-15/16 4-7/16	2727112 186	4
	Bearing, shaft 3-15/16 5-7/8	4778535 118	1
	Assembly, Filter: oxygen analyzer	00000000013458	1
Oxygen Analyzer	Board, printed circuit: power supply	00000000005146	1
	Board, printed circuit: indicator	00000000005443	1
	Board, printed circuit: processing	00000000012594	1
	Hexagon bolt: M5 x 16 millimeter	00000000012086	12

Incineration Process Malfunction Abatement Plan
 City of Detroit Wastewater Treatment Plant

Table 4 – Spare Parts Identification			
Maintained Equipment	Description of Part	EMPAC or Mfg. Part Number	Quantity
Oxygen Analyzer	Box, probe mounting	000000000004942	1
	Box, terminal: for detector	000000000005226	1
	Nipple, Teflon: for .25 OD tube	000000000007095	3
	O-ring, oxygen analyzer: for filter	000000000005678	6
	O-ring, seal: C-65	000000000007311	6
	Probe, sample: ZTA 30"	000000000010036	1
	Pump, air: 115VAC	000000000012838	1
	Sensor, oxygen: for zicromatic oxygen	000000000001073	1
	Terminal block, ceramic	000000000012390	1
	Valve, analyzer viton for oxygen	000000000013128	1
	Valve, 3-way knob control stainless	000000000005679	1
	Cable, control: programming/OIC cable	000000000007946	1
	Chassis, monitor: 10 slot	000000000001788	2
	Backlight lamp for LCD	000000000006782	1
Digital Control System	Module, control: modular card slot	000000000000328	4
	Module, control: analog output module	000000000001616	2

City of Detroit Wastewater Treatment Plant

Table 4 – Spare Parts Identification

Maintained Equipment	Description of Part	EMPAC or Mfg. Part Number	Quantity
Weightometer-Technetics model	Transducer, LVDT	000000000015373	1
	Board, computer: P/N EC0074	000000000000409	1
	Board, display: supertwist P/N EC0725	000000000006492	1
	Board, power supply	000000000007842	1
	Encoder, weightometer belt speed model	000000000000731	1
	Integrator, weigh-scale: with enclosure	000000000006924	1
	Integrator, weigh-scale	000000000013662	1
	Transducer, load cell	000000000013541	1
	Controller, history: transfer card	000000000013057	2
	Controller, memory: card	000000000004303	4
Digital Control System	Controller, program: programmable	0000000000006406	2
	Supply, processor: power	000000000004440	2
	Switch, transfer	000000000008247	1
Temperature Element	Sensor, temperature: and thermowell	0000000000507867	20



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GOVERNOR

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
LANSING



C. HEIDI GREYER
DIRECTOR

June 6, 2017

UPS NEXT DAY DELIVERY

Ms. Wendy Barrott
Manager Wastewater
Great Lakes Water Authority
9300 West Jefferson Avenue
Detroit, Michigan 48209

Dear Ms. Barrott:

SUBJECT: Effective Consent Order AQD No. 7-2017

Enclosed is the final signed copy of the State of Michigan, Department of Environmental Quality (MDEQ), Air Quality Division (AQD), Stipulation for Entry of Final Order by Consent (Consent Order) AQD No. 7-2017 for Great Lakes Water Authority with State Registration Number B2103. The effective date of this Consent Order is June 5, 2017.

Thank you for your cooperation. If you have any questions, please feel free to contact Mr. Jason Wolf, Enforcement Unit, AQD, wolfj2@michigan.gov or 517-284-6772; or you may contact me at mcleodr1@michigan.gov or 517-284-6770.

Sincerely,

Rachel R. McLeod
Departmental Analyst
Enforcement Unit
Air Quality Division

Enclosure

cc: Mr. Jason Wolf, MDEQ

cc/enc: Ms. Sarah Marshall, U.S. Environmental Protection Agency, Region 5
Mr. Neil Gordon, Michigan Department of Attorney General
Ms. Wilhemina McLemore, MDEQ

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
OFFICE OF THE DIRECTOR

In the matter of administrative proceedings)
against **GREAT LAKES WATER**)
AUTHORITY, an authority organized under)
the laws of the State of Michigan and doing)
business at 735 Randolph Street, Suite 501,)
City of Detroit, County of Wayne, State of)
Michigan)

AQD No. 7-2017

SRN: B2103

STIPULATION FOR ENTRY OF FINAL ORDER
BY CONSENT

This proceeding resulted from allegations by the Michigan Department of Environmental Quality (MDEQ) Air Quality Division (AQD) against Great Lakes Water Authority (Authority), an authority doing business at 735 Randolph Street, Suite 501, Detroit, Michigan, with State Registration Number (SRN) B2103. The MDEQ alleges that the Authority is in violation of Renewable Operating Permit (ROP) MI-ROP-B2103-2014c and Rule 972 of Michigan's Air Pollution Control Rules, Mich Admin Code, R 336.1972. Specifically, the MDEQ alleges that the Authority exceeded the sulfur dioxide (SO₂) pounds per hour (lb/hr) emission limit from two bio-solid dryer trains, failed to perform emissions tests on the sewage sludge incinerators to demonstrate initial compliance with applicable emission limits, failed to establish a minimum combustion chamber operating temperature, failed to submit a site-specific monitoring plan for each continuous monitoring system required by 40 CFR, Subpart Mmmm, failed to establish a minimum scrubber liquid flow rate, failed to monitor and record scrubber liquid pH, failed to establish a minimum liquid pH for each wet scrubber used to meet the SO₂ or hydrogen chloride emission limits, and failed to permanently cease the operation of five sewage sludge incinerators no later than March 20, 2016 as required in MI-ROP-B2103-2014c, as cited herein and in a Violation Notice dated June 21, 2016. The Authority and MDEQ stipulate to the termination of this proceeding by entry of this Stipulation for Entry of a Final Order by Consent (Consent Order).

The Authority and MDEQ stipulate as follows:

1. The Natural Resources and Environmental Protection Act, 1994 PA 451 (Act 451), MCL 324.101 *et seq.* is an act that controls pollution to protect the environment and natural resources in this State.

2. Article II, Pollution Control, Part 55 of Act 451 (Part 55), MCL 324.5501 *et seq.* provides for air pollution control regulations in this State.

3. The MDEQ was created as a principal department within the Executive Branch of the State of Michigan pursuant to Executive Order 2011-1 and has all statutory authority, powers, duties, functions and responsibilities to administer and enforce all provisions of Part 55.

4. The Director of the Michigan Department of Environmental Quality has delegated authority to the Director of the AQD (AQD Director) to enter into this Consent Order.

5. The termination of this matter by a Consent Order pursuant to Section 5528 of Part 55 is proper and acceptable.

6. The Authority and the MDEQ agree that the signing of this Consent Order is for settlement purposes only and does not constitute an admission by the Authority that the law has been violated.

7. This Consent Order becomes effective on the date of execution (effective date of this Consent Order) by the AQD Director.

8. The Authority shall achieve compliance with the aforementioned regulations in accordance with the requirements contained in this Consent Order.

COMPLIANCE PROGRAM AND IMPLEMENTATION SCHEDULE

9.A. Limits

No later than December 31, 2017, the Authority shall comply with the SO₂ emission limit for FGDryerTrains as specified in MI-ROP-B2103-2014c, as amended.

9.B. Operational

1. No later than June 30, 2017, the Authority shall permanently cease operating the emission units identified in MI-ROP-B2103-2014c as EUINC01, EUINC03, EUINC04, and EUINC05.

2. On and after the effective date of this Consent Order, the Authority shall comply with the total sludge feed rate for FGDryIncTrans in MI-ROP-B2103-2014c, as amended.

9.C. Monitoring and Recordkeeping

1. On and after the effective date of this Consent Order and until the Authority complies with condition 9.B.1 of this Consent Order, the Authority shall comply with Special Condition 1 in Section VI (Monitoring/Recordkeeping) for FGC1ASH in MI-ROP-B2103-2014c, as amended.

2. On and after the effective date of this Consent Order and until the Authority complies with condition 9.B.1 of this Consent Order, the Authority shall comply with Special Conditions 1, 2, 3, 6, 7, 8, 10, 14, 15, and 16 in Section VI (Monitoring/Recordkeeping) for FGCOMPLEX1 in MI-ROP-B2103-2014c, as amended.

3. On and after the effective date of this Consent Order and until the Authority complies with condition 9.B.1 of this Consent Order, the Authority shall comply with Special Conditions 1 and 2 in Section VI (Monitoring/Recordkeeping) for FGDryIncTrans in MI-ROP-B2103-2014c, as amended.

9.D. Testing

1. No later than January 1, 2018 and continuing annually thereafter, the Authority shall submit a test plan to test each of the dryer trains for SO₂ in FGDryerTrains that meets the requirements specified in Exhibit A of this Consent Order to the AQD Detroit District Supervisor and the Technical Programs Unit Supervisor for approval prior to testing.

2. Within 30 days after AQD approval of a test plan submitted by the Authority pursuant to paragraph 9.D.1, the Authority shall conduct stack testing for SO₂ on FGDryerTrains.

3. Within 60 days after the test completion, the Authority shall submit to the AQD Detroit District Supervisor and the Technical Programs Unit Supervisor a test report that includes the test data and results.

4. Not less than seven (7) days prior to any stack testing which will be used to demonstrate compliance, the Authority or an authorized agent, shall notify the AQD Detroit District Supervisor and the Technical Programs Unit Supervisor, in writing, of the time and place of the tests and who shall conduct them. A representative of the AQD shall have the opportunity to witness the tests.

5. After three (3) consecutive annual testing events demonstrating compliance with the FGDryerTrains SO₂ emission limits, the Authority may return to the testing schedule required by MI-ROP-B2103-2014c, as amended.

GENERAL PROVISIONS

10. This Consent Order in no way affects the Authority's responsibility to comply with any other applicable state and federal, or local laws or regulations, including without limitation, any amendments to the federal Clean Air Act, 42 USC 7401 *et seq.*, Act 451, Part 55 or their rules and regulations, or to the State Implementation Plan.

11. This Consent Order constitutes a civil settlement and satisfaction as to the resolution of the violations specifically addressed herein; however, it does not resolve any criminal action that may result from these same violations.

12. Within thirty (30) days after the effective date of this Consent Order, the Authority shall pay to the General Fund of the State of Michigan, in the form of a check made payable to the "State of Michigan" and mailed to the Michigan Department of Environmental Quality, Accounting Services Division, Cashier's Office, P.O. Box 30657, Lansing, Michigan 48909-8157, a settlement amount of \$176,000.00, which includes AQD costs for investigation and enforcement. This total settlement amount shall be paid within thirty (30) days of the effective date of this Consent Order. To ensure proper credit, all payments made pursuant to this Consent Order shall include the "Payment Identification Number AQD40170" on the front of the check and/or in the cover letter with the payment. This settlement amount is in addition to any fees, taxes, or other fines that may be imposed on the Authority by law.

13. On and after the effective date of this Consent Order, if the Authority fails to comply with paragraph 9.A., 9.B.1, or 9.B.2 of this Consent Order, the Authority is subject to a stipulated fine of up to \$7,500.00 per violation per day. On and after the effective date of this Consent Order, if the Authority fails to comply with paragraph 9.C.1, 9.C.2, 9.C.3, 9.D.1, 9.D.2, 9.D.3, 9.D.4, or 9.D.5 of this Consent Order, the Authority is subject to a stipulated fine of up to \$5,000.00 per violation per day. The amount of the stipulated fines imposed pursuant to this paragraph shall be within the discretion of the MDEQ. Stipulated fines submitted under this Consent Order shall be by check, payable to the State of Michigan within thirty (30) days of written demand and shall be mailed to the Michigan Department of Environmental Quality, Accounting Services Division, Cashier's Office, P.O. Box 30657, Lansing, Michigan 48909-8157. To ensure proper credit, all payments shall include the "Payment Identification Number AQD40170-S" on the front of the check and/or in the cover letter with the payment. Payment of stipulated fines shall not alter or modify in any way the Authority's obligation to comply with the terms and conditions of this Consent Order.

14. The AQD, at its discretion, may seek stipulated fines or statutory fines for any violation of this Consent Order which is also a violation of any provision of applicable federal and state law, rule, regulation, permit, or MDEQ administrative order. However, the AQD is precluded from seeking both a stipulated fine under this Consent Order and a statutory fine for the same violation.

15. To ensure timely payment of the settlement amount assessed in paragraph 12 and any stipulated fines assessed pursuant to paragraph 13 of this Consent Order, the Authority shall pay an interest penalty to the State of Michigan each time it fails to make a complete or timely payment under this Consent Order. The interest payment shall be determined at a rate of interest that is equal to one percent (1%) plus the average interest rate paid at auctions of 5-year United States treasury notes during the six months immediately preceding July 1 and January 1, as certified by the state treasurer, compounded annually, and using the full increment of amount due as principal, calculated from the due date specified in this Consent Order until the date that delinquent payment is finally paid in full. Payment of an interest penalty by the Authority shall be made to the State of Michigan in accordance with paragraph 13 of this Consent Order. Interest payments shall be applied first towards the most overdue amount or outstanding interest penalty owed by the Authority before any remaining balance is applied to subsequent payment amount or interest penalty.

16. The Authority agrees not to contest the legal basis for the settlement amount assessed pursuant to paragraph 12. The Authority also agrees not to contest the legal basis for any stipulated fines assessed pursuant to paragraph 13 of this Consent Order, but reserves the right to dispute in a court of competent jurisdiction the factual basis upon which a demand by MDEQ of stipulated fines is made. In addition, the Authority agrees that said fines have not been assessed by the MDEQ pursuant to Section 5529 of Part 55 and therefore are not reviewable under Section 5529 of Part 55.

17. This compliance program is not a variance subject to the 12 month limitation specified in Section 5538 of Part 55.

18. This Consent Order shall remain in full force and effect for a period of at least four (4) years. Thereafter, the Consent Order shall terminate only upon written notice of termination issued by the AQD Director. Prior to issuance of a written notice of termination, the Authority shall submit a request, to the AQD Director at the Michigan Department of Environmental Quality, Air Quality Division, P.O. Box 30260, Lansing, Michigan 48909-7760, consisting of a written certification that the Authority has fully complied with all the requirements of this Consent Order and has made all payments including

all stipulated fines required by this Consent Order. Specifically, this certification shall include: (i) the date of compliance with each provision of the compliance program and the date any payments or stipulated fines were paid; (ii) a statement that all required information has been reported to the AQD Detroit District Supervisor; (iii) confirmation that all records required to be maintained pursuant to this Consent Order are being maintained at the facility; and, (iv) such information as may be requested by the AQD Director.

19. In the event the Authority sells or transfers the facility, with SRN B2103, it shall advise any purchaser or transferee of the existence of this Consent Order in connection with such sale or transfer. Within thirty (30) calendar days, the Authority shall also notify the AQD Detroit District Office Supervisor, in writing, of such sale or transfer, the identity and address of any purchaser or transferee, and confirm the fact that notice of this Consent Order has been given to the purchaser and/or transferee. As a condition of the sale, the Authority must obtain the consent of the purchaser and/or transferee, in writing, to assume all of the obligations of this Consent Order. A copy of that agreement shall be forwarded to the AQD Detroit District Supervisor within thirty (30) days of assuming the obligations of this Consent Order.

20. Prior to the effective date of this Consent Order and pursuant to the requirements of Sections 5511 and 5528(3) of Part 55, the public was notified of a 30-day public comment period and was provided the opportunity for a public hearing.

21. Section 5530 of Part 55 may serve as a source of authority but not a limitation under which the Consent Order may be enforced. Further, Part 17 of Act 451 and all other applicable laws and any other legal basis or applicable statute may be used to enforce this Consent Order.

22. The Authority hereby stipulates that entry of this Consent Order is a result of an action by MDEQ to resolve alleged violations of its facility located at 9300 West Jefferson, Suite 103, Detroit, Michigan. The Authority further stipulates that it will take all lawful actions necessary to fully comply with this Consent Order, even if the Authority files for bankruptcy in the future. The Authority will not seek discharge of the settlement amount and any stipulated fines imposed hereunder in any future bankruptcy proceedings, and the Authority will take necessary steps to ensure that the settlement amount and any future stipulated fines are not discharged. The Authority, during and after any future bankruptcy proceedings, will ensure that the settlement amount and any future stipulated fines remain an obligation to be paid in full by the Authority to the extent allowed by applicable bankruptcy law.

The undersigned certifies that he/she is fully authorized by the Authority to enter into this Consent Order and to execute and legally bind the Authority to it.

GREAT LAKES WATER AUTHORITY

Sue F. McCormick,
Chief Executive Officer

Print Name and Title

Sue F. McCormick

Date: 5.12.17

Signature

The above signatory subscribed and sworn to before me this 12th day of May, 2017.

LATANYA WHITFIELD
Notary Public, Wayne County, Mich.
My Commission Expires: MAY 30, 2020

Latanya Whitfield

Notary Public Signature

Approved as to Content:

Lynn Fiedler

Lynn Fiedler, Division Director
AIR QUALITY DIVISION
DEPARTMENT OF
ENVIRONMENTAL QUALITY

Approved as to Form:

Neil Gordon

Neil Gordon, Section Head
ENVIRONMENTAL REGULATION SECTION
ENVIRONMENT, NATURAL RESOURCES,
AND AGRICULTURE DIVISION
DEPARTMENT OF ATTORNEY GENERAL

Dated: 6/5/17

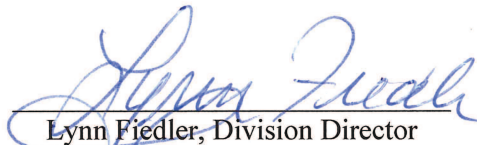
Dated: May 16, 2017

FINAL ORDER

The Director of the Air Quality Division having had opportunity to review the Consent Order and having been delegated authority to enter into Consent Orders by the Director of the Michigan Department of Environmental Quality pursuant to the provisions of Part 55 of Act 451 and otherwise being fully advised on the premises,

HAS HEREBY ORDERED that the Consent Order is approved and shall be entered in the record of the MDEQ as a Final Order.

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY


Lynn Fiedler, Division Director
Air Quality Division

Effective Date: 6/5/17

CAM PLAN

Impingement Tray Scrubber (IT) and Regenerative Thermal Oxidizer (RTO) for Particulate Matter (PM), Volatile Organic Carbon (VOC), and Carbon Monoxide (CO) control – Great Lakes Water Authority (GLWA) Biosolids Drying Facility (BDF), Detroit, Michigan. This BDF, operated by NEFCO, is attached to the Water Resource Recovery Facility major for VOCs, CO and PM. The BDF has included this CAM Plan with the renewal ROP application. As listed in the Malfunction Abatement Plan for PTI 61-13A, there are two primary control technologies (IT scrubber and RTO) associated with the dryer trains, which must be in operation to operate the facility. The facility includes four identical, dryer trains each with IT scrubber and RTO: EUDryerTrainA, EUDryerTrainB, EUDryerTrainC, and EUDryerTrainD. PM is controlled through the IT scrubber, while VOCs and CO are controlled through the RTO. EUDryerTrain(A-D) are subject to CAM because pre-control emissions of PM, CO, and VOC are over the major source threshold.

I. BACKGROUND

A. Emission Unit

Description: Biosolids dryer train consisting of a triple-pass rotary natural gas-fired dryer equipped with a low-NOX burner and exhaust recirculation, a cyclone product collector, a vibrating screener, a recycle bin, and a crusher. Emissions from the dryer train's cyclone exhaust through a three-stage IT scrubber followed by a RTO. Emissions from the recycle bin are controlled with a fabric filter collector.

Identification: EUDryerTrainA, EUDryerTrainB, EUDryerTrainC, and EUDryerTrainD

Facility: FGDryerFacility
GLWA/NEFCO BDF
9125 W Jefferson Avenue
Detroit, MI 48209

B. Applicable Regulation, Emission Limit, Monitoring Requirements

Permit Number: PTI 61-13A

Emission Limits:

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
NO _x	3.95 lb/hr	Test protocol*	Each dryer train in FGDryerTrains	SC V.1-V.2	40 CFR 52.21(c) & (d)
CO	3.67 lb/hr	Test protocol*	Each dryer train in FGDryerTrains	SC V.1-V.2, VI.2	40 CFR 52.21(d)
PM	1.22 lb/hr	Test protocol*	Each dryer train in FGDryerTrains	SC V.1-V.2, VI.2	R 336.1331(c)
PM10	1.63 lb/hr	Test protocol*	Each dryer train in FGDryerTrains	SC V.1-V.2, VI.2	40 CFR 52.21(c) & (d)
PM2.5	1.14 lb/hr	Test protocol*	Each dryer train in FGDryerTrains	SC V.1-V.2, VI.2	40 CFR 52.21(c) & (d)
SO ₂	0.82 lb/hr	Test protocol*	Each dryer train in FGDryerTrains	SC V.1	R 336.1407(a)
VOC	1.68 lb/hr	Test protocol*	Each dryer train in FGDryerTrains	SC V.1, VI.2	R 336.1702(a)
Lead	2.5 x 10 ⁻⁴ lb/hr	Test protocol*	Each dryer train in FGDryerTrains	SC V.1	40 CFR 52.21(d)
H ₂ S	0.38 lb/hr	Test protocol*	Each dryer train in FGDryerTrains	SC V.1, VI.2	R 336.1224

* Test protocol shall specify averaging time.

Monitoring Requirements: Stack testing, record keeping of key performance indicators as defined in Malfunction Abatement Plan for PTI 61-13A.

Potential Pre-Control Emissions:

Emission Unit	CO (ton/year)	PM (ton/year)	VOC (ton/year)
EUDryerTrainA, EUDryerTrainB, EUDryerTrainC, EUDryerTrainD	280.32	639.48	313.17

Supporting calculations for pre-control emissions are attached and based on equipment capture efficiencies and post control stack testing (Attachment A)

C. Control Technology

Each biosolids dryer train consists of a triple-pass rotary natural gas-fired dryer equipped with a low - NOx burner, exhaust recirculation, a cyclone product collector, a vibrating screener, a recycle bin, and a crusher. Emissions from each dryer train's cyclone exhaust through a three-stage IT scrubber followed by a RTO, each discharging to a separate flue. According to vendor data, the IT scrubber should exhibit 98% removal efficiency of PM. The RTO is designed to provide 98% destruction of VOC and CO. Uncontrolled emissions are a factor of incoming pollutant concentrations and removal/destruction efficiency.

II. MONITORING APPROACH

Particulate Matter (PM)		
	Pressure Drop	Water Flow
A. Indicator	Pressure drop across the IT scrubber is measured with a differential pressure transmitter (0-20" wc). It is continuously monitored and recorded through the plant Supervisory Control and Data Acquisition (SCADA) System.	Water Flow to the IT scrubber is measured with a magnetic flow meter (0-1200 gpm). It is continuously monitored and recorded through the plant Supervisory Control and Data Acquisition (SCADA) System.
B. Indicator Range	An excursion is defined as a pressure drop less than 5- inch wc. Excursions allow 8 hours to isolate and correct or shut down the process.	An excursion is defined as a water flow less than 174 gpm to each scrubber. Excursions allow 8 hours to isolate and correct or shut down the process.
C. QIP Threshold	N/A	N/A

VOC	
	RTO Chamber Temperature
A. Indicator	RTO Chamber temperature will be measured with a type K thermocouple (0-2000°F). It is continuously monitored and recorded through the plant Supervisory Control and Data Acquisition (SCADA) System.
B. Indicator Range	An excursion is defined as the chamber temperature below 1500°F. Excursions trigger an inspection, corrective action, and a reporting requirement.
C. QIP Threshold	N/A

CO	
	RTO Chamber Temperature
A. Indicator	RTO Chamber temperature will be measured with a type K thermocouple (0-2000°F). It is continuously monitored and recorded through the plant Supervisory Control and Data Acquisition (SCADA) System.
B. Indicator Range	An excursion is defined as the chamber temperature below 1500°F. Excursions trigger an inspection, corrective action, and a reporting requirement.
C. QIP Threshold	N/A

III. PERFORMANCE CRITERIA

Particulate Matter (PM)		
	Pressure Drop	Water Flow
A. Data Representativeness	Pressure taps are located above and below the trays on the IT scrubber and the transmitter has an accuracy +/-0.02 in wc	The water flow to the IT scrubber is measured with a magnetic flow meter located at the incoming SFE line to the scrubber. The meter has an accuracy of +/-11gpm. It is continuously monitored and recorded through the plant Supervisory Control and Data Acquisition (SCADA) System.
B. Verification of Operational Status	Pressure Drop Indication in SCADA System	Water Flow in SCADA System
C. QA/QC Practices and Criteria	The pressure transmitter is calibrated quarterly. The pressure gauge is checked daily for normal operation.	The flow transmitter is calibrated annually. The flow meter reading is checked daily for normal operation
D. Monitoring Frequency	Pressure drop is monitored continuously.	Water flow is monitored continuously.
E. Data Collection Procedure	Pressure drop is continuously recorded in the plant SCADA system.	Water Flow is continuously recorded in the plant SCADA system.
F. Averaging Period	Hourly data, averaged daily for time in operation	Hourly data, averaged daily for time in operation

CO	
	RTO Chamber Temperature
A. Data Representativeness	Measurements are made via thermocouple inside the oxidizing chamber.
B. Verification of Operational Status	Temperature indication from all level thermocouples showing appropriate temperature gradient
C. QA/QC Practices and Criteria	The thermocouple is calibrated annually.
D. Monitoring Frequency	RTO Chamber Temperature is monitored continuously.
E. Data Collection Procedure	RTO Chamber Temperature is continuously recorded in the plant SCADA system.
F. Averaging Period	Hourly data, averaged daily for time in operation

VOC	
	RTO Chamber Temperature
A. Data Representativeness	Measurements are made via thermocouple inside the oxidizing chamber.
B. Verification of Operational Status	Temperature indication from all level thermocouples showing appropriate temperature gradient
C. QA/QC Practices and Criteria	The thermocouple is calibrated annually.
D. Monitoring Frequency	RTO Chamber Temperature is monitored continuously.
E. Data Collection Procedure	RTO Chamber Temperature is continuously recorded in the plant SCADA system.
F. Averaging Period	Hourly data, averaged daily for time in operation

IV. Justification

A. Rationale for Selection of Performance Indicators

PM - In general, IT scrubbers are designed to maintain a certain water level on the impingement trays to achieve the desired removal efficiency. Monitoring pressure drop and water flow to the scrubber provides a means of detecting a change in operation that could lead to an increase in emissions. A decrease in pressure drop across the scrubber or water flow to the scrubber below the threshold would indicate conditions where the scrubber is not able to remove PM as efficiently as designed. A pressure drop across the scrubber and water flows to the scrubber also serve to indicate that the control device is operating properly.

CO and VOC - RTO Chamber temperature was selected as a performance indicator because it is necessary to achieve the design CO and VOC destruction efficiency. The RTO was designed to achieve the 98% destruction efficiency with a chamber temperature of 1500°F. RTO chamber temperatures above 1500°F are an indication that control device is operating properly.

B. Rationale for Selection of Indicator Ranges

PM - The indicator range chosen for the scrubber pressure drop is less than 5-inch wc. An excursion triggers an inspection, corrective action, shutdown of the operating train if the problem cannot be corrected through operational changes within 8 hours. The pressure drop is recorded continuously through the plant SCADA system. No QIP threshold has been selected for this indicator.

The indicator range chosen for the scrubber water flow is less than 174 gpm. An excursion triggers an inspection, corrective action, shutdown of the operating train if the problem cannot be corrected through operational changes within 8 hours. The pressure drop is recorded continuously through the plant SCADA system. No QIP threshold has been selected for this indicator.

CO and VOC - The indicator range chosen for the RTO Chamber temperature is less than 1500°F. An excursion triggers an inspection, corrective action, shutdown of the operating train if the problem cannot be corrected through operational changes within 8 hours. The pressure drop is recorded continuously through the plant SCADA system. No QIP threshold has been selected for this indicator.

C. Performance Test

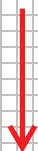
In January 2016, a performance test was performed on the entire dryer facility, including all four dryer stack exhausts. This testing was performed under conditions of maximum emissions potential under anticipated operating conditions. All emissions were well within existing permit limits, except for SO₂ hourly emissions. However, the SO₂ emissions from the stack testing only

projected 11.65 tons of SO₂ emissions from the plant annually, which is significantly below the 100 ton yearly threshold for inclusion in the CAM plan. A copy of the performance test is attached (Attachment B)

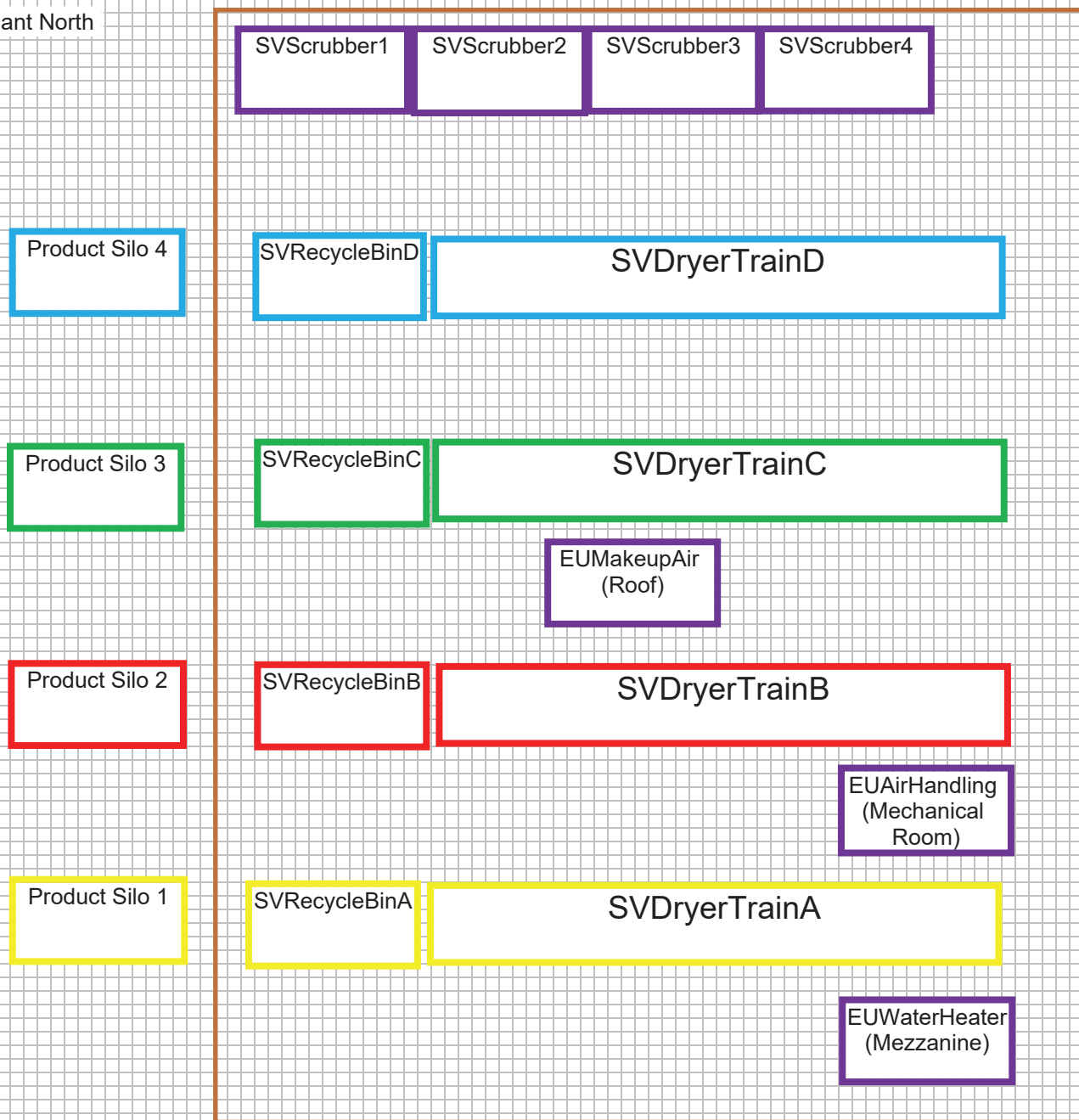
Attachment A – Potential To Emit Calculations

SITE DIAGRAM

NEFCO Biosolids Drying Facility - 9125 W Jefferson Ave, Detroit, MI 48209



Plant North



PTE SUMMARY TABLE

Emission Source	Description	Permit Status	Legally Enforceable Limitation	Calculation Method
SVDryerTrainA	Dryer Train A (1)	<input checked="" type="checkbox"/> Permitted: PTI # <u>61-13A</u> <input type="checkbox"/> Grandfathered: <u> / / /</u> <input type="checkbox"/> Exempt: R 336.	R 336.1225, 40 CFR 52.21(c) & (d)	Permit Condition
SVDryerTrainB	Dryer Train B (2)	<input checked="" type="checkbox"/> Permitted: PTI # <u>61-13A</u> <input type="checkbox"/> Grandfathered: <u> / / /</u> <input type="checkbox"/> Exempt: R 336.	R 336.1225, 40 CFR 52.21(c) & (d)	Permit Condition
SVDryerTrainC	Dryer Train C (3)	<input checked="" type="checkbox"/> Permitted: PTI # <u>61-13A</u> <input type="checkbox"/> Grandfathered: <u> / / /</u> <input type="checkbox"/> Exempt: R 336.	R 336.1225, 40 CFR 52.21(c) & (d)	Permit Condition
SVDryerTrainD	Dryer Train D (4)	<input checked="" type="checkbox"/> Permitted: PTI # <u>61-13A</u> <input type="checkbox"/> Grandfathered: <u> / / /</u> <input type="checkbox"/> Exempt: R 336.	R 336.1225, 40 CFR 52.21(c) & (d)	Permit Condition
SVRecycleBinA	Recycle Bin A (1)	<input checked="" type="checkbox"/> Permitted: PTI # <u>61-13A</u> <input type="checkbox"/> Grandfathered: <u> / / /</u> <input type="checkbox"/> Exempt: R 336.	40 CFR 52.21(c) & (d)	Permit Condition
SVRecycleBinB	Recycle Bin B (2)	<input checked="" type="checkbox"/> Permitted: PTI # <u>61-13A</u> <input type="checkbox"/> Grandfathered: <u> / / /</u> <input type="checkbox"/> Exempt: R 336.	40 CFR 52.21(c) & (d)	Permit Condition
SVRecycleBinC	Recycle Bin C (3)	<input checked="" type="checkbox"/> Permitted: PTI # <u>61-13A</u> <input type="checkbox"/> Grandfathered: <u> / / /</u> <input type="checkbox"/> Exempt: R 336.	40 CFR 52.21(c) & (d)	Permit Condition
SVRecycleBinD	Recycle Bin D (4)	<input checked="" type="checkbox"/> Permitted: PTI # <u>61-13A</u> <input type="checkbox"/> Grandfathered: <u> / / /</u> <input type="checkbox"/> Exempt: R 336.	40 CFR 52.21(c) & (d)	Permit Condition
SVScrubber1	Ventilation Scrubber 1	<input checked="" type="checkbox"/> Permitted: PTI # <u>61-13A</u> <input type="checkbox"/> Grandfathered: <u> / / /</u> <input type="checkbox"/> Exempt: R 336.	40 CFR 52.21(c) & (d)	Permit Condition
SVScrubber2	Ventilation Scrubber 2	<input checked="" type="checkbox"/> Permitted: PTI # <u>61-13A</u> <input type="checkbox"/> Grandfathered: <u> / / /</u> <input type="checkbox"/> Exempt: R 336.	40 CFR 52.21(c) & (d)	Permit Condition
SVScrubber3	Ventilation Scrubber 3	<input checked="" type="checkbox"/> Permitted: PTI # <u>61-13A</u> <input type="checkbox"/> Grandfathered: <u> / / /</u> <input type="checkbox"/> Exempt: R 336.	40 CFR 52.21(c) & (d)	Permit Condition

PTE SUMMARY TABLE

Emission Source	Description	Permit Status	Legally Enforceable Limitation	Calculation Method
SVScrubber4	Ventilation Scrubber 4	<input checked="" type="checkbox"/> Permitted: PTI # 61-13A <input type="checkbox"/> Grandfathered: ___/___/___ <input type="checkbox"/> Exempt: R 336.	40 CFR 52.21(c) & (d)	Permit Condition
EUMakeupAir	Makeup Air Units	<input checked="" type="checkbox"/> Permitted: PTI # 61-13A <input type="checkbox"/> Grandfathered: ___/___/___ <input type="checkbox"/> Exempt: R 336.	R 336.1205(1), 40 CFR 52.21(c) & (d)	Permit Condition
EUWaterHeater	Water Heater	<input checked="" type="checkbox"/> Permitted: PTI # 61-13A <input type="checkbox"/> Grandfathered: ___/___/___ <input type="checkbox"/> Exempt: R 336.	R 336.1225, 40 CFR 52.21(c) & (d)	Permit Condition
EUAirHandling	HVAC System	<input checked="" type="checkbox"/> Permitted: PTI # 61-13A <input type="checkbox"/> Grandfathered: ___/___/___ <input type="checkbox"/> Exempt: R 336.	R 336.1225, 40 CFR 52.21(c) & (d)	Permit Condition
Product Silos	Fugitive Dust from Product Silos	<input type="checkbox"/> Permitted: PTI # _____ <input type="checkbox"/> Grandfathered: ___/___/___ <input type="checkbox"/> Exempt: R 336.	R 336.1371, R 336.1372, Act 451 324.5524	Permit Condition
		<input type="checkbox"/> Permitted: PTI # _____ <input type="checkbox"/> Grandfathered: ___/___/___ <input type="checkbox"/> Exempt: R 336.		
		<input type="checkbox"/> Permitted: PTI # _____ <input type="checkbox"/> Grandfathered: ___/___/___ <input type="checkbox"/> Exempt: R 336.		
		<input type="checkbox"/> Permitted: PTI # _____ <input type="checkbox"/> Grandfathered: ___/___/___ <input type="checkbox"/> Exempt: R 336.		
		<input type="checkbox"/> Permitted: PTI # _____ <input type="checkbox"/> Grandfathered: ___/___/___ <input type="checkbox"/> Exempt: R 336.		
		<input type="checkbox"/> Permitted: PTI # _____ <input type="checkbox"/> Grandfathered: ___/___/___ <input type="checkbox"/> Exempt: R 336.		
		<input type="checkbox"/> Permitted: PTI # _____ <input type="checkbox"/> Grandfathered: ___/___/___ <input type="checkbox"/> Exempt: R 336.		
		<input type="checkbox"/> Permitted: PTI # _____ <input type="checkbox"/> Grandfathered: ___/___/___ <input type="checkbox"/> Exempt: R 336.		



GLWA-FGDRYERFACILITY PTI 61-13A (BIOSOLIDS DRYING FACILITY)

POTENTIAL TO EMIT CALCULATIONS

SVDryerTrainA, SVDryerTrainB, SVDryerTrainC, SVDryerTrainD

Natural Gas Fired Dryer and Regenerative Thermal Oxidizer

This emission source consists of four independent, parallel dryer trains. Each train uses a 40 MMBTU natural gas burner to thermally dry biosolids and a 5 MMBTU Regenerative Thermal Oxidizer (RTO) burner to destroy pollutants before stack discharge. The RTOs receive a side stream from the internal recycle dryer air stream and is the only discharge point for the dryer trains. There are four discharge points, one for each Dryer Train.

PTE of PM: Permit to Install #61-13A contains an emission limit of 20.0 tons of PM/yr. Therefore the PTE of PM is **20.0 tpy**

PTE of PM₁₀: Permit to Install #61-13A contains an emission limit of 26.9 tons of PM₁₀/yr. Therefore the PTE of PM₁₀ is **26.9 tpy**

PTE of PM_{2.5}: Permit to Install #61-13A contains an emission limit of 19.2 tons of PM_{2.5}/yr. Therefore the PTE of PM_{2.5} is **19.2 tpy**.

PTE of CO: Permit to Install #61-13A contains an emission limit of 65.7 tons of CO/yr. Therefore the PTE of CO is **65.7 tpy**.

PTE of NO_x: Permit to Install #61-13A contains an emission limit of 71.5 tons of NO_x/yr. Therefore the PTE of NO_x is **71.5 tpy**.

PTE of GHGs (CO₂e): Permit to Install #61-13A contains an emission limit of 90,361 tons of CO₂e /yr. Therefore the PTE of CO₂e is **90,361 tpy**.

PTE of regulated pollutants using Emission Factors from literature

Pollutant	Emission Factor	Unit	Source of Emission Factor
Lead (Pb)	0.000271	Lb/MMSCF	EPA AP-42, Chapter 1.4, Table 1.4-5
HAPs	0.16962	Lb/MMSCF	Summation of HAP from EPA AP-42, Chapter 1.4, Table 1.4-4&5

PTE of regulated pollutants using Emission Factors from stack testing and design removal efficiencies*

Pollutant	Emission Factor	Combined Emission Factor (All train running continuously)	Impingement Tray Scrubber Removal Efficiency (Design)	RTO Removal Efficiency
PM	0.62 lb/Hr (A) 0.48 lb/Hr (B) 0.83 lb/Hr (C) 0.99 lb/Hr (D)	2.92 lb/hr	98%	0%
PM10	0.62 lb/Hr (A) 0.48 lb/Hr (B) 0.83 lb/Hr (C) 0.99 lb/Hr (D)	2.92 lb/hr	98%	0%
PM2.5	0.62 lb/Hr (A) 0.48 lb/Hr (B) 0.83 lb/Hr (C) 0.99 lb/Hr (D)	2.92 lb/hr	98%	0%
VOC	0.26 lb/Hr (A) 0.16 lb/Hr (B) 0.19 lb/Hr (C) 0.71 lb/Hr (D)	1.32 lb/hr	0%	98%
CO	0.27 lb/Hr (A) 0.4 lb/Hr (B) 0.29 lb/Hr (C) 0.32 lb/Hr (D)	1.28 lb/hr	0%	98%
NOx	0.88 lb/Hr (A) 0.82 lb/Hr (B) 1.30 lb/Hr (C) 0.94 lb/Hr (D)	3.94 lb/hr	0%	0%
SO ₂	0.59 lb/Hr (A) 0.46 lb/Hr (B) 0.73 lb/Hr (C) 0.88 lb/Hr (D)	2.66 lb/hr	0%	0%

*Emission Factors from Stack Testing Report Dated March 15, 2016. Vendor Design data for removal efficiency.

Design Data:

Main Burner Heat Output: 40 MMBTU/hr

RTO Burner Heat Output: 5 MMBTU/hr

DTE Natural Gas Heat Value: 1.039 MMBTU/MSCF

$$\text{Maximum Fire (MMSCF)}: \frac{40 \text{ MMBTU} + 5 \text{ MMBTU}}{\text{hr}} * \frac{\text{MSCF}}{1.039 \text{ MMBTU}} * \frac{0.001 \text{ MMSCF}}{\text{MSCF}} = \frac{0.0433 \text{ MMSCF}}{\text{hr}}$$

PTE of PM (without Air Quality Control Equipment):

$$\text{Combined Train PM PTE} = \frac{2.92 \text{ lb}}{\text{hr}} * \frac{1}{(1 - 98\%) \text{IT Removal}} * \frac{1}{(1 - 0\%) \text{RTO Removal}} * \frac{8760 \text{ hr}}{\text{yr}} * \frac{\text{Ton}}{2000 \text{ lb}} = \frac{639.48 \text{ ton PM}}{\text{yr}}$$

PTE of PM₁₀ (without Air Quality Control Equipment):

$$\text{Combined Train PM}_{10} \text{ PTE} = \frac{2.92 \text{ lb}}{\text{hr}} * \frac{1}{(1 - 98\%) \text{IT Removal}} * \frac{1}{(1 - 0\%) \text{RTO Removal}} * \frac{8760 \text{ hr}}{\text{yr}} * \frac{\text{Ton}}{2000 \text{ lb}} = \frac{639.48 \text{ ton PM}_{10}}{\text{yr}}$$

PTE of PM_{2.5} (without Air Quality Control Equipment):

$$\text{Combined Train PM}_{2.5} \text{ PTE} = \frac{2.92 \text{ lb}}{\text{hr}} * \frac{1}{(1 - 98\%) \text{IT Removal}} * \frac{1}{(1 - 0\%) \text{RTO Removal}} * \frac{8760 \text{ hr}}{\text{yr}} * \frac{\text{Ton}}{2000 \text{ lb}} = \frac{639.48 \text{ ton PM}_{2.5}}{\text{yr}}$$

PTE of VOC (without Air Quality Control Equipment):

$$\text{Combined Train VOC PTE} = \frac{1.32 \text{ lb}}{\text{hr}} * \frac{1}{(1 - 0\%) \text{IT Removal}} * \frac{1}{(1 - 98\%) \text{RTO Removal}} * \frac{8760 \text{ hr}}{\text{yr}} * \frac{\text{Ton}}{2000 \text{ lb}} = \frac{313.17 \text{ ton VOC}}{\text{yr}}$$

PTE of CO (without Air Quality Control Equipment):

$$\text{Combined Train CO PTE} = \frac{1.28 \text{ lb}}{\text{hr}} * \frac{1}{(1 - 0\%) \text{IT Removal}} * \frac{1}{(1 - 98\%) \text{RTO Removal}} * \frac{8760 \text{ hr}}{\text{yr}} * \frac{\text{Ton}}{2000 \text{ lb}} = \frac{280.32 \text{ ton CO}}{\text{yr}}$$

PTE of NO_x (without Air Quality Control Equipment):

$$\text{Combined Train NO}_x \text{ PTE} = \frac{3.94 \text{ lb}}{\text{hr}} * \frac{1}{(1 - 0\%) \text{IT Removal}} * \frac{1}{(1 - 0\%) \text{RTO Removal}} * \frac{8760 \text{ hr}}{\text{yr}} * \frac{\text{Ton}}{2000 \text{ lb}} = \frac{17.26 \text{ ton NO}_x}{\text{yr}}$$

PTE of SO₂ (without Air Quality Control Equipment):

$$\text{Combined Train SO}_2 \text{ PTE} = \frac{2.66 \text{ lb}}{\text{hr}} * \frac{1}{(1 - 0\%) \text{IT Removal}} * \frac{1}{(1 - 0\%) \text{RTO Removal}} * \frac{8760 \text{ hr}}{\text{yr}} * \frac{\text{Ton}}{2000 \text{ lb}} = \frac{11.65 \text{ ton SO}_2}{\text{yr}}$$

PTE of Lead (Pb):

$$\frac{0.0433 \text{ MMSCF}}{\text{hr}} * \frac{0.000271 \text{ lb Pb}}{\text{MMSCF}} * \frac{8760 \text{ hr}}{\text{yr}} * \frac{\text{Ton}}{2000 \text{ lb}} = \frac{5.13 * 10^{-5} \text{ ton Pb}}{\text{yr}}$$

PTE of HAPs:

$$\frac{0.0433 \text{ MMSCF}}{\text{hr}} * \frac{0.16962 \text{ lb HAP}}{\text{MMSCF}} * \frac{8760 \text{ hr}}{\text{yr}} * \frac{\text{Ton}}{2000 \text{ lb}} = \frac{3.22 * 10^{-2} \text{ ton HAP}}{\text{yr}}$$



GLWA-FGDRYERFACILITY PTI 61-13A (BIOSOLIDS DRYING FACILIY)

POTENTIAL TO EMIT CALCULATIONS

SVRecycleBinA, SVRecycleBinB, SVRecycleBinC, SVRecycleBinD

Recycle Bin Dust Collector Discharge

This emission source consists of the discharge stack from the outlet of dust collection device on each recycle bin. There are four separate discharge points, one for each recycle bin.

PTE of regulated pollutants using Emission Limits from ROP

Pollutant	Emission Factor	Unit	Source of Emission Factor
PM	0.005	Gr/dcsf	PTI 61-13A
PM ₁₀	0.005	Gr/dcsf	PTI 61-13A
PM _{2.5}	0.005	Gr/dcsf	PTI 61-13A

Design Data:

Dust Collector Air Flow: 800 dcsf/min

$$\text{PTE of PM: } \frac{800 \text{ dcsf}}{\text{min}} * \frac{60 \text{ min}}{1 \text{ hr}} * \frac{.005 \text{ gr PM}}{\text{dcsf}} * \frac{1 \text{ lb}}{7000 \text{ gr PM}} * \frac{8760 \text{ hr}}{\text{yr}} * \frac{\text{Ton}}{2000 \text{ lb}} * 4 \text{ Recycle Bins} = \frac{6.01 * 10^{-1} \text{ ton PM}}{\text{yr}}$$

$$\text{PTE of PM}_{10}: \frac{800 \text{ dcsf}}{\text{min}} * \frac{60 \text{ min}}{1 \text{ hr}} * \frac{.005 \text{ gr PM}_{10}}{\text{dcsf}} * \frac{1 \text{ lb PM}_{10}}{7000 \text{ gr PM}_{10}} * \frac{8760 \text{ hr}}{\text{yr}} * \frac{\text{Ton}}{2000 \text{ lb}} * 4 \text{ Recycle Bins} = \frac{6.01 * 10^{-1} \text{ ton PM}_{10}}{\text{yr}}$$

$$\text{PTE of PM}_{2.5}: \frac{800 \text{ dcsf}}{\text{min}} * \frac{60 \text{ min}}{1 \text{ hr}} * \frac{.005 \text{ gr PM}_{2.5}}{\text{dcsf}} * \frac{1 \text{ lb}}{7000 \text{ gr PM}_{2.5}} * \frac{8760 \text{ hr}}{\text{yr}} * \frac{\text{Ton}}{2000 \text{ lb}} * 4 \text{ Recycle Bins} = \frac{6.01 * 10^{-1} \text{ ton PM}_{2.5}}{\text{yr}}$$



GLWA-FGDRYERFACILITY PTI 61-13A (BIOSOLIDS DRYING FACILITY)

POTENTIAL TO EMIT CALCULATIONS

SVScrubber1, SVScrubber2, SVScrubber3, SVScrubber4, EUMakeupAir, EUWaterHeater, EUAirHandling

Building Alkaline Hypochlorite Scrubbers

This emission source consists of the discharge stack from the building alkaline hypochlorite ventilation scrubbers which scrub odors from the building air and air from the cake bins through with a packed tower regulated by Oxidation Reduction Potential (ORP) and pH. Sodium Hypochlorite and Sodium Hydroxide are metered into the ventilation scrubbers to regulate the ORP and pH, respectively. As the building is maintained at a negative pressure, exhaust from the EUMakeupAir, EUWaterHeater, and EUAirHandling systems are discharged through the building scrubbers.

PTE of regulated pollutants using Emission Limits from ROP

Pollutant	Emission Factor	Unit	Source of Emission Factor
PM	7.4	lb/MMSCF	EPA AP-42, Chapter 1.4, Table 1.4-2
PM ₁₀	7.4	lb/MMSCF	EPA AP-42, Chapter 1.4, Table 1.4-2
PM _{2.5}	7.4	lb/MMSCF	EPA AP-42, Chapter 1.4, Table 1.4-2
VOC	5.8	Lb/MMSCF	EPA AP-42, Chapter 1.4, Table 1.4-3
CO	21	Lb/MMSCF	EPA AP-42, Chapter 1.4, Table 1.4-1
NO _x	100	Lb/MMSCF	EPA AP-42, Chapter 1.4, Table 1.4-1
SO ₂	0.6	Lb/MMSCF	EPA AP-42, Chapter 1.4, Table 1.4-1
Lead (Pb)	0.000271	Lb/MMSCF	EPA AP-42, Chapter 1.4, Table 1.4-5

HAPs	0.16962	Lb/MMSCF	Summation of HAP from EPA AP-42, Chapter 1.4, Table 1.4-4&5
GHG (CO ₂ e)	1.2*10 ⁵	Lb/MMSCF	Summation of HAP from EPA AP-42, Chapter 1.4, Table 1.4-3

Design Data/Permit Conditions:

Makeup Air Units Input Rating: 5.121 MMBTU/hr (quantity 4 MAUs)

PTI 61-13A Operating Condition: 16,000 hours maximum of combined MAU runtime (FGDryerFacility III.5)

Water Heater Input Rating: 0.15 MMBTU/hr

Air Handling Unit Input Rating: 0.80 MMBTU/hr

DTE Natural Gas Heat Value: 1.039 MMBTU/MSCF

Maximum Energy Consumption:

$$\left\{ \left(\frac{0.15 \text{ MMBTU}}{\text{hr}} + \frac{0.80 \text{ MMBTU}}{\text{hr}} \right) * \frac{8760 \text{ hr}}{\text{yr}} + \frac{5.121 \text{ MMBTU}}{\text{hr}} * \frac{16000 \text{ hr}}{\text{yr}} \right\} * \frac{\text{MSCF}}{1.039 \text{ MMBTU}} * \frac{0.001 \text{ MMSCF}}{\text{MCF}} = \frac{86.87 \text{ MMSCF}}{\text{yr}}$$

$$\text{PTE of PM: } \frac{86.87 \text{ MMSCF}}{\text{yr}} * \frac{7.4 \text{ lb PM}}{\text{MMSCF}} * \frac{\text{Ton}}{2000 \text{ lb}} = \frac{3.21 * 10^{-1} \text{ ton PM}}{\text{yr}}$$

$$\text{PTE of PM}_{10}: \frac{86.87 \text{ MMSCF}}{\text{yr}} * \frac{7.4 \text{ lb PM}_{10}}{\text{MMSCF}} * \frac{\text{Ton}}{2000 \text{ lb}} = \frac{3.21 * 10^{-1} \text{ ton PM}_{10}}{\text{yr}}$$

$$\text{PTE of PM}_{2.5}: \frac{86.87 \text{ MMSCF}}{\text{yr}} * \frac{7.4 \text{ lb PM}_{2.5}}{\text{MMSCF}} * \frac{\text{Ton}}{2000 \text{ lb}} = \frac{3.21 * 10^{-1} \text{ ton PM}_{2.5}}{\text{yr}}$$

$$\text{PTE of VOC: } \frac{86.87 \text{ MMSCF}}{\text{yr}} * \frac{5.8 \text{ lb VOC}}{\text{MMSCF}} * \frac{\text{Ton}}{2000 \text{ lb}} = \frac{2.52 * 10^{-1} \text{ ton VOC}}{\text{yr}}$$

$$\text{PTE of CO: } \frac{86.87 \text{ MMSCF}}{\text{yr}} * \frac{21 \text{ lb CO}}{\text{MMSCF}} * \frac{\text{Ton}}{2000 \text{ lb}} = \frac{9.12 * 10^{-1} \text{ ton CO}}{\text{yr}}$$

$$\text{PTE of NO}_x: \frac{86.87 \text{ MMSCF}}{\text{yr}} * \frac{100 \text{ lb NO}_x}{\text{MMSCF}} * \frac{\text{Ton}}{2000 \text{ lb}} = \frac{4.34 \text{ ton NO}_x}{\text{yr}}$$

$$\text{PTE of SO}_2: \frac{86.87 \text{ MMSCF}}{\text{yr}} * \frac{0.6 \text{ lb SO}_2}{\text{MMSCF}} * \frac{\text{Ton}}{2000 \text{ lb}} = \frac{2.61 * 10^{-2} \text{ ton SO}_2}{\text{yr}}$$

$$\text{PTE of Lead (Pb): } \frac{86.87 \text{ MMSCF}}{\text{yr}} * \frac{0.000271 \text{ lb Pb}}{\text{MMSCF}} * \frac{\text{Ton}}{2000 \text{ lb}} = \frac{1.18 * 10^{-7} \text{ ton Pb}}{\text{yr}}$$

$$\text{PTE of HAPs: } \frac{86.87 \text{ MMSCF}}{\text{yr}} * \frac{0.16962 \text{ lb HAP}}{\text{MMSCF}} * \frac{\text{Ton}}{2000 \text{ lb}} = \frac{7.37 * 10^{-3} \text{ ton HAP}}{\text{yr}}$$

$$\text{PTE of GHG (CO}_2\text{e)}: \frac{86.87 \text{ MMSCF}}{\text{yr}} * \frac{1.2 * 10^5 \text{ lb GHG}}{\text{MMSCF}} * \frac{\text{Ton}}{2000 \text{ lb}} = \frac{5.21 * 10^3 \text{ ton GHG}}{\text{yr}}$$



GLWA-FGDRYERFACILITY PTI 61-13A (BIOSOLIDS DRYING FACILITY)

POTENTIAL TO EMIT CALCULATIONS

Product Silos

Fugitive Dust from Product Silos

This emission source consists of the fugitive dust emissions from truck loading activities within the product silos.

PTE of regulated pollutants using Fugitive Emissions Factors

AP-42 13.2.4 Particulate Emissions from Silo Unloading for Drop Operations

$$E = k * (0.0032) * \left(\frac{U}{5} \right)^{1.3} \left(\frac{M}{2} \right)^{1.4}$$

Where:

E=emission factor (lb/ton)

k=particle size multiplier (dimensionless)

U=mean wind speed, (miles per hour) = 7.99 MPH 2006-2010 DTW average windspeed.

M=material moisture content (%) = using 10% to achieve Heat Drying Class A EQ biosolids

Pollutant	Particle Size Multiplier (k)	Source of Emission Factor
PM	0.74	EPA AP-42, Chapter 13.2.4
PM ₁₀	0.35	EPA AP-42, Chapter 13.2.4
PM _{2.5}	0.053	EPA AP-42, Chapter 13.2.4

Emission Factors

$$PM: E = 0.74 * (0.0032) * \left(\frac{(7.99)}{5} \right)^{1.3} \left(\frac{(0.1)}{2} \right)^{1.4} = \frac{0.289 \text{ lb PM}}{TON}$$

$$PM_{10}: E = 0.35 * (0.0032) * \left(\frac{\left(\frac{7.99}{5} \right)^{1.3}}{\left(\frac{0.1}{2} \right)^{1.4}} \right) = \frac{0.137 \text{ lb } PM_{10}}{TON}$$

$$PM_{2.5}: E = 0.053 * (0.0032) * \left(\frac{\left(\frac{7.99}{5} \right)^{1.3}}{\left(\frac{0.1}{2} \right)^{1.4}} \right) = \frac{2.06 * 10^{-2} \text{ lb } PM_{2.5}}{TON}$$

Design Data/Permit Conditions:

Dust Reduction: 70% reduced using dust suppressant oil (30% fugitive dust)

PTI 61-13A Operating Condition: 157,000 hours maximum tons of sludge dried to biosolids (FGDryerIncTrans II)

$$\text{PTE of PM: } \frac{0.289 \text{ lb } PM}{\text{ton}} * \frac{157000 \text{ ton}}{\text{yr}} * 30\% * \frac{\text{Ton } PM}{2000 \text{ lb}} = \frac{6.79 \text{ ton } PM}{\text{yr}}$$

$$\text{PTE of } PM_{10}: \frac{0.137 \text{ lb } PM_{10}}{TON} * \frac{157000 \text{ ton}}{\text{yr}} * 30\% * \frac{\text{Ton } PM_{10}}{2000 \text{ lb}} = \frac{3.22 \text{ ton } PM_{10}}{\text{yr}}$$

$$\text{PTE of } PM_{2.5}: \frac{2.06 * 10^{-2} \text{ lb } PM_{2.5}}{\text{ton}} * \frac{157000 \text{ ton}}{\text{yr}} * 30\% * \frac{\text{Ton } PM_{2.5}}{2000 \text{ lb}} = \frac{0.487 \text{ ton } PM_{2.5}}{\text{yr}}$$

Attachment B – January 2016 Stack Testing Data



Summary of Results
Nefco
NEFCO Biosolids
Dryer # 1
Detroit, Michigan

Test Run No.	Run 1	Run 2	Run 3	Average	Facility Permit Limit
Date	01/18/16	01/18/16	01/18/16		
Time	9:45 11:50	12:40 14:46	16:05 18:10		
Start					
Stop					
Sample Conditions					
Volume	60.655	63.430	68.048	64.044	
Volume	1.718	1.796	1.927	1.814	
Stack Conditions					
Flow Rate	8,318	8,768	9,041	8,709	
Temperature	187	189	191	189	
Oxygen	9.7	9.8	9.9	9.8	
Carbon Dioxide	6.7	6.6	6.5	6.6	
Oxides of Nitrogen	13.2	15.0	14.0	14.1	
Oxides of Nitrogen	0.79	0.94	0.91	0.88	3.95
Carbon Monoxide	8.4	7.8	4.9	7.0	
Carbon Monoxide	0.30	0.30	0.19	0.27	3.67
Sulfur Dioxide	8.9	6.7	4.8	6.8	
Sulfur Dioxide	4.7	3.6	2.6	3.6	
Sulfur Dioxide	0.024	0.018	0.013	0.018	
Sulfur Dioxide	0.74	0.59	0.43	0.6	0.82
Sulfur Dioxide	3.2	2.6	1.9	2.6	
Non-Methane Hydrocarbons	3.6	4.4	3.8	4.0	
Non-Methane Hydrocarbons	3.8	4.7	4.1	4.2	
Non-Methane Hydrocarbons	0.22	0.28	0.25	0.25	1.68

a) dry standard cubic feet
b) dry standard cubic meters
c) dry standard cubic feet per minute



Summary of Results
Nefco
NEFCO Biosolids
Dryer # 3
Detroit, Michigan

Test Run No. Date Time	Run 4 01/19/16 8:45 10:49	Run 5 01/19/16 11:40 13:44	Run 6 01/19/16 14:45 16:49	Average	Facility Permit Limit
Sample Conditions					
Volume (dscf) ^a	72.891	71.295	66.300	70.162	
Volume (dscm) ^b	2.064	2.019	1.878	1.987	
Stack Conditions					
Flow Rate (dscfm) ^c	9,630	9,629	8,966	9,408	
Temperature (°F)	205	202	194	201	
Oxygen (%)	8.1	8.5	9.2	8.6	
Carbon Dioxide (%)	8.2	6.9	7.0	7.4	
Oxides of Nitrogen (PPM)	19.7	18.6	19.5	19.3	
Oxides of Nitrogen lb/hr	1.36	1.28	1.25	1.30	3.95
Carbon Monoxide (PPM)	9.1	6.7	5.0	6.9	
Carbon Monoxide lb/hr	0.38	0.28	0.20	0.29	3.67
Sulfur Dioxide (PPM)	10.6	7.6	5.1	7.8	
Sulfur Dioxide PPM@15% O ₂	4.9	3.6	2.6	3.7	
Sulfur Dioxide lb/mmBtu	0.025	0.019	0.013	0.019	
Sulfur Dioxide lb/hr	1.02	0.73	0.46	0.73	0.82
Sulfur Dioxide tons/yr	4.5	3.2	2.0	3.2	
Non-Methane Hydrocarbons (PPM) wet	4.2	3.5	2.7	3.5	
Non-Methane Hydrocarbons (PPM) dry	4.6	3.7	2.9	3.7	
Non-Methane Hydrocarbons lb/hr	0.30	0.25	0.18	0.24	1.68

a) dry standard cubic feet
b) dry standard cubic meters
c) dry standard cubic feet per minute



Summary of Results
Nefco
NEFCO Biosolids
Dryer # 4
Detroit, Michigan

Test Run No.	Run 7	Run 8	Run 9	Average	Facility Permit Limit
Date	01/20/16	01/20/16	01/20/16		
Time	8:05 10:09	10:55 13:01	14:00 16:05		
Sample Conditions					
Volume (dscf) ^a	63.581	59.533	67.130	63.415	
Volume (dscm) ^b	1.801	1.686	1.901	1.796	
Stack Conditions					
Flow Rate (dscfm) ^c	8,542	8,037	8,942	8,507	
Temperature (°F)	199	187	197	194	
Oxygen (%)	7.7	8.7	8.5	8.3	
Carbon Dioxide (%)	7.9	7.1	7.4	7.5	
Oxides of Nitrogen (PPM)	16.3	13.3	16.4	15.3	
Oxides of Nitrogen (lb/hr)	1.00	0.77	1.05	0.94	3.95
Carbon Monoxide (PPM)	8.8	7.5	9.1	8.5	
Carbon Monoxide (lb/hr)	0.33	0.26	0.35	0.32	3.67
Sulfur Dioxide (PPM)	11.7	7.5	11.7	10.3	
Sulfur Dioxide (PPM@15% O ₂)	5.2	3.6	5.6	4.8	
Sulfur Dioxide (lb/mmBtu)	0.027	0.019	0.029	0.025	
Sulfur Dioxide (lb/hr)	1.00	0.60	1.04	0.88	0.82
Sulfur Dioxide (tons/yr)	4.4	2.6	4.6	3.9	
Non-Methane Hydrocarbons (PPM) wet	11.6	10.6	12.4	11.5	
Non-Methane Hydrocarbons (PPM) dry	12.7	11.4	13.6	12.6	
Non-Methane Hydrocarbons (lb/hr)	0.74	0.63	0.84	0.74	1.68

a) dry standard cubic feet
 b) dry standard cubic meters
 c) dry standard cubic feet per minute



Summary of Results
Nefco
NEFCO Biosolids
Dryer # 2
Detroit, Michigan

Test Run No. Date Time	Run 10 01/21/16 8:10 10:15	Run 11 01/21/16 11:10 13:14	Run 12 01/21/16 13:58 16:03	Average	Facility Permit Limit
Sample Conditions					
Volume (dscf) ^a	56.141	51.975	50.908	53.008	
Volume (dscm) ^b	1.590	1.472	1.442	1.501	
Stack Conditions					
Flow Rate (dscfm) ^c	7,449	6,984	6,934	7,122	
Temperature (°F)	176	169	165	170	
Oxygen (%)	5.6	6.7	7.1	6.5	
Carbon Dioxide (%)	9.2	8.5	8.2	8.6	
Oxides of Nitrogen (PPM)	17.3	15.5	15.0	15.9	
Oxides of Nitrogen lb/hr	0.92	0.78	0.75	0.82	3.95
Carbon Monoxide (PPM)	9.7	14.3	14.8	12.9	
Carbon Monoxide lb/hr	0.32	0.44	0.45	0.40	3.67
Sulfur Dioxide (PPM)	8.1	6.1	5.0	6.4	
Sulfur Dioxide PPM@15% O ₂	3.1	2.5	2.1	2.6	
Sulfur Dioxide lb/mmBtu	0.016	0.013	0.011	0.013	
Sulfur Dioxide lb/hr	0.60	0.42	0.35	0.46	
Sulfur Dioxide tons/yr	2.6	1.9	1.5	2.0	
Non-Methane Hydrocarbons (PPM) wet	3.5	4.1	3.8	3.8	
Non-Methane Hydrocarbons (PPM) dry	3.9	4.5	4.1	4.2	
Non-Methane Hydrocarbons lb/hr	0.20	0.21	0.20	0.20	1.68

a) dry standard cubic feet
 b) dry standard cubic meters
 c) dry standard cubic feet per minute

Malfunction Abatement Plan for GLWA Incinerators



1.0 INTRODUCTION AND REGULATORY BASIS 1

2.0 INCINERATOR DESCRIPTION AND DESIGN PARAMETERS 1

3.0 MALFUNCTION ABATEMENT PLAN 2

a) Preventative Maintenance 2

b) Procedures for Monitoring Operating Variables..... 3

c) Corrective Procedures for Malfunction or Failure Events..... 3

4.0 REFERENCED DATA SOURCES 3

5.0 MALFUNCTION ABATEMENT TABLES

1.0 INTRODUCTION AND REGULATORY BASIS

This document contains the Incineration Process Malfunction Abatement Plan (MAP) to be used at the Great Lakes Water Authority Water Resource Recovery Facility, 9300 West Jefferson Avenue, Detroit, Michigan 48209. The plan's purpose is to document preventative measures of equipment malfunctions and/or failures that result in emissions above any applicable emission limitation, as well as provide procedures to detect and correct these incidents when they occur.

Rule 911 of the State of Michigan Air Pollution Control Rules requires the Water Resource Recovery Facility (WRRF) to have a MAP in place, "to prevent, detect, and correct malfunctions or equipment failures resulting in emissions exceeding any applicable emission limitation." The rule requires that the plan specify, at a minimum:

- a) A complete preventative maintenance program, including identification of the supervisory personnel responsible for overseeing the inspection, maintenance and repair of air-cleaning devices, a description of the items or conditions that shall be inspected, and the frequency of these inspections or repairs, and an identification of the major replacement parts that shall be maintained in inventory for quick replacement (WRRF reserves the right to have suppliers expedite delivery of parts from their factory or warehouse in lieu of storing onsite).
- b) An identification of the source and air-cleaning device operating variables that shall be monitored to detect a malfunction or failure, the normal operating range of these variables, and a description of the method of monitoring or surveillance procedures.
- c) A description of the corrective procedures or operational changes that shall be taken in the event of a malfunction or failure to achieve compliance with the applicable emission limits.

2.0 INCINERATOR DESCRIPTION AND DESIGN PARAMETERS

The Complex 2 incineration facility contains 8 multiple hearth sewage sludge incinerators, each with dedicated emission control equipment. Each incinerator combusts dewatered municipal sewage sludge cake with the aid of natural gas burners to reduce its volume. Residual ash is sent to storage silos before transport to landfill.

The emissions for each incinerator are being controlled by an upgraded impingement tray wet scrubber followed by a new venturi scrubber and a mist eliminator. Summaries of the operating conditions, measurement devices, and abatement procedures for the emission controls are located in the attached Malfunction Abatement Tables.

3.0 MALFUNCTION ABATEMENT PLAN

The following details the MAP program for Complex 2 incineration facility. This plan will cover both process and equipment problems which may occur at any time during regular operation of the incinerators. Any individual incinerator may be taken off line for repairs or adjustment in response to an emission control malfunction. Overall responsibility for overseeing the inspection, maintenance, and repair of the air quality control improvement (AQCI) equipment and its emission controls shall belong to the Incineration Team Leader on duty.

Maintenance procedures may require coordination between the following staff teams:

- Plant maintenance
- Operations
- Electrical Instrumentation Controls Technicians (EICTs)
- Plumbers

Repairs and maintenance services that are beyond the capabilities of on-site staff will be contracted to appropriate contractors.

a) PREVENTATIVE MAINTENANCE PROGRAM

Adequate preventative maintenance is the key to achieving economical and reliable operation of every industrial facility. To this end, the FGAQCI equipment must be maintained according to all of the equipment manufacturer's recommendations. All maintenance will be scheduled and documented electronically.

We utilize a Utilities Work Asset Management (WAM) system to maintain the incineration assets. The WAM system is used to generate asset information, schedule recurring calendar or runtime-based preventative maintenance tasks, create work orders for emergency repairs, shutdown activities and any unexpected maintenance, track parts inventory and purchase orders, and allow viewing of individual reports or history of equipment based on any asset, time period, or status chosen.

The system can handle unanticipated work orders such as repairs, and these orders can be generated by immediate need, personnel suggestion or any other manner which requires a task to be performed that had not been anticipated as part of our routine maintenance program. These can be logged as regularly scheduled preventative maintenance items for future use and contain comments relating to failure cause and corrective action taken.

All completed reports will be logged into the system and contain pertinent information relating to calibration records, hours worked, parts used, and notes relating to any unusual circumstances regarding the condition of equipment or suggestions helpful to better maintaining equipment whether it be inspection frequency, concentration of specific areas, or the use of different products to obtain optimum performance and service. The overall history report for any piece of equipment will reflect all work orders, whether scheduled, preventative or repair. History reports can be reviewed or printed by any parameter chosen, whether it be status, asset, asset class, or time period.

b) PROCEDURES FOR MONITORING OPERATING VARIABLES

Operating variables are measured electronically and are visible on the Ovation process control system located in the Complex 2 control room. The Ovation system also allows remote changes to operating variables and electronically stores relevant emission control data.

The Malfunction Abatement Tables summarize the key operating variables to be monitored, and procedures to be followed in response to deviations.

c) CORRECTIVE PROCEDURES FOR MALFUNCTION OR FAILURE EVENTS

Should a malfunction or failure occur, the following steps shall be taken to resolve the issue as soon as practically possible:

The operators on duty shall first attempt to rectify any excursion by means of changing the operating controls to bring the key operating variables back into normal operating range in order to maintain compliance. The operators may also ask the maintenance and/or ECIT staff to check equipment, monitor(s), transmitter(s), or analyzer(s).

If the problem has not been corrected within the time period listed in the Malfunction Abatement Tables, the operator(s) will shutdown the malfunctioning equipment.

The operators will immediately notify the Team Leader on duty of the status of the equipment.

4.0 REFERENCED DATA SOURCES

The following table contains a listing of referenced information sources in this MAP and their locations:

Referenced Document	Location
Work Asset Management System (WAM)	Plant wide
Ovation System	Plant wide

5.0 MALFUNCTION ABATEMENT TABLES

TABLE A		Oxygen Analyzer	Thermocouple	Thermocouple	Pressure Gauge	Weightmeters
Monitored Parameter	Oxygen Level	Hearth 1 Afterburner Temperature	Combustion Zone Temperature	Draft Pressure	Feed Rate	
Sensor Location	Breach/ Hearth #3	Hearth 1 Afterburner	Combustion Zone Hearths	Breach	Conveyor Belts	
Normal Operating Range	3 to 7%	1225 to 1250 °F	1300 to 1500 °F	-0.25 to -0.40" w.c.	8.6 to 12.4 wet tons per hour	
Sensor Manufacturer	NA	Rosemount 644HAE5J6M5	Marlin Industries Model TC-K2-34-600"-F54C-24", or equal	NA	Grupo Epelsa Model SB	
Output Signal to Ovation	4-20 mA DC	4-20 mA DC	4-20 mA DC	4-20 mA DC	4-20 mA DC	
Rationale for Monitoring	To prevent incomplete combustion, high opacity, and higher visible yellow plumes due to increased formation of NO2 in the burn zone which is a co-cause of the visible yellow plume.	A minimum temperature helps reduce the gaseous emissions of THC, CO, volatile and odorous organics.	To manage the proper drying and burning of biosolids.	For personal safety of staff, and to decrease the uncontrolled air infiltration and gas velocities which hinders the heat and mass transfer rate efficiencies of the sludge drying and combustion processes.	To measure the amount of sludge cake being processed in the incineration facility	
Measurement Frequency	continuous	continuous	continuous	continuous	continuous	
Corrective Action Trigger	< 3% or > 7%	< 1213 °F	< 1300 °F or > 1500 °F	> 0" w.c.	> 12.4 wet tons per hour	
Corrective Action Period	8 hours to isolate and correct or shut down	8 hours to isolate and correct or shut down	8 hours to isolate and correct or shut down	8 hours to isolate and correct or shut down	8 hours to isolate and correct or shut down	
QA/QC Procedure	Calibrate, maintain and operate instruments according to manufacturer's recommendations	Calibrate, maintain and operate instruments according to manufacturer's recommendations	Calibrate, maintain and operate instruments according to manufacturer's recommendations	Calibrate, maintain and operate instruments according to manufacturer's recommendations	Calibrate, maintain and operate instruments according to manufacturer's recommendations	
Replacement parts to include, but not limited to	oxygen sensor, sample probe	spare thermocouple, temperature sensor	spare thermocouple, temperature sensor	spare differential pressure transmitter	idler, weigh scale integrator	

TABLE B		Pressure Gauge	Flow Meters	Opacity Monitor	Shaft Return Air	pH Sensor
Monitored Parameter		Total Scrubber Differential Pressure	Scrubber Water Flow	Opacity	Sludge Combustion Air Supply	Scrubber Water pH
Sensor Location		Scrubber Inlet and Outlet Sections	Control Room	Roof	Control Room	Scrubber Seal Tank
Normal Operating Range		> 24" w.c.	> 1353 gpm	< 20%	0 to 100% open	> 6.01
Sensor Manufacturer		Rosemount Model 3051C	Rosemount Model 8750WA	LightHawk 560	NA	Rosemount 1056-03-22-38-AN 396R-10-21-54
Output Signal to Ovation		4-20 maDC	4-20 maDC	4-20 maDC	4-20 maDC	4-20 maDC
Rationale for Monitoring		Maintaining a differential pressure of at least " w.c. demonstrates removal of PM, metals, and gaseous SO ₂ and HCl.	A minimum flow of gpm is required for PM, metal and gaseous SO ₂ and HCl control.	Monitor periods of visible opacity	Help maintain proper oxygen level for burning.	Minimum pH used to meet the SO ₂ and HCl emission limits.
Measurement Frequency		continuous	continuous	continuous	continuous	continuous
Corrective Action Trigger		< 24" w.c.	< 1353 gpm	> 20%	Does not open	< 6.01
Corrective Action Period		8 hours to isolate and correct or shut down	8 hours to isolate and correct or shut down	8 hours to isolate and correct or shut down	8 hours to isolate and correct or shut down	8 hours to isolate and correct or shut down
QA/QC Procedure		Calibrate, maintain and operate instruments according to manufacturer's recommendations	Calibrate, maintain and operate instruments according to manufacturer's recommendations	Calibrate, maintain and operate instruments according to manufacturer's recommendations	Calibrate, maintain and operate instruments according to manufacturer's recommendations	Calibrate, maintain and operate instruments according to manufacturer's recommendations
Replacement parts to include, but not limited to		spare differential pressure transmitter, tray irrigator	I/O module, kit connection board	calibration kit assembly, optical head assembly	auxiliary combustion air fan	pH sensor

*Malfunction Abatement Plan for GLWA/
NEFCO Sludge Dryers*

September 25, 2017

1.0 INTRODUCTION AND REGULATORY BASIS 1

2.0 DRYER DESCRIPTION AND DESIGN PARAMETERS 1

3.0 MALFUNCTION ABATEMENT PLAN 2

a) Preventative Maintenance 2

b) Procedures for Operating Variables..... 4

c) Corrective Procedures for Malfunction or Failure Events..... 4

4.0 REFERENCED DOCUMENTS 4

5.0 MALFUNCTION ABATEMENT TABLE

1.0 INTRODUCTION AND REGULATORY BASIS

Michigan Air Pollution Control Rule R 336.1911 (Rule 911) requires, at the request of the Michigan Department of Environmental Quality (MDEQ), a source of an air contaminant to operate under a malfunction abatement plan (MAP). The purpose of a MAP is to document preventative measures of equipment malfunctions and/or failures that result in pollutant emissions above any applicable emission limitation, as well as provide procedures to detect and correct these incidents when they occur.

Pursuant to Section III.2 of the Permit to Install (PTI) No. 61-13A, for the FGDryerFacility, the owner / operator is required to implement and maintain a MAP for the operation of the Great Lakes Water Authority (GLWA) dryers located at 9125 W. Jefferson Avenue, Detroit, Michigan. The drying facility is operated by New England Fertilizer Company (NEFCO). This document serves as NEFCO's MAP, and includes the required elements as found in Rule 911:

- A complete preventative maintenance program, including identification of the supervisory personnel responsible for overseeing the inspection, maintenance, and repair of air-cleaning devices, a description of the items or conditions that shall be inspected, the frequency of the inspections or repairs, and an identification of the major replacement parts that shall be maintained in inventory for quick replacement;
- An identification of the source and air-cleaning device operating variables that shall be monitored to detect a malfunction or failure, the normal operating range of these variables, and a description of the method of monitoring or surveillance procedures; and
- A description of the corrective procedures or operational changes that shall be taken in the event of a malfunction or failure to achieve compliance with the applicable emission limits.

2.0 DRYER DESCRIPTION AND DESIGN PARAMETERS

The facility contains four dryers, each with dedicated emission control equipment. Each dryer system dries and granulates municipal sewage sludge cake ("biosolids") produced by centrifuging liquid sludge produced by the GLWA Water Resource Recovery Facility (WRRF) located at 9300 W. Jefferson Avenue, Detroit, Michigan.

Each biosolids dryer train consists of a triple-pass rotary natural gas-fired dryer equipped with a low - NOx burner, exhaust recirculation, a cyclone product collector, a vibrating screener, a recycle bin, and a crusher. Emissions from each dryer train's cyclone exhaust through a three-stage impingement tray scrubber followed by a regenerative thermal oxidizer followed by a packed tower scrubber, each discharging to a separate flue.

Emissions from each recycle bin are controlled with a fabric filter collector, discharging through a separate flue.

Potentially odorous air used for ventilating the processing areas of the plant is exhausted through up to four alkaline hypochlorite scrubbers operating in parallel.

A summary of the operating conditions, measurement devices, and abatement procedures for the emission controls is located in the attached Malfunction Abatement Table, Section 5.0.

3.0 MALFUNCTION ABATEMENT PLAN

The following details the MAP program for the dryer facility. The MAP includes utilizing excess capacity to process and dispose of GLWA biosolids.

First, GLWA/NEFCO have provided a completely redundant dewatering and dryer system within this facility. The redundant dryer means that an individual dryer system may be taken off line for repairs or adjustment in response to an emission control malfunction.

Secondly, although expected to be a rare event, a simultaneous malfunction of more than one dryer will be mitigated by placing other GLWA sludge management assets into use. These assets include incinerators and cake loading bays situated at WRRF.

Overall responsibility for overseeing the inspection, maintenance, and repair of the FGDryerFacility equipment and its emission controls shall belong to the NEFCO Plant Manager.

The initial staffing plan provides maintenance personnel as follows:

- Under the direction of a Chief Operator, a Junior Operator on each shift will perform regular lubrication, such as refilling oil reservoirs.
- Four to five Maintenance Mechanics will be employed on various shifts.
- Two Electrician / I&C technicians will be on site during the day shift.

Repairs and maintenance services that are beyond the capabilities of on-site staff will be contracted to appropriate subcontractors.

The facility includes a maintenance shop, complete with welders, air and hand tools, hoists and rigging, slings, calibration equipment and the like. Welding outlets, convenience outlets, wash down hose stations and air drops are provided at selected locations throughout the facility.

a) Preventative Maintenance Program

Adequate preventive maintenance is the key to achieving economical and reliable operation of every industrial facility. To this end, the FGDryerFacility must be maintained according to all of the equipment manufacturers' recommendations. All maintenance will be scheduled and documented electronically.

We will utilize a Computerized Maintenance Management System ("CMMS") offered by eMaint Enterprises of Estero, FL to maintain the facility assets. This web-based system is capable of exporting information to Excel and Word, it is easy to use, reliable and rapid to implement.

The CMMS generates asset information, schedules recurring calendar or runtime - based preventive maintenance tasks, creates work orders for emergency repairs, shutdown activities and any unexpected maintenance, tracks parts inventory, generates purchase order forms and allows viewing or automatic printing of individual reports or history of equipment based on any asset, time period or status chosen. GLWA and MDEQ will be provided maintenance reports on demand.

In order to use any maintenance software, it must first be loaded with asset information and maintenance schedules. Information for preventive maintenance tasks will be extracted from equipment manufacturer's operation and maintenance manuals, and conditioned upon experience from operating and maintaining similar equipment currently in use at our other drying facilities.

While the bulk of work orders are scheduled as preventive maintenance, NEFCO's system can also handle unanticipated work orders such as repairs, and these can be generated by immediate need, personnel suggestion or any other manner which requires a task to be performed that had not been anticipated as part of a routine maintenance program. These can be logged as regularly scheduled preventive maintenance items for future use and contain comments relating to failure cause and corrective action taken.

All reports completed by maintenance staff will be logged into the system and contain pertinent information relating to calibration records, hours worked, parts used, and notes relating to any unusual circumstances regarding the condition of equipment or suggestions helpful to better maintaining equipment whether it be inspection frequency, concentration on specific areas, or the use of different products to obtain optimum performance and service. The overall history report for any piece of equipment will reflect all work orders, whether scheduled, preventive or repair. History reports can be reviewed or printed by any parameters chosen, whether it be status, asset, asset group, or time period.

NEFCO dryers do not require a rigid annual shutdown period. Shutdowns for inspections may be scheduled for times of low sludge production. The redundant dryer provides additional flexibility.

Thermal oxidizers require more frequent service, depending on the amount of silica – forming substances in GLWA sludge. NEFCO will operate the oxidizers, monitoring chamber temperatures, static pressures, and fan performance to determine the need for cleaning. As needed, an oxidizer will be removed from service for approximately three days to cool down, provide clean media, and return it to operation.

As a private operator, NEFCO is not constrained by public procurement rules for spares and repairs. This freedom will enable us to respond rapidly to unexpected equipment outages. Moreover, since many components may be sourced from several vendors, we may purchase replacement motors and other equipment with the quickest delivery rather than the lowest price.

b) Procedures for Operating Variables

Operating Variables (except opacity) will be measured electronically and will be visible on the Human Machine Interfaces of the Supervisory Control and Data Acquisition (SCADA) system located in the

Control room. The SCADA system will also allow remote changes to operating variables and will electronically store relevant emission control data. SCADA data will be available for viewing by MDEQ.

The Malfunction Abatement Table summarizes the key Operating Variables, and procedures to be followed in response to excursions.

c) Corrective Procedures for Malfunction or Failure Events

Should a malfunction or failure occur the following steps shall be taken to resolve the issue as soon as practically possible:

The Chief Operator shall first attempt to rectify any excursion by means of changing the operating controls to bring them back into compliance. Such variables include the feed rates of fresh and recycled biosolids, dryer outlet temperature set point, manual control of scrubber water flow, or other parameter as appropriate. The operator may also ask maintenance staff to check equipment or the calibration(s) of the transmitter(s).

If the problem has not been corrected within the time period listed in the Malfunction Abatement Table, the Chief Operator will shut down the malfunctioning equipment.

The Chief Operator will immediately notify the Plant Manager and GLWA of the status of the plant's equipment.

4.0 REFERENCED DATA SOURCES

The following table contains a listing of referenced information sources in this MAP and their locations:

Referenced Document	Location
Maintenance Computer (CMMS)	Maintenance office, Control room, and Plant Manager's office
Permit to Construct	Control room
Plant operating records (SCADA)	Control room and Plant Manager's office

QA/QC Procedure	Calibrate, maintain and operate instruments according to manufacturer's recommendations	Calibrate, maintain and operate instruments according to manufacturer's recommendations	Calibrate, maintain and operate instruments according to manufacturer's recommendations	Calibrate, maintain and operate instruments according to manufacturer's recommendations	Calibrate, maintain and operate instruments according to manufacturer's recommendations	Calibrate, maintain and operate instruments according to manufacturer's recommendations	Visual observation similar to USEPA Method 9
Replacement parts to include, but not limited to	Spare thermocouples, set of clean ceramic brick media, RTO fan bearings	Spare differential pressure transmitter, spare screened final effluent flowmeter, spare demister	Spare differential pressure transmitter, spare screened final effluent (SFE) flowmeter, spare demister	Spare pH probe, spare pH controller, spare sodium hydroxide pump	Spare recirculation water flowmeter, spare recirculation pump	Spare differential pressure transmitter, spare set of fabric filters	Spare differential pressure transmitter, spare set of fabric filters