From:	Kowalski, Justin M
To:	Yesmunt, Drew (EGLE); EGLE-ROP
Cc:	Conklin, Michael (EGLE); Cherveny, Scott L; Johnson, Scott E; Korrer, Ashley M
Subject:	Renewal Application - Renewable Operation Permit - Upper Michigan Energy Resources Corporation (UMERC) - F.D. Kuester Generating Station, SRN P0797
Date:	Wednesday, July 24, 2024 12:03:54 PM
Attachments:	2024-07-23 - Upper Michigan Energy Resources (UMERC) - FD Kuester Generating Station - ROP Renewal Application - FINAL - Signed.PDF

Mr. Yesmunt,

Please find the attached Renewable Operation Permit renewal application for Upper Michigan Energy Resources Corporation (UMERC), F. D. Kuester Generating Station (P0797) in Negaunee, Michigan. The application, with original signature, is also being sent to you via United Parcel Service. The content of the application includes the completed Michigan Department of Environment, Great Lakes, and Energy - Air Quality Division's ROP renewal application forms and certification.

Thank you for the review of this application.

If you have any questions, please contact me at 414-221-2265 or via email.

Sincerely, Justin

Justin Kowalski
Sr. Environmental Consultant
WEC Energy Group | Business Services
office: 414-221-2265
mobile: 414-698-7859
justin.kowalski@wecenergygroup.com

Serving WEC Energy Group, We Energies, Wisconsin Public Service, Michigan Gas Utilities, Minnesota Energy Resources, Peoples Gas, North Shore Gas, Upper Michigan Energy Resources and Bluewater Gas Storage

Upper Michigan Energy Resources Corporation
231 W. Michigan St.
Milwaukee, WI 53203

UNITED PARCEL SERVICE & ELECTRONIC MAIL

July 23, 2024

Mr. Drew Yesmunt, Environmental Engineer
Michigan Department of Environment, Great Lakes, and Energy
Marquette District
1504 West Washington Street
Marquette, MI 49855

Subject: Renewable Operation Permit renewal application for Upper Michigan Energy Resources Corporation F.D. Kuester Generating Station in Negaunee, Permit No. MI-ROP-P0797-2020.

Dear Mr. Yesmunt:

Attached with this letter is a complete, hard copy Renewable Operation Permit (ROP) renewal application for Upper Michigan Energy Resources Corporation (UMERC) F.D. Kuester Generating Station in Negaunee, Michigan, Permit No. MI-ROP-P0797-2020. This ROP expires on March 6, 2025. Therefore, an administratively complete ROP renewal application is due between September 6, 2023 and September 6, 2024. Included with this letter is the completed Air Quality Division ROP Renewal Application Form, Permit to Install (PTI) No. 35-17, criteria pollutant/hazardous air pollutant (HAP) potential to emit calculations, a Compliance Assurance Monitoring (CAM) Plan, a Site Specific Monitoring Plan under 40 CFR Part 63, Subpart ZZZZ, and a Preventative Maintenance and Malfunction Abatement Plan. There have been no significant changes to the facility or emissions units not already included in the current ROP and in PTI No. 35-17.

As noted in this application, this source is in compliance with all applicable air pollution control requirements, including those contained in applicable Permits to Install, this application, and other applicable requirements.

Thank you for the review of this application. If you have any questions, please contact me at 414-221-2265 or justin.kowalski@wecenergygroup.com.

Sincerely,

Justin Kowalski
Senior Environmental Consultant

cc: Mr. Michael Conklin, EGLE, District Supervisor, AQ Division
Mr. Scott Cherveny, UMERC, Director - Gas Generation– electronic only
Mr. Mike Kolb, UMERC, Director Air Quality and Projects – electronic only
Mr. Scott Johnson, UMERC, Asset Manager - electronic only
EGLE-ROP@michigan.gov

EGLE

RENEWABLE OPERATING PERMIT
RENEWAL APPLICATION FORM

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

GENERAL INSTRUCTIONS

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

PART A: GENERAL INFORMATION

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

SOURCE INFORMATION

SRN	SIC Code	NAICS Code	Existing ROP Number	Section Number (if applicable)
P0797	4911-04	221112	MI-ROP-P0797-2020	

Source Name: Upper Michigan Energy Resources Corporation F.D. Kuester Generating Station

Street Address: 80 Eagle Mills Road

City	State	ZIP Code	County
Negaunee	MI	49866	Marquette

Section/Town/Range (if address not available):

Source Description: Natural gas-fired electric power generating facility consisting of seven (7) reciprocating internal combustion engines (RICE) electric generating units. Each unit has an electric generating capacity of 19,260 kW (19.26 MW).

☐ Check here if any of the above information is different than what appears in the existing ROP. Identify any changes on the marked-up copy of your existing ROP.

OWNER INFORMATION

Owner Name	Section Number (if applicable)
WEC Energy Group	

Mailing address (☐ check if same as source address): 333 West Everett Street

City	State	ZIP Code	County	Country
Milwaukee	WI	53203	Milwaukee	U.S.A.

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

PART A: GENERAL INFORMATION (continued)

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

CONTACT INFORMATION

Contact 1 Name	Title			
Justin Kowalski	Senior Environmental Consultant			
Company Name & Mailing address (☐ check if same as source address)				
WEC Energy Group – Business Services, 333 West Everett Street				
City	State	ZIP Code	County	Country
Milwaukee	WI	53203	Milwaukee	U.S.A.
Phone number	E-mail address			
414-221-2265	justin.kowalski@wecenergygroup.com			

Contact 2 Name (optional)	Title			
Company Name & Mailing address (☐ check if same as source address)				
City	State	ZIP Code	County	Country
Phone number	E-mail address			

RESPONSIBLE OFFICIAL INFORMATION

Responsible Official 1 Name	Title			
Scott Cherveny	Director - Gas Generation			
Company Name & Mailing address (☐ check if same as source address)				
WEC Energy Group – 2830 South Ashland Ave				
City	State	ZIP Code	County	Country
Green Bay	WI	54304	Brown	U.S.A.
Phone number	E-mail address			
920-225-5394	scott.cherveny@wisconsinpublicservice.com			

Responsible Official 2 Name (optional)	Title			
Company Name & Mailing address (☐ check if same as source address)				
City	State	ZIP Code	County	Country
Phone number	E-mail address			

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

PART B: APPLICATION SUBMITTAL and CERTIFICATION by Responsible Official

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

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

Compliance Statement

This source is in compliance with **all** of its applicable requirements, including those contained in the existing ROP, Permits to Install that have not yet been incorporated into that ROP, and other applicable requirements not currently contained in the existing ROP.	☒ Yes ☐ No
This source will continue to be in compliance with all of its applicable requirements, including those contained in the existing ROP, Permits to Install that have not yet been incorporated into that ROP, and other applicable requirements not currently contained in the existing ROP.	☒ Yes ☐ No
This source will meet in a timely manner applicable requirements that become effective during the permit term.	☒ Yes ☐ No

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

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

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

Scott Cherveny, Director - Gas Generation

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.

Scott Cherveny — 7/23/24

Signature of Responsible Official **Date**

PART C: SOURCE REQUIREMENT INFORMATION

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

C1.	Actual emissions and associated data from **all** emission units with applicable requirements (including those identified in the existing ROP, Permits to Install and other equipment that have not yet been incorporated into the ROP) are required to be reported in MAERS. Are there any emissions and associated data that have not been reported in MAERS for the most recent emissions reporting year? If Yes, identify the emission unit(s) that was/were not reported in MAERS on an AI-001 Form. Applicable MAERS form(s) for unreported emission units must be included with this application.	☐ Yes ☒ No
C2.	Is this source subject to the federal regulations on ozone-depleting substances? (40 CFR Part 82)	☒ Yes ☐ No
C3.	Is this source subject to the federal Chemical Accident Prevention Provisions? (Section 112(r) of the Clean Air Act Amendments, 40 CFR Part 68) If Yes, a Risk Management Plan (RMP) and periodic updates must be submitted to the USEPA. Has an updated RMP been submitted to the USEPA?	☐ Yes ☒ No ☐ Yes ☒ No
C4.	Has this stationary source **added or modified** equipment since the last ROP renewal that changes the potential to emit (PTE) for criteria pollutant (CO, NOx, PM10, PM2.5, SO_2, VOC, lead) emissions? If Yes, include potential emission calculations (or the PTI and/or ROP revision application numbers, or other references for the PTE demonstration) for the added or modified equipment on an AI-001 Form. If No, criteria pollutant potential emission calculations do not need to be included.	☐ Yes ☒ No
C5.	Has this stationary source **added or modified** equipment since the last ROP renewal that changes the PTE for hazardous air pollutants (HAPs) regulated by Section 112 of the federal Clean Air Act? If Yes, include potential emission calculations (or the PTI and/or ROP revision application numbers or other references for the PTE demonstration) for the added or modified equipment on an AI-001 Form. Fugitive emissions must be included in HAP emission calculations. If No, HAP potential emission calculations do not need to be included.	☐ Yes ☒ No
C6.	Are any emission units subject to the Cross-State Air Pollution Rule (CSAPR)? If Yes, identify the specific emission unit(s) subject to CSAPR on an AI-001 Form.	☐ Yes ☒ No
C7.	Are any emission units subject to the federal Acid Rain Program? If Yes, identify the specific emission unit(s) subject to the federal Acid Rain Program on an AI-001 Form. Is an Acid Rain Permit Renewal Application included with this application?	☐ Yes ☒ No ☐ Yes ☒ No
C8.	Are any emission units identified in the existing ROP subject to compliance assurance monitoring (CAM)? If Yes, identify the specific emission unit(s) subject to CAM on an AI-001 Form. If a CAM plan has not been previously submitted to EGLE, one must be included with the ROP renewal application on an AI-001 Form. If the CAM Plan has been updated, include an updated copy. Is a CAM plan included with this application? If a CAM Plan is included, check the type of proposed monitoring included in the Plan: 1. Monitoring proposed by the source based on performance of the control device, or 2. Presumptively Acceptable Monitoring, if eligible	☒ Yes ☐ No ☒ Yes ☐ No ☒ ☐
C9.	Does the source have any plans such as a malfunction abatement plan, fugitive dust plan, operation/maintenance plan, or any other monitoring plan that is referenced in an existing ROP, Permit to Install requirement, or any other applicable requirement? If Yes, then a copy must be submitted as part of the ROP renewal application.	☒ Yes ☐ No
C10.	Are there any specific requirements that the source proposes to be identified in the ROP as non-applicable? If Yes, then a description of the requirement and justification must be submitted as part of the ROP renewal application on an AI-001 Form.	☐ Yes ☒ No

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

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

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

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

If No, go to Part E.

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

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

Comments:

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

PART E: EXISTING ROP INFORMATION

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

E1. Does the source propose to make any additions, changes or deletions to terms, conditions and underlying applicable requirements as they appear in the existing ROP? If Yes, identify changes and additions on Part F, Part G and/or Part H.	☐ Yes ☒ No
E2. For each emission unit(s) identified in the existing ROP, all stacks with applicable requirements are to be reported in MAERS. Are there any stacks with applicable requirements for emission unit(s) identified in the existing ROP that were not reported in the most recent MAERS reporting year? If Yes, identity the stack(s) that was/were not reported on applicable MAERS form(s).	☐ Yes ☒ No
E3. Have any emission units identified in the existing ROP been modified or reconstructed that required a PTI? If Yes, complete Part F with the appropriate information.	☐ Yes ☒ No
E4. Have any emission units identified in the existing ROP been dismantled? If Yes, identify the emission unit(s) and the dismantle date in the comment area below or on an AI-001 Form.	☐ Yes ☒ No

Comments:

☐ 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. If No, go to Part G. ☒ Yes ☐ No

Permit to Install Number	Emission Units/Flexible Group ID(s)	Description (*Include Process Equipment, Control Devices and Monitoring Devices*)	Date Emission Unit was Installed/ Modified/ Reconstructed
35-17C	FGTANKS	20,000 Gallon Urea Tank, 4,000 Gallon Propylene Glycol Tank, 7,000 Gallon Used Oil Tank, and 7,000 Gallon Oil Tank	10/16/2018
35-17C	FGHEATERS	Nineteen (19) Natural Gas-Fired Space and Convenience Water Heating Units. Each unit has a maximum heat input capacity of less than 0.3 mmBtu per hour.	10/16/2018

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

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

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

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

Comments:

PTI No. 35-17C included Flexible Groups FGTANKS and FGHEATERS which were not included in the original PTI or in the current ROP.

PTI No. 35-17C also updated the description of EUHEATER1 to indicate the heater is nominally rated 1.23 MMBtu/hr natural gas-fueled natural gas conditioning heater ***with two independent fuel trains***. This change also changed the stack height from 20 feet to 40 feet above ground elevation.

We propose that the changes in PTI No. 35-17C for these emissions units be incorporated into the ROP exactly as stated in the PTI.

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

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

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

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

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

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

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

Comments:

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

PART H: REQUIREMENTS FOR ADDITION OR CHANGE

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

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

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

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

H8. Does the source propose to add, change and/or delete **emission limit** requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below.	☐ Yes ☒ No
H9. Does the source propose to add, change and/or delete **material limit** requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below.	☐ Yes ☒ No
H10. Does the source propose to add, change and/or delete **process/operational restriction** requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below.	☐ Yes ☒ No
H11. Does the source propose to add, change and/or delete **design/equipment parameter** requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below.	☐ Yes ☒ No
H12. Does the source propose to add, change and/or delete **testing/sampling** requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below.	☐ Yes ☒ No
H13. Does the source propose to add, change and/or delete **monitoring/recordkeeping** requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below.	☐ Yes ☒ No
H14. Does the source propose to add, change and/or delete **reporting** requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below.	☐ Yes ☒ No

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

Please refer to the changes in Part F of this renewal application and the additional information in Form AI-001A.

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

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

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

EGLE

RENEWABLE OPERATING PERMIT APPLICATION
AI-001: ADDITIONAL INFORMATION

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

	SRN: P0797	Section Number (if applicable):

1. Additional Information ID
AI-001A

Additional Information

2. Is This Information Confidential? ☐ Yes ☒ No

Mark-up copy of existing ROP from the AQD website.

1. Please replace the **EMISSION UNIT SUMMARY TABLE** in the current ROP with the **EMISSION UNIT SUMMARY TABLE** in PTI No. 35-17C. The summary table from PTI No. 35-17C includes Flexible Groups FGTANKS and FGHEATERS.
2. Please include the **FLEXIBLE GROUP CONDITIONS** for Flexible Groups FGTANKS and FGHEATERS from PTI No. 35-17C as stated on pages 31 of 32 and 32 of 32.
3. Please revise the description of EUHEATER1 on page 19 of 41 of the current ROP as stated in PTI No. 35-17C and as stated below:

   A nominally rated 1.23 MMBtu/hr natural gas-fueled natural gas conditioning heater with two independent fuel trains.

4. Please revise the STACK/VENT RESTRICTIONS for EUHEATER1 on page 20 of 41 of the current ROP as stated in PTI No. 35-17C and as stated below:

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. SVHEATER1A*	10	40	R 336.1225, 40 CFR 52.21(c) & (d)
2. SVEATER1B*	10	40	R 336.1225, 40 CFR 52.21(c) & (d)

*Stacks contain a raincap

EUHEATER1
EMISSION UNIT CONDITIONS

DESCRIPTION

A nominally rated 1.23 MMBtu/hr natural gas-fueled natural gas conditioning heater with two independent fuel trains.

Flexible Group ID: FGNESHAP5D

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

NA

II. MATERIAL LIMIT(S)

1. The permittee shall burn only pipeline quality natural gas in EUHEATER1.[2] **(R 336.1205(1)(a), R 336.1225, R 336.1702(a))**

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall operate EUHEATER1 in accordance with manufacturer's recommendations for safe and proper operation to minimize emissions during periods of startup, shutdown and malfunction.[2] **(R 336.1912)**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The maximum design heat input capacity for EUHEATER1 shall not exceed 2 MMBTU per hour on a fuel heat input basis.[2] **(R 336.1205(1)(a) & (b), R 336.1225, 40 CFR 52.21(c) & (d))**

V. TESTING/SAMPLING

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

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 and/or records in a format acceptable to the AQD District Supervisor and make them available by the last day of the calendar month, for the previous calendar month, unless otherwise specified in any monitoring/recordkeeping special condition.[2] **(R 336.1205, R 336.1225, R 336.1702, 40 CFR 52.21(c) & (d))**

2. The permittee shall keep on file, a demonstration for EUHEATER1 of the design heat input capacity in million Btu of heat input per hour. (i.e., manufacturer's guarantee, test data, etc.)[2] **(R 336.1205(1)(a))**

3. The permittee shall keep, in a satisfactory manner, records of the date, duration, and description of any malfunction of the control equipment, any maintenance performed and any testing results for EUHEATER1. All records shall be kept on file and made available to the Department upon request.[2] **(R 336.1205(1)(a), R 336.1225, R 336.1702(a), R 336.1910, 40 CFR 52.21(c) & (d))**

VII. REPORTING

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

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

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

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. SVHEATER1A*	10[2]	~~20[2]~~ 40	**R 336.1225** **40 CFR 52.21 (c) & (d)**
2. SVHEATER1B*	10	40	**R 336.1225** **40 CFR 52.21 (c) & (d)**

*Stacks contain a raincap

IX. OTHER REQUIREMENT(S)

1. The permittee shall comply with all provisions of 40 CFR Part 63, Subpart DDDDD - National Emission Standards for Hazardous Air Pollutants: Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters.[2] **(40 CFR Part 63, Subparts A and DDDDD)**

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).

EGLE

RENEWABLE OPERATING PERMIT APPLICATION
AI-001: ADDITIONAL INFORMATION

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

	SRN: P0797	Section Number (if applicable):

1. Additional Information ID
AI-001B

Additional Information

2. Is This Information Confidential? ☐ Yes ☒ No

Copy of Permit to Install (PTI) No. 35-17C that has not been incorporated into existing ROP (32 pages).

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PERMIT TO INSTALL

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COMMON ACRONYMS

AQD	Air Quality Division
BACT	Best Available Control Technology
CAA	Clean Air Act
CAM	Compliance Assurance Monitoring
CEMS	Continuous Emission Monitoring System
CFR	Code of Federal Regulations
COMS	Continuous Opacity Monitoring System
Department/department/EGLE	Michigan Department of Environment, Great Lakes, and Energy
EU	Emission Unit
FG	Flexible Group
GACS	Gallons of Applied Coating Solids
GC	General Condition
GHGs	Greenhouse Gases
HVLP	High Volume Low Pressure*
ID	Identification
IRSL	Initial Risk Screening Level
ITSL	Initial Threshold Screening Level
LAER	Lowest Achievable Emission Rate
MACT	Maximum Achievable Control Technology
MAERS	Michigan Air Emissions Reporting System
MAP	Malfunction Abatement Plan
MSDS	Material Safety Data Sheet
NA	Not Applicable
NAAQS	National Ambient Air Quality Standards
NESHAP	National Emission Standard for Hazardous Air Pollutants
NSPS	New Source Performance Standards
NSR	New Source Review
PS	Performance Specification
PSD	Prevention of Significant Deterioration
PTE	Permanent Total Enclosure
PTI	Permit to Install
RACT	Reasonable Available Control Technology
ROP	Renewable Operating Permit
SC	Special Condition
SCR	Selective Catalytic Reduction
SNCR	Selective Non-Catalytic Reduction
SRN	State Registration Number
TBD	To Be Determined
TEQ	Toxicity Equivalence Quotient
USEPA/EPA	United States Environmental Protection Agency
VE	Visible Emissions

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

POLLUTANT / MEASUREMENT ABBREVIATIONS

acfm	Actual cubic feet per minute
BTU	British Thermal Unit
°C	Degrees Celsius
CO	Carbon Monoxide
CO_2e	Carbon Dioxide Equivalent
dscf	Dry standard cubic foot
dscm	Dry standard cubic meter
°F	Degrees Fahrenheit
gr	Grains
HAP	Hazardous Air Pollutant
Hg	Mercury
hr	Hour
HP	Horsepower
H_2S	Hydrogen Sulfide
kW	Kilowatt
lb	Pound
m	Meter
mg	Milligram
mm	Millimeter
MM	Million
MW	Megawatts
NMOC	Non-Methane Organic Compounds
NO_x	Oxides of Nitrogen
ng	Nanogram
PM	Particulate Matter
PM10	Particulate Matter equal to or less than 10 microns in diameter
PM2.5	Particulate Matter equal to or less than 2.5 microns in diameter
pph	Pounds per hour
ppm	Parts per million
ppmv	Parts per million by volume
ppmw	Parts per million by weight
psia	Pounds per square inch absolute
psig	Pounds per square inch gauge
scf	Standard cubic feet
sec	Seconds
SO_2	Sulfur Dioxide
TAC	Toxic Air Contaminant
Temp	Temperature
THC	Total Hydrocarbons
tpy	Tons per year
µg	Microgram
µm	Micrometer or Micron
VOC	Volatile Organic Compounds
yr	Year

GENERAL CONDITIONS

1. The process or process equipment covered by this permit shall not be reconstructed, relocated, or modified, unless a Permit to Install authorizing such action is issued by the Department, except to the extent such action is exempt from the Permit to Install requirements by any applicable rule. **(R 336.1201(1))**

2. If the installation, construction, reconstruction, relocation, or modification of the equipment for which this permit has been approved has not commenced within 18 months, or has been interrupted for 18 months, this permit shall become void unless otherwise authorized by the Department. Furthermore, the permittee or the designated authorized agent shall notify the Department via the Supervisor, Permit Section, Air Quality Division, Michigan Department of Environment, Great Lakes, and Energy, P.O. Box 30260, Lansing, Michigan 48909-7760, if it is decided not to pursue the installation, construction, reconstruction, relocation, or modification of the equipment allowed by this Permit to Install. **(R 336.1201(4))**

3. If this Permit to Install is issued for a process or process equipment located at a stationary source that is not subject to the Renewable Operating Permit program requirements pursuant to Rule 210 (R 336.1210), operation of the process or process equipment is allowed by this permit if the equipment performs in accordance with the terms and conditions of this Permit to Install. **(R 336.1201(6)(b))**

4. The Department may, after notice and opportunity for a hearing, revoke this Permit to Install if evidence indicates the process or process equipment is not performing in accordance with the terms and conditions of this permit or is violating the Department's rules or the Clean Air Act. **(R 336.1201(8), Section 5510 of Act 451, PA 1994)**

5. The terms and conditions of this Permit to Install shall apply to any person or legal entity that now or hereafter owns or operates the process or process equipment at the location authorized by this Permit to Install. If the new owner or operator submits a written request to the Department pursuant to Rule 219 and the Department approves the request, this permit will be amended to reflect the change of ownership or operational control. The request must include all of the information required by subrules (1)(a), (b), and (c) of Rule 219 and shall be sent to the District Supervisor, Air Quality Division, Michigan Department of Environment, Great Lakes, and Energy. **(R 336.1219)**

6. Operation of this equipment shall not result in the emission of an air contaminant which causes injurious effects to human health or safety, animal life, plant life of significant economic value, or property, or which causes unreasonable interference with the comfortable enjoyment of life and property. **(R 336.1901)**

7. The permittee shall provide notice of an abnormal condition, start-up, shutdown, or malfunction that results in emissions of a hazardous or toxic air pollutant which continue for more than one hour in excess of any applicable standard or limitation, or emissions of any air contaminant continuing for more than two hours in excess of an applicable standard or limitation, as required in Rule 912, to the Department. The notice shall be provided not later than two business days after start-up, shutdown, or discovery of the abnormal condition or malfunction. Written reports, if required, must be filed with the Department within 10 days after the start-up or shutdown occurred, within 10 days after the abnormal conditions or malfunction has been corrected, or within 30 days of discovery of the abnormal condition or malfunction, whichever is first. The written reports shall include all of the information required in Rule 912(5). **(R 336.1912)**

8. Approval of this permit does not exempt the permittee from complying with any future applicable requirements which may be promulgated under Part 55 of 1994 PA 451, as amended or the Federal Clean Air Act.

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

10. Operation of this equipment may be subject to other requirements of Part 55 of 1994 PA 451, as amended and the rules promulgated thereunder.

11. Except as provided in subrules (2) and (3) or unless the special conditions of the Permit to Install include an alternate opacity limit established pursuant to subrule (4) of Rule 301, the permittee shall not cause or permit to be discharged into the outer air from a process or process equipment a visible emission of density greater than the most stringent of the following. The grading of visible emissions shall be determined in accordance with Rule 303 (R 336.1303). **(R 336.1301)**
    a) A six-minute average of 20 percent opacity, except for one six-minute average per hour of not more than 27 percent opacity.
    b) A visible emission limit specified by an applicable federal new source performance standard.
    c) A visible emission limit specified as a condition of this Permit to Install.

12. Collected air contaminants shall be removed as necessary to maintain the equipment at the required operating efficiency. The collection and disposal of air contaminants shall be performed in a manner so as to minimize the introduction of contaminants to the outer air. Transport of collected air contaminants in Priority I and II areas requires the use of material handling methods specified in Rule 370(2). **(R 336.1370)**

13. The Department may require the permittee to conduct acceptable performance tests, at the permittee's expense, in accordance with Rule 1001 and Rule 1003, under any of the conditions listed in Rule 1001. **(R 336.2001)**

EMISSION UNIT SPECIAL CONDITIONS

EMISSION UNIT SUMMARY TABLE

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

Emission Unit ID	Emission Unit Description (Including Process Equipment & Control Device(s))	Installation Date / Modification Date	Flexible Group ID
EURICE1	A nominally rated 25,828 HP (19,260 kW) natural gas-fueled reciprocating internal combustion engine (RICE) generator with oxidation catalyst and selective catalytic reduction (SCR). The engines are used to provide electric generation at the F.D. Kuester Generating Station.	2/6/2019	FGENGINES, FGENGMACT4Z
EURICE2	A nominally rated 25,828 HP (19,260 kW) natural gas-fueled reciprocating internal combustion engine (RICE) generator with oxidation catalyst and selective catalytic reduction (SCR). The engines are used to provide electric generation at the F.D. Kuester Generating Station.	2/9/2019	FGENGINES, FGENGMACT4Z
EURICE3	A nominally rated 25,828 HP (19,260 kW) natural gas-fueled reciprocating internal combustion engine (RICE) generator with oxidation catalyst and selective catalytic reduction (SCR). The engines are used to provide electric generation at the F.D. Kuester Generating Station.	2/5/2019	FGENGINES, FGENGMACT4Z
EURICE4	A nominally rated 25,828 HP (19,260 kW) natural gas fired reciprocating internal combustion engine with an oxidation catalyst. The engines are used to provide electric generation at the F.D. Kuester Generating Station.	2/06/2019	FGENGINES, FGENGMACT4Z
EURICE5	A nominally rated 25,828 HP (19,260 kW) natural gas-fueled reciprocating internal combustion engine (RICE) generator with oxidation catalyst and selective catalytic reduction (SCR). The engines are used to provide electric generation at the F.D. Kuester Generating Station.	2/06/2019	FGENGINES, FGENGMACT4Z
EURICE6	A nominally rated 25,828 HP (19,260 kW) natural gas-fueled reciprocating internal combustion engine (RICE) generator with oxidation catalyst and selective catalytic reduction (SCR). The engines are used to provide electric generation at the F.D. Kuester Generating Station.	2/6/2019	FGENGINES, FGENGMACT4Z

Emission Unit ID	Emission Unit Description (Including Process Equipment & Control Device(s))	Installation Date / Modification Date	Flexible Group ID
EURICE7	A nominally rated 25,828 HP (19,260 kW) natural gas-fueled reciprocating internal combustion engine (RICE) generator with oxidation catalyst and selective catalytic reduction (SCR). The engines are used to provide electric generation at the F.D. Kuester Generating Station.	2/09/2019	FGENGINES, FGENGMACT4Z
EUEMERGEN	A nominally rated 1,470 HP (1,000 kW) natural gas-fueled emergency reciprocating internal combustion engine (RICE) generator manufactured in 2011 or later.	2/12/2019	NA
EUHEATER1	A nominally rated 1.23 MMBtu/hr natural gas-fueled natural gas conditioning heater with two independent fuel trains.	10/16/2018	FGNESHAP5D
EUTANK1	20,000 Gallon Urea Tank	10/16/2018	FGTANKS
EUTANK2	4,000 Gallon Propylene Glycol Tank	10/16/2018	FGTANKS
EUTANK3	7,000 Gallon Used Oil Tank	10/16/2018	FGTANKS
EUTANK4	7,000 Gallon Oil Tank	10/16/2018	FGTANKS
EUGUH001	Natural gas-fired 150,000 BTU/hr propeller unit heater	10/16/2018	FGHEATERS
EUGUH002	Natural gas-fired 150,000 BTU/hr propeller unit heater	10/16/2018	FGHEATERS
EUGUH003	Natural gas-fired 150,000 BTU/hr propeller unit heater	10/16/2018	FGHEATERS
EUGUH004	Natural gas-fired 150,000 BTU/hr propeller unit heater	10/16/2018	FGHEATERS
EUGUH005	Natural gas-fired 150,000 BTU/hr propeller unit heater	10/16/2018	FGHEATERS
EUGUH006	Natural gas-fired 150,000 BTU/hr propeller unit heater	10/16/2018	FGHEATERS
EUGUH007	Natural gas-fired 150,000 BTU/hr propeller unit heater	10/16/2018	FGHEATERS
EUGUH008	Natural gas-fired 150,000 BTU/hr propeller unit heater	10/16/2018	FGHEATERS
EUGUH009	Natural gas-fired 150,000 BTU/hr propeller unit heater	10/16/2018	FGHEATERS
EUIRH001	Natural Gas-fired 100,000 BTU/hr radiant heater	10/16/2018	FGHEATERS
EUIRH002	Natural Gas-fired 100,000 BTU/hr radiant heater	10/16/2018	FGHEATERS
EUIRH003	Natural Gas-fired 40,000 BTU/hr radiant heater	10/16/2018	FGHEATERS
EUIRH004	Natural Gas-fired 125,000 BTU/hr radiant heater	10/16/2018	FGHEATERS
EUIRH005	Natural Gas-fired 40,000 BTU/hr radiant heater	10/16/2018	FGHEATERS
EUIRH006	Natural Gas-fired 100,000 BTU/hr radiant heater	10/16/2018	FGHEATERS
EUIRH007	Natural Gas-fired 100,000 BTU/hr radiant heater	10/16/2018	FGHEATERS
EUAHU01A	300,000 BTU/hr Packaged Outdoor Air Handling Unit	10/16/2018	FGHEATERS

Emission Unit ID	Emission Unit Description (Including Process Equipment & Control Device(s))	Installation Date / Modification Date	Flexible Group ID
EUAHU01B	300,000 BTU/hr Packaged Outdoor Air Handling Unit	10/16/2018	FGHEATERS
EUWH	250,000 BTU/hr Water Heater	10/16/2018	FGHEATERS

Changes to the equipment described in this table are subject to the requirements of R 336.1201, except as allowed by R 336.1278 to R 336.1291.

EUEMERGEN
EMISSION UNIT CONDITIONS

DESCRIPTION

A nominally rated 1,470 HP (1,000 kW) natural gas-fueled emergency RICE generator manufactured in 2011 or later.

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
1. NO_x	2.0 g/HP-hr OR 160 ppmvd	Hourly	EUEMERGEN	SC V.1, VI.1, VI.2	40 CFR 52.21(c) & (d) 40 CFR 60.4233(e) Table 1 to 40 CFR Part 60, Subpart JJJJ
2. CO	4.0 g/HP-hr OR 540 ppmvd	Hourly	EUEMERGEN	SC V.1, VI.1, VI.2	40 CFR 60.4233(e) Table 1 to 40 CFR Part 60, Subpart JJJJ
3. VOC	1.0 g/HP-hr OR 86 ppmvd	Hourly	EUEMERGEN	SC V.1, VI.1, VI.2	R 336.1702(b), 40 CFR 60.4233(e) Table 1 to 40 CFR Part 60, Subpart JJJJ
ppmvd = parts per million by volume at 15 percent oxygen and on a dry gas basis					

II. MATERIAL LIMIT(S)

1. The permittee shall burn only pipeline quality natural gas in EUEMERGEN. **(R 336.1205(1)(a), R 336.1225, R 336.1702(a), 40 CFR 60.4233)**

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. No later than 60 days after the initial startup of EUMERGEN, the permittee shall submit to the AQD District Supervisor, for review and approval, a preventative maintenance / malfunction abatement plan (PM / MAP) for EUEMERGEN. After approval of the PM / MAP by the AQD District Supervisor, the permittee shall not operate EUEMERGEN unless the PM / MAP, or an alternate plan approved by the AQD District Supervisor, is implemented and maintained. The plan shall incorporate procedures recommended by the equipment manufacturer as well as incorporating standard industry practices. At a minimum, the plan shall include:
   a) Identification of the equipment and, if applicable, air-cleaning device and the supervisory personnel responsible for overseeing the inspection, maintenance, and repair.
   b) Description of the items or conditions to be inspected and frequency of the inspections or repairs.
   c) Identification of the equipment and, if applicable, air-cleaning device, operating parameters that shall be monitored to detect a malfunction or failure, the normal operating range of these parameters and a description of the method of monitoring or surveillance procedures.
   d) Identification of the major replacement parts that shall be maintained in inventory for quick replacement.

e) A description of the corrective procedures or operational changes that shall be taken in the event of a malfunction or failure to achieve compliance with the applicable emission limits.

If the plan fails to address or inadequately addresses an event that meets the characteristics of a malfunction at the time the plan is initially developed, the owner or operator shall revise the plan within 45 days after such an event occurs and submit the revised plan for approval to the AQD District Supervisor. Should the AQD determine the PM / MAP to be inadequate, the AQD District Supervisor may request modification of the plan to address those inadequacies. **(R 336.1205, R 336.1702(a), R 336.1910, R 336.1911, R 336.1912, 40 CFR 52.21(c) & (d))**

2. The permittee shall not operate EUEMERGEN for more than 500 hours per year on a 12-month rolling time period basis as determined at the end of each calendar month. The 500 hours includes the 100 hours as described in SC III.3. **(R 336.1205(1)(a), R 336.1225, R 336.1702(a), 40 CFR 52.21(c) & (d))**

3. The permittee shall not operate EUEMERGEN for more than 100 hours per calendar year 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, the regional transmission organization or equivalent balancing authority and transmission operator, or the insurance company associated with the engine. The 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 calendar year. **(40 CFR 60.4243(d)(2))**

4. The permittee may operate EUEMERGEN up to 50 hours per calendar year in non-emergency situations, but those 50 hours are counted towards the 100 hours per calendar year provided for maintenance and testing as provided in 40 CFR 60.4243(d)(2). Except as provided in SC III.5, the 50 hours per calendar year for non-emergency situations cannot be used for peak shaving or non-emergency demand response, or to generate income for the permittee to supply non-emergency power as part of a financial arrangement with another entity. **(40 CFR 60.4243(d)(3)**

5. The 50 hours per year for non-emergency situations can be used to supply power as part of a financial arrangement with another entity if all of the following conditions are met:
   a) The engine is dispatched by the local balancing authority or local transmission and distribution system operator.
   b) The dispatch is intended to mitigate local transmission and/or distribution limitations to avert potential voltage collapse or line overloads that could lead to the interruption of power supply in a local area or region.
   c) The dispatch follows reliability, emergency operation or similar protocols that follow specific NERC, regional, state, public utility commission or local standards or guidelines.
   d) The power is provided only to the facility itself or to support the local transmission and distribution system.
   e) The owner or operator identifies and records the entity that dispatches the engine and the specific NERC, regional, state, public utility commission or local standards or guidelines that are being followed for dispatching.

   (40 CFR 60.4243(d)(3))

6. If the permittee purchased a certified engine, according to procedures specified in 40 CFR Part 60 Subpart JJJJ, for the same model year, the permittee shall meet the following requirements for EUEMERGEN:
   a) Operate and maintain the certified engine and control device according to the manufacturer's emission-related written instructions.
   b) May only adjust engine settings according to and consistent with the manufacturer's emission-related written instructions.
   c) Meet the requirements as specified in 40 CFR 1068 Subparts A through D.

   If the permittee does not operate and maintain the certified engine and control device according to the manufacturer's emission-related written instructions, the engine will be considered a non-certified engine. **(40 CFR 60.4243(b)(1))**

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

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall equip and maintain EUEMERGEN with non-resettable hours meters to track the operating hours. **(R 336.1205(1)(a) & (3), R 336.1225, 40 CFR 60.4237(a))**

2. The nameplate capacity of EUEMERGEN shall not exceed 1,470 HP (1000 kW), as certified by the equipment manufacturer. **(R 336.1205(1)(a) & (3))**

V. TESTING/SAMPLING

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

1. If EUEMERGEN is purchased as a certified engine but not installed, configured, operated, and maintained according to the manufacturer's emission-related written instructions, or the permittee changes emission-related settings in a way that is not permitted by the manufacturer, the permittee must demonstrate compliance as follows:
   a) Conduct an initial performance test to demonstrate compliance with the applicable emission standards in 40 CFR 60.4233(e), within 1 year after EUEMERGEN is no longer installed, configured, operated, and maintained in accordance with the manufacturer's emission-related written instructions, or within 1 year after changing emission-related settings in a way that is not permitted by the manufacturer.
   b) If a performance test is required, the performance tests shall be conducted according to 40 CFR 60.4244.
   c) Conduct subsequent performance testing every 8,760 hours of engine operation or every 3 years, whichever comes first, thereafter to demonstrate compliance with the applicable emission standards.

   If a performance test is required, no less than 30 days prior to testing, a complete test plan shall be submitted to the AQD Technical Programs Unit and District Office. The AQD must approve the final plan prior to testing. Verification of emission rates includes the submittal of a complete report of the test results to the AQD Technical Programs Unit and District Office within 60 days following the last date of the test. **(R 336.1205, R 336.1702(a), R 336.2001, R 336.2003, R 336.2004, 40 CFR 52.21(c) & (d), 40 CFR 60.8, 40 CFR 60.4243, 40 CFR 60.4244, 40 CFR 60.4245, 40 CFR Part 60 Subpart JJJJ)**

VI. MONITORING/RECORDKEEPING

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

1. If EUEMERGEN is a certified engine, the permittee shall keep, in a satisfactory manner, the following records:
   a) Documentation indicating EUEMERGEN has been maintained according to manufacturer written instructions, is certified to meet the emission standards, and other information as required in 40 CFR Parts 90, 1048, 1054, and 1060, as applicable.

   The permittee shall keep all records on file and make them available to the Department upon request. **(R 336.1205(1)(a), 40 CFR 52.21(c) & (d), 40 CFR 60.4245(2) & (3))**

2. If EUEMERGEN is a non-certified engine (or operated in a non-certified manner), the permittee shall keep, the following records:
   a) Testing for the engine, as required in SC V.1.
   b) Maintenance activities for the engine, as required by SC III.7.

   The permittee shall keep all records on file and make them available to the Department upon request. **(40 CFR 60.4243(b), 40 CFR 60.4245(a)(4))**

3. If EUEMERGEN does not meet the standards applicable to non-emergency engines for the applicable size and model year then the permittee shall monitor and record the operation of EUEMERGEN in emergency and non-emergency service that are recorded through the non-resettable hours meter, in a manner acceptable to the District Supervisor, Air Quality Division. The permittee shall document the time of operation of the engine

and the reason the engine was in operation during that time. **(R 336.1205(1)(a), R 336.1225, R 336.1702(a), 40 CFR 52.21(c) & (d), 40 CFR 60.4243(d), 40 CFR 60.4245(b))**

4. The permittee shall keep records of notifications submitted for the completion of construction and start-up of EUEMERGEN. **(40 CFR 60.4245(a))**

VII. REPORTING

1. If EUEMERGEN is contractually obligated to be available for more than 15 hours per calendar year for the purposes specified in 40 CFR 60.4243(d)(3)(i) the permittee must submit and annual report including the following:
   a) The company name and address where the engine is located.
   b) Date of the report and beginning and ending dates of the reporting period.
   c) Engine site rating and model year.
   d) Latitude and longitude of the engine in decimal degrees reported to the fifth decimal place.
   e) Hours spent for operation for the purposes specified in §60.4243(d)(3)(i), including the date, start time, and end time for engine operation for the purposes specified in §60.4243(d)(3)(i). The report must also identify the entity that dispatched the engine and the situation that necessitated the dispatch of the engine;
   (40 CFR 60.4245, 40 CFR Part 60 Subparts A & JJJJ)

2. The permittee shall submit a notification specifying whether each engine included in EUEMERGEN will be operated in a certified or a non-certified manner to the AQD District Supervisor, in writing, within 30 days following the initial startup of the engine and within 30 days of switching the manner of operation. **(R 336.1201(3))**

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. SVEMERGEN	12	20	R 336.1225, 40 CFR 52.21(c) & (d)

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 JJJJ, as they apply to EUEMERGEN. **(40 CFR Part 60 Subparts A & 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 EUEMERGEN. **(40 CFR Part 63 Subparts A & ZZZZ, 40 CFR 63.6595)**

EUHEATER1
EMISSION UNIT CONDITIONS

DESCRIPTION

A nominally rated 1.23 MMBtu/hr natural gas-fueled natural gas conditioning heater with two independent fuel trains.

Flexible Group ID: FGNESHAP5D

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

NA

II. MATERIAL LIMIT(S)

1. The permittee shall burn only pipeline quality natural gas in EUHEATER1. **(R 336.1205(1)(a), R 336.1225, R 336.1702(a))**

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall operate EUHEATER1 in accordance with manufacturer's recommendations for safe and proper operation to minimize emissions during periods of startup, shutdown and malfunction. **(R 336.1912)**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The maximum design heat input capacity for EUHEATER1 shall not exceed 1.23 MMBTU per hour on a fuel heat input basis. **(R 336.1205(1)(a) & (b), R 336.1225, 40 CFR 52.21(c) & (d))**

2. The permittee shall only operate one fuel train at a time. **(R 336.1205)**

V. TESTING/SAMPLING

NA

VI. MONITORING/RECORDKEEPING

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

1. The permittee shall complete all required calculations and/or records in a format acceptable to the AQD District Supervisor and make them available by the last day of the calendar month, for the previous calendar month, unless otherwise specified in any monitoring/recordkeeping special condition. **(R 336.1205, R 336.1225, R 336.1702, 40 CFR 52.21(c) & (d))**

2. The permittee shall keep on file, a demonstration for EUHEATER1 of the design heat input capacity in million Btu of heat input per hour. (i.e., manufacturer's guarantee, test data, etc.) **(R 336.1205(1)(a))**

3. The permittee shall keep, in a satisfactory manner, records of the date, duration, and description of any malfunction of the control equipment, any maintenance performed and any testing results for EUHEATER1. All records shall be kept on file and made available to the Department upon request. **(R 336.1205(1)(a), R 336.1225, R 336.1702(a), R 336.1910, 40 CFR 52.21(c) & (d))**

VII. REPORTING

NA

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. SVHEATER1A*	10	40	R 336.1225, 40 CFR 52.21(c) & (d)
2. SVEATER1B*	10	40	R 336.1225, 40 CFR 52.21(c) & (d)

*Stacks contain a raincap

IX. OTHER REQUIREMENT(S)

1. The permittee shall comply with all provisions of 40 CFR Part 63, Subpart DDDDD - National Emission Standards for Hazardous Air Pollutants: Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters. **(40 CFR Part 63 Subparts A & DDDDD)**

FLEXIBLE GROUP SPECIAL CONDITIONS

FLEXIBLE GROUP SUMMARY TABLE

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

Flexible Group ID	Flexible Group Description	Associated Emission Unit IDs
FGENGINES	Seven (7) non-emergency natural gas-fueled RICE generators equipped with oxidation catalysts and SCR. The engines are used to provide electric generation and are subject to 40 CFR Part 60 Subpart JJJJ.	EURICE1, EURICE2, EURICE3, EURICE4, EURICE5, EURICE6, EURICE7
FGENGMACT4Z	Requirements for RICE subject to the National Emission Standards for Hazardous Air Pollutants 40 CFR Part 63, Subpart ZZZZ.	EURICE1, EURICE2, EURICE3, EURICE4, EURICE5, EURICE6, EURICE7
FGNESHAP5D	Boilers and process heaters subject to Industrial Boiler MACT (Gas 1 Fuel Subcategory requirements for new Boilers/Process Heaters at major sources of Hazardous Air Pollutants per 40 CFR Part 63, Subpart DDDDD. These new boilers or process heaters must comply with this subpart upon startup).	EUHEATER1
FGTANKS	Miscellaneous tanks.	EUTANK1, EUTANK2, EUTANK3, EUTANK4
FGHEATERS	Natural gas-fired space heaters, small water heaters and small air handling units.	EUGUH001, EUGUH002, EUGUH003, EUGUH004, EUGUH005, EUGUH006, EUGUH007, EUGUH008, EUGUH009, EUIRH001, EUIRH002, EUIRH003, EUIRH004, EUIRH005, EUIRH006, EUIRH007, EUAHU01A, EUAHU01B, EUWH

FGENGINES
FLEXIBLE GROUP CONDITIONS

DESCRIPTION

Seven (7) non-emergency natural gas-fueled RICE generators equipped with oxidation catalysts and SCR. The engines are used to provide electric generation and are subject to 40 CFR Part 60 Subpart JJJJ.

Emission Unit: EURICE1, EURICE2, EURICE3, EURICE4, EURICE5, EURICE6, EURICE7

POLLUTION CONTROL EQUIPMENT

Oxidation catalysts to control CO and VOC emissions, and SCR to control NO_x.

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Monitoring / Testing Method	Underlying Applicable Requirements
1. NO_x	3.0 pph (limit applies to each engine)	Hourly, excluding periods of startup and shutdown	Each engine in FGENGINES	SC V.1	R 336.1205(1)(a) & (3), 40 CFR 52.21(c) & (d)
2. NO_x	1.0 g/HP-hr or 82 ppmvd at 15% O_2 (limits apply to each engine)	Hourly, excluding periods of startup and shutdown	Each engine in FGENGINES	SC V.2	40 CFR 60.4233(e), Table 1 to 40 CFR Part 60 Subpart JJJJ
3. CO	5.5 pph (limit applies to each engine)	Hourly, excluding periods of startup and shutdown	Each engine in FGENGINES	SC V.1	R 336.1205(1)(a) & (3), 40 CFR 52.21(d)
4. CO	2.0 g/HP-hr[a] or 270 ppmvd at 15% O_2[a] (limits apply to each engine)	Hourly, excluding periods of startup and shutdown	Each engine in FGENGINES	SC V.2	40 CFR 60.4233(e), Table 1 to 40 CFR Part 60 Subpart JJJJ
5. VOC	5.5 pph (limit applies to each engine)	Hourly, excluding periods of startup and shutdown	Each engine in FGENGINES	SC V.1	R 336.1205(1)(a) & (3), R 336.1702(a)
6. VOC	0.7 g/HP-hr[b] or 60 ppmvd at 15% O_2[b] (limits apply to each engine)	Hourly, excluding periods of startup and shutdown	Each engine in FGENGINES	SC V.2	40 CFR 60.4233(e), Table 1 to 40 CFR Part 60 Subpart JJJJ
7. PM10	3.72 pph (limit applies to each engine)	Hourly	Each engine in FGENGINES	SC V.1	R 336.1205(1)(a) & (3), 40 CFR 52.21(c) & (d)

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Monitoring / Testing Method	Underlying Applicable Requirements
8. PM2.5	3.72 pph (limit applies to each engine)	Hourly	Each engine in FGENGINES	SC V.1	R 336.1205(1)(a) & (3), 40 CFR 52.21(c) & (d)

[a]Owners and operators of new or reconstructed non-emergency lean burn SI stationary engines with a site rating of greater than or equal to 250 brake HP located at a major source that are meeting the requirements of 40 CFR part 63, subpart ZZZZ, Table 2a do not have to comply with the CO emission standards of Table 1 of 40 CFR part 60, subpart JJJJ. (i.e. If the engine meets FGENGMACT4Z SC I.1a, then it is in compliance with FGENGINES SC I.4 and 40 CFR 60.4233(e).

[b]For purposes of this emission limit, when calculating emissions of VOC, emissions of formaldehyde should not be included. *(See Table 1 to 40 CFR 60 Subpart JJJJ.)*

II. MATERIAL LIMIT(S)

1. The permittee shall burn only pipeline quality natural gas in FGENGINES. **(R 336.1205(1)(a), R 336.1225, R 336.1702(a))**

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. No later than 60 days after the initial startup of FGENGINES, the permittee shall submit to the AQD District Supervisor, for review and approval, a preventative maintenance / malfunction abatement plan (PM / MAP) for FGENGINES. After approval of the PM / MAP by the AQD District Supervisor, the permittee shall not operate FGENGINES unless the PM / MAP, or an alternate plan approved by the AQD District Supervisor, is implemented and maintained. The plan shall incorporate procedures recommended by the equipment manufacturer as well as incorporating standard industry practices. At a minimum, the plan shall include:
   a) Identification of the equipment and, if applicable, air-cleaning device and the supervisory personnel responsible for overseeing the inspection, maintenance, and repair.
   b) Description of the items or conditions to be inspected and frequency of the inspections or repairs.
   c) Identification of the equipment and, if applicable, air-cleaning device, operating parameters that shall be monitored to detect a malfunction or failure, the normal operating range of these parameters and a description of the method of monitoring or surveillance procedures.
   d) Identification of the major replacement parts that shall be maintained in inventory for quick replacement.
   e) A description of the corrective procedures or operational changes that shall be taken in the event of a malfunction or failure to achieve compliance with the applicable emission limits.

   If the plan fails to address or inadequately addresses an event that meets the characteristics of a malfunction at the time the plan is initially developed, the owner or operator shall revise the plan within 45 days after such an event occurs and submit the revised plan for approval to the AQD District Supervisor. Should the AQD determine the PM / MAP to be inadequate, the AQD District Supervisor may request modification of the plan to address those inadequacies. **(R 336.1205, R 336.1225, R 336.1702(a), R 336.1910, R 336.1911, R 336.1912, 40 CFR 52.21(c) & (d), 40 CFR 60.4243(b)(2))**

2. The permittee shall operate and maintain each engine included in FGENGINES such that it meets the emission limits over the entire life of the engine. **(40 CFR 60.4234)**

3. If the permittee purchased a certified engine, according to procedures specified in 40 CFR Part 60 Subpart JJJJ, for the same model year, the permittee shall meet the following requirements for FGENGINES:
   a) Operate and maintain the certified engine and control device according to the manufacturer's emission-related written instructions,
   b) May only adjust engine settings according to and consistent with the manufacturer's emission-related written instructions,
   c) Meet the requirements as specified in 40 CFR 1068 Subparts A through D.

If the permittee does not operate and maintain the certified engine and control device according to the manufacturer's emission-related written instructions, the engine will be considered a non-certified engine. **(40 CFR 60.4243(b)(1))**

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

5. The amount of startup events for each engine in FGENGINES shall not exceed 1,095 startup events per 12-month rolling time period as determined at the end of each calendar month. **(R 336.1205(3), 40 CFR 52.21(c) & (d))**

6. The amount of shutdown events for each engine in FGENGINES shall not exceed 1,095 shutdown events per 12-month rolling time period as determined at the end of each calendar month. **(R 336.1205(3), 40 CFR 52.21(c) & (d))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The nameplate capacity of each engine in FGENGINES shall not exceed 25,828 HP (19,260 kW), as certified by the equipment manufacturer. **(R 336.1205(1)(a) & (3))**

V. TESTING/SAMPLING

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

1. Within 180 days after commencement of initial startup, the permittee shall verify NO_x, CO, VOC, PM10, and PM2.5 emission rates from each unit in FGENGINES at maximum routine operating conditions, by testing at owner's expense, in accordance with Department requirements. The permittee shall complete the required testing once every five years of operation, thereafter. Upon approval of the AQD District Supervisor, subsequent testing may be conducted for a single unit of FGENGINES as a representative unit. The permittee shall not test the same representative unit in subsequent tests unless approved or requested by the AQD District Supervisor. Testing shall be performed using an approved EPA Method listed in (use Test Method Table).

Pollutant	Test Method Reference
NO_x	40 CFR Part 60, Appendix A
CO	40 CFR Part 60, Appendix A
VOC	40 CFR Part 60, Appendix A
PM10/PM2.5	40 CFR Part 51, Appendix M

An alternate method, or a modification to the approved EPA Method, may be specified in an AQD-approved Test Protocol. No less than 30 days prior to testing, the permittee shall submit a complete test plan to the AQD Technical Programs Unit and District Office. The AQD must approve the final plan prior to testing, including any modifications to the method in the test protocol that are proposed after initial submittal. The permittee must submit a complete report of the test results to the AQD Technical Programs Unit and District Office within 60 days following the last date of the test. **(R 336.1205, R 336.1702, R 336.2001, R 336.2003, R 336.2004, 40 CFR 52.21(c) & (d))**

2. For any engine included in FGENGINES that is a non-certified engine and control device or a certified engine operating in a non-certified manner, per 40 CFR Part 60 Subpart JJJJ, the permittee must demonstrate compliance as follows:
   a) Conduct an initial performance test to demonstrate compliance with the applicable emission standards in 40 CFR 60.4233(e), within 60 days after achieving the maximum production rate at which the engines in FGENGINES will be operated, but no later than 180 days after initial startup.
   b) If a performance test is required, the performance tests shall be conducted according to 40 CFR 60.4244.
   c) Conduct subsequent performance testing every 8,760 hours of engine operation or every 3 years, whichever comes first.

If a performance test is required, no less than 30 days prior to testing, a complete test plan shall be submitted to the AQD Technical Programs Unit and District Office. The AQD must approve the final plan prior to testing. Verification of emission rates includes the submittal of a complete report of the test results to the AQD Technical Programs Unit and District Office within 60 days following the last date of the test. **(40 CFR 60.8, 40 CFR 60.4243, 40 CFR 60.4244, 40 CFR 60.4245, 40 CFR Part 60 Subpart JJJJ)**

VI. MONITORING/RECORDKEEPING

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

1. The permittee shall keep all required records and/or 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. **(R 336.1205(1)(a) & (3), R 336.1225, 40 CFR 52.21(c) & (d))**

2. For certified engines in FGENGINES, the permittee shall keep, in a satisfactory manner, the following records:
   a) Documentation indicating that each engine has been maintained according to manufacturer written instructions, is certified to meet the emission standards, and other information as required in 40 CFR Parts 90, 1048, 1054, and 1060, as applicable.

   The permittee shall keep all records on file and make them available to the Department upon request. **(R 336.1205(1)(a), 40 CFR 52.21(c) & (d), 40 CFR 60.4245(a)(2))**

3. For non-certified engines in FGENGINES (or operated in a non-certified manner), the permittee shall keep, in a satisfactory manner, the following records:
   a) Testing for each engine, as required in SC V.2.
   b) Maintenance activities for each engine, as required by SC III.4.

   The permittee shall keep all records on file and make them available to the Department upon request. **(R 336.1205(1)(a), 40 CFR 52.21(c) & (d), 40 CFR 60.4245(a)(4))**

4. The permittee shall keep records of notifications submitted for the completion of construction and start-up of each engine in FGENGINES. **(40 CFR 60.4245(a))**

5. The permittee shall keep, in a satisfactory manner, a record of the monthly and 12-month rolling startup and shutdown events for each engine in FGENGINES. The permittee shall keep all records on file and make them available to the Department upon request. **(R 336.1205(3), 40 CFR 52.21(c) & (d))**

6. The permittee shall maintain records of all information necessary for all notifications and reports as specified in these special conditions as well as that information necessary to demonstrate compliance with the emission limits of this permit for each engine in FGENGINES. This information shall include, but shall not be limited to the following:
   a) Compliance tests and any testing required under the special conditions of this permit.
   b) Monitoring data.
   c) Total sulfur content of the natural gas.
   d) Verification of heat input capacity.
   e) Identification, type, and amount of fuel combusted on a calendar month basis.
   f) Gross energy output on a calendar month basis.
   g) Records of each startup and shutdown events.
   h) All calculations necessary to show compliance with the limits contained in this permit.
   i) All records related to, or as required by, the MAP.

   All of the above information shall be stored in a format acceptable to the AQD District.
   (R 336.1205(1)(a) & (3), R 336.1224, R 336.1225, R 336.1331, R 336.1702(a), R 336.1910, R 336.1910, R 336.1912, 40 CFR Part 60 Subpart JJJJ)

VII. REPORTING

1. If any engine in FGENGINES has not been certified by an engine manufacturer to meet the emission standards in 40 CFR 60.4231, the permittee shall submit an initial notification as required in 40 CFR 60.7(a)(1). The notification must include the following information:
   a) The date construction of the engine commenced.
   b) Name and address of the owner or operator.
   c) The address of the affected source.
   d) The engine information including make, model, engine family, serial number, model year, maximum engine power, and engine displacement.
   e) The emission control equipment.
   f) Fuel used in the engine.

   The notification must be postmarked no later than 30 days after construction commenced for each engine. **(40 CFR 60.7(a)(1), 40 CFR 60.4245(c))**

2. The permittee shall submit a notification specifying whether each engine included in FGENGINES will be operated in a certified or a non-certified manner to the AQD District Supervisor, in writing, within 30 days following the initial startup of the engine and within 30 days of switching the manner of operation. **(R 336.1201(3))**

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. SVRICE1-7 (single stack for 7 engines)	168	130	R 336.1225, 40 CFR 52.21(c) & (d)

IX. OTHER REQUIREMENT(S)

1. The permittee shall comply with all applicable provisions of the New Source Performance Standards as specified in 40 CFR Part 60 Subpart A and Subpart JJJJ, as they apply to any engine included in FGENGINES. **(40 CFR Part 60 Subpart A & JJJJ)**

FGENGMACT4Z
FLEXIBLE GROUP CONDITIONS

DESCRIPTION

New spark ignition RICE located at a Major Source of HAPs greater than 500 HP, non-emergency.

Emission Unit: EURICE1, EURICE2, EURICE3, EURICE4, EURICE5, EURICE6, EURICE7

POLLUTION CONTROL EQUIPMENT

Oxidation catalyst to control CO

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Monitoring / Testing Method	Underlying Applicable Requirements
1a. CO	≥93% reduction (limit applies to each engine)	Hourly, excluding periods of startup and shutdown	Each engine in FGENGMACT4Z	SC V.1	40 CFR 63.6600(b) Table 2a
-OR-					
1b. Formaldehyde	≤14 ppmvd at 15% O_2 (limit applies to each engine)	Hourly, excluding periods of startup and shutdown	Each engine in FGENGMACT4Z	SC V.1	40 CFR 63.6600(b) Table 2a

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall not operate any engine of FGENGMACT4Z unless the catalytic oxidation system is installed, maintained, and operated in a satisfactory manner. Satisfactory manner includes the following:
   a) Maintain your catalyst so that the pressure drop across the catalyst does not change by more than 2 inches of water at 100 percent load +/- 10 percent from the pressure drop across the catalysts that was measured during the initial performance test.
   b) Maintain the temperature of the exhaust for the catalyst inlet temperature is greater than or equal to 450°F and less than or equal to 1350°F.
   (40 CFR 63.6600(b), 40 CFR Part 63 Subpart ZZZZ Table 2b)

2. The permittee shall operate each engine of FGENGMACT4Z in compliance with the emission limitations and operating limitations. Each engine of FGENGMACT4Z, including associated air pollution control equipment and monitoring equipment, must be operated and maintained, in a manner consistent with safety and good air pollution control practices for minimizing emissions. **(40 CFR 63.6605)**

3. The permittee shall minimize the time spent at idle during startup and minimize the startup time of each engine of FGENGMACT4Z to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes, after which time the emission limits in SCI.1 apply. **(40 CFR 63.6625(h))**

4. The permittee must reestablish the values of the operating parameters measured during the initial performance test when a catalyst is changed for any engine of FGENGMACT4Z. When the operating parameters are reestablished, the permittee must also conduct a performance test to demonstrate compliance with the emission limits in SC I.1. **(40 CFR 63.6640(b))**

5. The permittee must develop a site-specific monitoring plan that addresses the following items:
   a) Installation of the CPMS sampling probe or other interface at the appropriate location to obtain representative measurements.
   b) Performance and equipment specifications for the sample interface, parametric signal analyzer, and the data collection and reduction systems.
   c) Performance evaluation procedures and acceptance criteria (*e.g.,* calibrations).
   d) Ongoing operation and maintenance procedures in accordance with the general requirements of 40 CFR 63.8(c)(1), (c)(3), and (c)(4)(ii).
   e) Ongoing data quality assurance procedures in accordance with the general requirements of 63.8(d).
   f) Ongoing data recordkeeping and reporting procedures in accordance with the general requirements of 63.10(c), (e)(1), and (e)(2)(i).

   (40 CFR 63.6625(b), 40 CFR Part 63 Subpart ZZZZ Table 8)

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall equip and maintain each engine of FGENGMACT4Z with a catalytic oxidation system. **(40 CFR 63.6600(b) Table 2b)**

2. The permittee shall install, calibrate, operate, and maintain each Continuous Parameter Monitoring System (CPMS) in continuous operation according to the procedures in a site-specific monitoring plan. The CPMS must collect data at least once every 15 minutes when any engine of FGENGMACT4Z is operating. **(40 CFR 63.6625(b))**

3. For a CPMS measuring temperature range, the temperature sensor must have a minimum tolerance of 2.8˚F or 1 percent of the measured range whichever is larger. **(40 CFR 63.6625(b))**

4. If the permittee elects to install a CEMS, the permittee shall install, operate, and maintain a CEMS to monitor CO and either O_2 or CO_2 according to the requirements in 40 CFR Part 63.6625(a). If the permittee is meeting a requirement to reduce CO emissions, the CEMS must be installed at both the inlet and the outlet of the control device. If the permittee is meeting a requirement to limit the concentration of CO, the CEMS must be installed at the outlet of the control device. **(40 CFR 63.6625(a))**

V. TESTING/SAMPLING

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

1. The permittee shall verify the formaldehyde emission rates, from each engine included in FGENGMACT4Z, or verify the catalytic system efficiency by utilizing CO emission rates as a surrogate, from each engine included in FGENGMACT4Z, by testing at owner's expense, in accordance with Department requirements. Testing must be conducted at 100 percent speed and load ±10 percent. Initial testing shall be conducted within 180 days of start-up. Subsequent testing shall be conducted semiannually, until two consecutive semiannual passing events have been demonstrated. After two consecutive passing events, subsequent testing can be changed to annually. If the annual test failed, revert to semiannual testing until two consecutive passing events. If a catalyst is changed for any engine in FGENGMACT4Z the permittee shall also conduct a performance test to demonstrate they are meeting the required emission limitations. No less than 60 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 63.6610(a), 40 CFR 63.6615, 40 CFR 63.6620(b), 40 CFR 63.6630(c), 40 CFR 63.6645(g) & (h))**

2. If any engine in FGENGMACT4Z is subject to performance testing is not operating, the engine does not need to be started solely to conduct the performance test. The performance test can be conducted when the engine is started up again. **(40 CFR 63.6620(b))**

VI. MONITORING/RECORDKEEPING

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

1. The permittee shall continuously monitor, at least once every 15 minutes, the catalyst inlet temperature at all times that any engine for FGENGMACT4Z is operating except for monitor malfunctions, associated repairs, required performance evaluations, and required quality assurance or control activities. A monitoring malfunction is any sudden, infrequent, not reasonably preventable failure of the monitoring system to provide valid data. Monitoring failures that are caused in part by poor maintenance or careless operation are not malfunctions. This monitoring data shall be kept on file at the facility and made available to the Department upon request. **(40 CFR 63.6625(b)(3), 40 CFR 63.6635(b), 40 CFR 63.6660, 40 CFR Part 63 Subpart ZZZZ Table 6)**

2. The permittee shall not use data recorded during monitoring malfunctions, associated repairs, and required quality assurance or control activities in data averages and calculations used to report emission or operating levels. The permittee must, however, use all the valid data collected during all other periods. **(40 CFR 63.6635(c))**

3. The permittee shall keep the following records for each engine in FGENGMACT4Z:
   a) A copy of notification of commencement of construction and initial start-up notification.
   b) Records of the occurrence and duration of each malfunction of operation (*i.e.,* process equipment) or of the air pollution control and monitoring equipment.
   c) Records of catalyst efficiency performance tests and performance evaluations.
   d) Records of all required maintenance performed on the air pollution control and monitoring equipment.
   e) Records of actions taken during periods of malfunction to minimize emissions, including corrective actions to restore malfunctioning process and air pollution control and monitoring equipment to its normal or usual manner of operation.

   These records shall be kept on file at the facility and made available to the Department upon request. **(40 CFR 63.6655(a))**

4. The permittee shall maintain the following records for each Continuous Monitoring System (CMS):
   a) Each period during which the CMS malfunctioned or was inoperative (including out-of-control periods).
   b) The catalyst inlet temperature measurements, including raw data and 4 hour rolling average.
   c) Thermocouple calibration checks.
   d) Adjustments and maintenance performed on CMS.

   These records shall be kept on file at the facility and made available to the Department upon request**.** **(40 CFR 63.6655(b))**

5. The permittee shall maintain the following records to demonstrate continuous compliance with the emission limits in SC I.1.:
   a) Catalyst inlet temperature data reduced to 4-hour rolling averages.
   b) Pressure drop across the catalyst measured monthly and demonstrating that the pressure drop across the catalyst is within the operating limitation established during the performance test.

   These records shall be kept on file at the facility and made available to the Department upon request. **(40 CFR 63.6660, 40 CFR 63.6655(d), 40 CFR Part 63 Subpart ZZZZ Table 6)**

VII. REPORTING

1. The permittee shall include the following information in each notification of compliance status report:
   a) The engine model number.
   b) The engine manufacturer.
   c) The year of purchase.
   d) The manufacturer's site-rated brake horsepower.
   e) The ambient temperature, pressure, and humidity during the performance test.
   f) The calculations, assumptions, and measurement devices used to measure or estimate the percent load in a specific application. All assumptions that were made to estimate or calculate percent load during the

performance test must be clearly explained. If measurement devices such as flow meters, kilowatt meters, beta analyzers, stain gauges, etc. are used, the model number of the measurement device, and an estimate of its accurate in percentage of true value must be provided.
(40 CFR 63.6620(i))

2. The permittee shall report each instance in which they did not meet each emission limitation in SC I.1 or operating limitation in SC III.1. These instances are deviations from the emission and operating limitations in 40 CFR Part 63 Subpart ZZZZ. These deviations must be reported according to the requirements in §63.6650 in the semi-annual compliance report during the period in which they occurred. Deviations that occur during the first 200 hours of operation from initial startup of any engine of FGENGMACT4Z are not violations. **(40 CFR 63.6640(b) & (d))**

3. The permittee shall submit a first semiannual Compliance report which must cover the period beginning on the compliance date that is specified for the affected source in §63.6595 and ending on June 30 or December 31, whichever date is the first date following the end of the first calendar half after the start-up. The first Compliance report must be postmarked or delivered no later than September 15 or March 15, whichever date follows the end of the first calendar half after the compliance date that is specified for the start-up date. Each subsequent Compliance report must cover the semiannual reporting period from January 1 through June 30 or the semiannual reporting period from July 1 through December 31.
(40 CFR 63.6650(b), 40 CFR Part 63 Subpart ZZZZ Table 7)

4. The permittee shall include the following information in each Compliance report:
   a) Company name and address.
   b) Statement by a responsible official, with that official's name, title, and signature, certifying the accuracy of the content of the report.
   c) Date of report and beginning and ending dates of the reporting period.
   d) If a malfunction occurred during the reporting period, the compliance report must include the number, duration, and a brief description for each type of malfunction which occurred during the reporting period and which caused or may have caused any applicable emission limitation to be exceeded. The report must also include a description of actions taken during a malfunction of an affected source to minimize emissions in accordance with §63.6605(b), including actions taken to correct a malfunction.
   e) If there are no deviations from any emission or operating limitations, a statement that there were no deviations from the emission or operating limitations during the reporting period.
   f) If there were no periods during which the CMS was out-of-control, as specified in §63.8(c)(7), a statement that there were no periods during which the CMS was out-of-control during the reporting period.
   g) If there was a deviation from an emission or operating limitation, the following information must be included.
      i. The date and time that each malfunction started and stopped.
      ii. The date, time, and duration that each CMS was inoperative, except for zero (low-level) and high-level checks.
      iii. The date, time, and duration that each CMS was out-of-control, including the information in §63.8(c)(8).
      iv. The date and time that each deviation started and stopped, and whether each deviation occurred during a period of malfunction or during another period.
      v. A summary of the total duration of the deviation during the reporting period, and the total duration as a percent of the total source operating time during that reporting period.
      vi. A breakdown of the total duration of the deviations during the reporting period into those that are due to control equipment problems, process problems, other known causes, and other unknown causes.
      vii. A summary of the total duration of CMS downtime during the reporting period, and the total duration of CMS downtime as a percent of the total operating time of the stationary RICE at which the CMS downtime occurred during that reporting period.
      viii. An identification of each parameter and pollutant (CO or formaldehyde) that was monitored at the stationary RICE.
      ix. A brief description of the stationary RICE.
      x. A brief description of the CMS.
      xi. The date of the latest CMS certification or audit.
      xii. A description of any changes in CMS, processes, or controls since the last reporting period.
(40 CFR 63.6650(c) & (e))

VIII. STACK/VENT RESTRICTION(S)

NA

IX. OTHER REQUIREMENT(S)

1. The permittee shall comply with all applicable provisions of the National Emission Standards for Hazardous Air Pollutants, as specified in 40 CFR, Part 63, Subpart A and Subpart ZZZZ, as they apply to any engine included in FGENGMACT4Z. **(40 CFR 63.6595, 40 CFR Part 63 Subparts A & ZZZZ)**

FGNESHAP5D
FLEXIBLE GROUP CONDITIONS

DESCRIPTION

Gas 1 Fuel Subcategory requirements for new Boilers/Process Heaters at major sources of Hazardous Air Pollutants per 40 CFR Part 63, Subpart DDDDD. These new boilers or process heaters will burn natural gas only and must comply with this subpart upon startup.

Emission Unit: EUHEATER1

Less than 5 MMBTU/hr	EUHEATER1
Equal to or greater than 5 MMBTU/hr and less than 10 MMBTU/hr	NA
Equal to or greater than 10 MMBTU/hr	NA

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

NA

II. MATERIAL LIMIT(S)

1. The permittee shall only burn fuels as allowed in the Unit designed to burn gas 1 subcategory definition in 40 CFR 63.7575. **(40 CFR 63.7499(l))**

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee must meet the requirements in paragraphs (a)(1) and (3) of 40 CFR 63.7500, as listed below, except as provided in paragraphs (b) and (e) of 40 CFR 63.7500, stated in SC III.2 and SC III.3. The permittee must meet these requirements at all times the affected unit is operating. **(40 CFR 63.7500(a))**
   a) The permittee must meet each work practice standard in Table 3 of 40 CFR Part 63, Subpart DDDDD that applies to the boiler or process heater at the source. **(40 CFR 63.7500(a)(1))**
   b) At all times, the permittee must operate and maintain any affected source (as defined in 40 CFR 63.7490, stated in SC IX.1), including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Administrator that may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source. **(40 CFR 63.7500(a)(3))**

2. As provided in 40 CFR 63.6(g), EPA may approve use of an alternative to the work practice standards. **(40 CFR 63.7500(b))**

3. Boilers and process heaters in the units designed to burn gas 1 fuels subcategory are not subject to the emission limits in Tables 1 and 2 or 11 through 13 of 40 CFR Part 63, Subpart DDDDD, or the operating limits in Table 4 of 40 CFR Part 63, Subpart DDDDD. Boilers and process heaters in the units designed to burn gas 1 fuel subcategory with a heat input capacity: **(40 CFR 63.7500(e))**
   a) Of less than or equal to 5 MMBtu per hour must complete a tune-up every 5-years as specified in 40 CFR 63.7540, stated in SC IX.6. **(40 CFR 63.7500(e))**

4. The permittee must demonstrate initial compliance with the applicable work practice standards in Table 3 to 40 CFR Part 63, Subpart DDDDD within the applicable annual, biennial, or 5-year schedule as specified in

40 CFR 63.7515(d), stated in SC III.5, following the initial compliance date specified in 40 CFR 63.7495(a), stated in SC IX.3. Thereafter, you are required to complete the applicable annual, biennial, or 5-year tune-up as specified in 40 CFR 63.7515(d), stated in SC III.5. **(40 CFR 63.7510(g))**

5. If the permittee is required to meet an applicable tune-up work practice standard, the permittee must:
   a) Conduct the first annual tune-up no later than 13-months after the initial startup of the new or reconstructed boiler or process heater, the first biennial tune-up no later than 25-months after the initial startup of the new or reconstructed boiler or process heater, or the first 5-year tune-up no later than 61-months after the initial startup of the new or reconstructed boiler or process heater.
   b) Conduct an annual performance tune-up according to 40 CFR 63.7540(a)(10), stated in SC IX.6.a; biennial performance tune-up according to 40 CFR 63.7540(a)(11), stated in SC IX.6.b; or 5-year performance tune-up according to 40 CFR 63.7540(a)(12), stated in SC IX.6.c. Each annual tune-up specified in 40 CFR 63.7540(a)(10) must be no more than 13-months after the previous tune-up. Each biennial tune-up specified in 40 CFR 63.7540(a)(11) must be conducted no more than 25-months after the previous tune-up. Each 5-year tune-up specified in 40 CFR 63.7540(a)(12) must be conducted no more than 61-months after the previous tune-up.

   (40 CFR 63.7515(d))

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

V. TESTING/SAMPLING

NA

VI. MONITORING/RECORDKEEPING

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

1. The permittee must keep records according to paragraphs (a)(1) and (2) of 40 CFR 63.7555, as listed below. **(40 CFR 63.7555(a))**
   a) A copy of each notification and report that the permittee submitted to comply with 40 CFR Part 63, Subpart DDDDD, including all documentation supporting any Initial Notification or Notification of Compliance Status or semiannual compliance report that the permittee submitted, according to the requirements in 40 CFR 63.10(b)(2)(xiv). **(40 CFR 63.7555(a)(1))**
   b) Records of performance tests, fuel analyses, or other compliance demonstrations and performance evaluations as required in 40 CFR 63.10(b)(2)(viii). **(40 CFR 63.7555(a)(2))**

2. The permittee's records must be in a form suitable and readily available for expeditious review, according to 40 CFR 63.10(b)(1). **(40 CFR 63.7560(a))**

3. As specified in 40 CFR 63.10(b)(1), the permittee must keep each record for 5-years following the date of each occurrence, measurement, maintenance, corrective action, report, or record. **(40 CFR 63.7560(b))**

4. The permittee must keep each record on site, or they must be accessible from on-site (for example, through a computer network), for at least 2-years after the date of each occurrence, measurement, maintenance, corrective action, report, or record, according to 40 CFR 63.10(b)(1). The permittee can keep the records off site for the remaining 3-years. **(40 CFR 63.7560(c))**

VII. REPORTING

1. The permittee must meet the notification requirements in 40 CFR 63.7545 according to the schedule in 40 CFR 63.7545, both stated in SC VII.3 and SC VII.4, and in Subpart A of 40 CFR Part 63. **(40 CFR 63.7495(d))**

2. The permittee must submit to the Administrator all of the notifications in 40 CFR 63.7(b) and (c), 40 CFR 63.8(e), (f)(4) and (6), and 40 CFR 63.9(b) through (h) that apply to the permittee by the dates specified. **(40 CFR 63.7545(a))**

3. As specified in 40 CFR 63.9(b)(4) and (5), if the permittee starts up the new or reconstructed affected source on or after January 31, 2013, the permittee must submit an Initial Notification not later than 15-days after the actual date of startup of the affected source. **(40 CFR 63.7545(c))**

4. If the permittee intends to commence or recommence combustion of solid waste, the permittee must provide 30 days prior notice of the date upon which the permittee will commence or recommence combustion of solid waste. The notification must identify: **(40 CFR 63.7545(g))**
   a) The name of the owner or operator of the affected source, as defined in 40 CFR 63.7490, stated in SC IX.1, the location of the source, the boiler(s) or process heater(s) that will commence burning solid waste, and the date of the notice. **(40 CFR 63.7545(g)(1))**

5. The permittee must submit each report in Table 9 of 40 CFR Part 63, Subpart DDDDD that applies. **(40 CFR 63.7550(a))**

6. Unless the EPA Administrator has approved a different schedule for submission of reports under 40 CFR 63.10(a), the permittee must submit each report, according to paragraph (h) of 40 CFR 63.7550, stated in SC VII.8, by the date in Table 9 of 40 CFR Part 63, Subpart DDDDD and according to the requirements in paragraphs (b)(1) through (4) of 40 CFR 63.7550, as listed below. For units that are subject only to a requirement to conduct an annual tune-up according to 40 CFR 63.7540(a)(10), stated in SC IX.6.a, biennial tune-up according to 40 CFR 63.7540(a)(11), stated in SC IX.6.b, or 5-year tune-up according to 40 CFR 63.7540(a)(12), stated in SC IX.6.c, and not subject to emission limits or operating limits, the permittee may submit only an annual, biennial, or 5-year compliance report, as applicable, as specified in paragraphs (b)(1) through (4) of 40 CFR 63.7550, as listed below, instead of a semi-annual compliance report. **(40 CFR 63.7550(b))**
   a) The first semi-annual compliance report must cover the period beginning on the compliance date that is specified for each boiler or process heater in 40 CFR 63.7495, stated in SC IX.3, and ending on December 31 after the compliance date that is specified for the source in 40 CFR 63.7495, stated in SC IX.3. When submitting an annual, biennial, or 5-year compliance report, the first compliance report must cover the period beginning on the compliance date specified for each boiler or process heater in 40 CFR 63.7495 and ending on December 31 within 1, 2, or 5-years, as applicable, after the compliance date that is specified in 40 CFR 63.7495. **(40 CFR 63.7550(b)(1))**
   b) The first semi-annual compliance report must be postmarked or submitted no later than September 15 or March 15, whichever date is the first date following the end of the first calendar half after the compliance date that is specified for each boiler or process heater in 40 CFR 63.7495, stated in SC IX.3. The first annual, biennial, or 5-year compliance report must be postmarked or submitted no later than March 15. **(40 CFR 63.7550(b)(2), 40 CFR 63.7550(b)(5))**
   c) Each subsequent semi-annual compliance report must cover the semiannual reporting period from January 1 through June 30 or the semiannual reporting period from July 1 through December 31. Annual, biennial, and 5-year compliance reports must cover the applicable 1, 2, or 5-year periods from January 1 to December 31. **(40 CFR 63.7550(b)(3))**
   d) Each subsequent semi-annual compliance report must be postmarked or submitted no later than September 15 or March 15, whichever date is the first date following the end of the semiannual reporting period. Annual, biennial, and 5-year compliance reports must be postmarked or submitted no later than March 15. **(40 CFR 63.7550(b)(4), 40 CFR 63.7550(b)(5))**

7. A compliance report must contain the following information depending on how the permittee chooses to comply with the limits set in this rule. **(40 CFR 63.7550(c))**
   a) If the facility is subject to the requirements of a tune up the permittee must submit a compliance report with the information in paragraphs (c)(5)(i) through (iii), (xiv), and (xvii) of 40 CFR 63.7550. **(40 CFR 63.7550(c)(1))**
   b) 40 CFR 63.7550(c)(5) is as follows:
      i. Company and Facility name and address. **(40 CFR 63.7550(c)(5)(i))**
      ii. Process unit information, emissions limitations, and operating parameter limitations. **(40 CFR 63.7550(c)(5)(ii))**
      iii. Date of report and beginning and ending dates of the reporting period. **(40 CFR 63.7550(c)(5)(iii))**
      iv. Include the date of the most recent tune-up for each unit subject to only the requirement to conduct an annual tune-up according to 40 CFR 63.7540(a)(10), stated in SC IX.6.a, biennial tune-up according to 40 CFR 63.7540(a)(11), stated in SC IX.6.b, or 5-year tune-up according to

40 CFR 63.7540(a)(12), stated in SC IX.6.c. Include the date of the most recent burner inspection if it was not done annually, biennially, or on a 5-year period and was delayed until the next scheduled or unscheduled unit shutdown. **(40 CFR 63.7550(c)(5)(xiv))**

v. Statement by a responsible official with that official's name, title, and signature, certifying the truth, accuracy, and completeness of the content of the report. **(40 CFR 63.7550(c)(5)(xvii))**

8. The permittee must submit the reports according to the procedures specified in paragraph (h)(3) of 40 CFR 63.7550, as listed below. **(40 CFR 63.7550(h))**
   a) The permittee must submit all reports required by Table 9 of 40 CFR Part 63, Subpart DDDDD electronically to the EPA via the Compliance and Emissions Data Reporting Interface (CEDRI). (CEDRI can be accessed through the EPA's CDX.) The permittee must use the appropriate electronic report in CEDRI for 40 CFR Part 63, Subpart DDDDD. Instead of using the electronic report in CEDRI for 40 CFR Part 63, Subpart DDDDD, the permittee may submit an alternate electronic file consistent with the XML schema listed on the CEDRI Web site (*http://www.epa.gov/ttn/chief/cedri/index.html*), once the XML schema is available. If the reporting form specific to 40 CFR Part 63, Subpart DDDDD is not available in CEDRI at the time that the report is due, the permittee must submit the report to the Administrator at the appropriate address listed in 40 CFR 63.13. The permittee must begin submitting reports via CEDRI no later than 90-days after the form becomes available in CEDRI. **(40 CFR 63.7550(h)(3))**

VIII. STACK/VENT RESTRICTION(S)

NA

IX. OTHER REQUIREMENT(S)

1. 40 CFR Part 63, Subpart DDDDD applies to new or reconstructed affected sources as described in paragraph (a)(2) of 40 CFR 63.7490, as listed below. **(40 CFR 63.7490(a))**
   a) The affected source of 40 CFR Part 63, Subpart DDDDD is each new or reconstructed industrial, commercial, or institutional boiler or process heater, as defined in 40 CFR 63.7575, located at a major source. **(40 CFR 63.7490(a)(2))**

2. A boiler or process heater is:
   a) New if the permittee commences construction of the boiler or process heater after June 4, 2010, and the permittee meets the applicability criteria at the time the permittee commences construction. **(40 CFR 63.7490(b))**

3. If the permittee has a new or reconstructed boiler or process heater, the permittee must comply with 40 CFR Part 63, Subpart DDDDD by April 1, 2013, or upon startup of each boiler or process heater, whichever is later. **(40 CFR 63.7495(a))**

4. The permittee must be in compliance with the work practice standards of 40 CFR Part 63, Subpart DDDDD. **(40 CFR 63.7505(a))**

5. For affected sources (as defined in 40 CFR 63.7490, stated in SC IX.1) that have not operated since the previous compliance demonstration and more than one year has passed since the previous compliance demonstration, the permittee must complete a subsequent tune-up by following the procedures described in 40 CFR 63.7540(a)(10)(i) through (vi), stated in SC IX.6.a, and the schedule described in 40 CFR 63.7540(a)(13), stated in SC IX.6.d, for units that are not operating at the time of their scheduled tune-up. **(40 CFR 63.7515(g))**

6. The permittee must demonstrate continuous compliance with the work practice standards in Table 3 of 40 CFR Part 63, Subpart DDDDD that applies according to the methods specified in paragraphs (a)(10) through (13) of 40 CFR 63.7540, as listed below. **(40 CFR 63.7540(a))**
   a) If the boiler or process heater has a heat input capacity of 10 MMBtu per hour or greater, the permittee must conduct an annual tune-up of the boiler or process heater to demonstrate continuous compliance as specified in paragraphs (a)(10)(i) through (vi) of 40 CFR 63.7540, as listed below. The tune-up must be conducted while burning the type of fuel or fuels in case of units that routinely burn a mixture) that

provided the majority of the heat input to the boiler or process heater over the 12-months prior to the tune-up. This frequency does not apply to units with continuous oxygen trim systems that maintain an optimum air to fuel ratio. **(40 CFR 63.7540(a)(10))**

i. As applicable, inspect the burner, and clean or replace any components of the burner as necessary (the permittee may perform the burner inspection any time prior to the tune-up or delay the burner inspection until the next scheduled unit shutdown). Units that produce electricity for sale may delay the burner inspection until the first outage, not to exceed 36-months from the previous inspection. At units where entry into a piece of process equipment or into a storage vessel is required to complete the tune-up inspections, inspections are required only during planned entries into the storage vessel or process equipment. **(40 CFR 63.7540(a)(10)(i))**

ii. Inspect the flame pattern, as applicable, and adjust the burner as necessary to optimize the flame pattern. The adjustment should be consistent with the manufacturer's specifications, if available. **(40 CFR 63.7540(a)(10)(ii))**

iii. Inspect the system controlling the air-to-fuel ratio, as applicable, and ensure that it is correctly calibrated and functioning properly (the permittee may delay the inspection until the next scheduled unit shutdown). Units that produce electricity for sale may delay the inspection until the first outage, not to exceed 36-months from the previous inspection. **(40 CFR 63.7540(a)(10)(iii))**

iv. Optimize total emissions of CO. This optimization should be consistent with the manufacturer's specifications, if available, and with any NO_x requirement to which the unit is subject. **(40 CFR 63.7540(a)(10)(iv))**

v. Measure the concentrations in the effluent stream of CO in parts per million, by volume, and oxygen in volume percent, before and after the adjustments are made (measurements may be either on a dry or wet basis, as long as it is the same basis before and after the adjustments are made). Measurements may be taken using a portable CO analyzer. **(40 CFR 63.7540(a)(10)(v))**

vi. Maintain on-site and submit, if requested by the Administrator, a report containing the information in paragraphs (a)(10)(vi)(A) through (C) of 40 CFR 63.7540, as listed below. **(40 CFR 63.7540(a)(10)(vi))**

(1) The concentrations of CO in the effluent stream in ppm by volume, and oxygen in volume percent, measured at high fire or typical operating load, before and after the tune-up of the boiler or process heater. **(40 CFR 63.7540(a)(10)(vi)(A))**

(2) A description of any corrective actions taken as a part of the tune-up. **(40 CFR 63.7540(a)(10)(vi)(B))**

(3) The type and amount of fuel used over the 12-months prior to the tune-up, but only if the unit was physically and legally capable of using more than one type of fuel during that period. Units sharing a fuel meter may estimate the fuel used by each unit. **(40 CFR 63.7540(a)(10)(vi)(C))**

b) If the boiler or process heater has a heat input capacity of less than 10 MMBtu per hour (except as specified in paragraph (a)(12) of 40 CFR 63.7540), the permittee must conduct a biennial tune-up of the boiler or process heater as specified in paragraphs (a)(10)(i) through (vi) of 40 CFR 63.7540 to demonstrate continuous compliance. **(40 CFR 63.7540(a)(11))**

c) If the boiler or process heater has a continuous oxygen trim system that maintains an optimum air to fuel ratio, or a heat input capacity of less than or equal to 5 MMBtu per hour and the unit is in the units designed to burn gas 1 subcategory, the permittee must conduct a tune-up of the boiler or process heater every 5-years as specified in paragraphs (a)(10)(i) through (vi) of 40 CFR 63.7540 to demonstrate continuous compliance. The permittee may delay the burner inspection specified in paragraph (a)(10)(i) of 40 CFR 63.7540 until the next scheduled or unscheduled unit shutdown, but the permittee must inspect each burner at least once every 72-months. If an oxygen trim system is utilized on a unit without emission standards to reduce the tune-up frequency to once every 5-years, set the oxygen level no lower than the oxygen concentration measured during the most recent tune-up. **(40 CFR 63.7540(a)(12))**

d) If the unit is not operating on the required date for a tune-up, the tune-up must be conducted within 30-calendar days of startup. **(40 CFR 63.7540(a)(13))**

7. Table 10 of 40 CFR Part 63, Subpart DDDDD shows which parts of the General Provisions in 40 CFR 63.1 through 63.15 applies to the permittee. **(40 CFR 63.7565)**

FGTANKS
FLEXIBLE GROUP CONDITIONS

DESCRIPTION

Miscellaneous tanks.

Emission Unit: EUTANK1, EUTANK2, EUTANK3, EUTANK4

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

NA

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall install, maintain and operate in a satisfactory manner, breather vents on each non-pressurized tank in FGTANKS. **(R 336.1205, R 336.1224, R 336.1225, R 336.1702)**

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

V. TESTING/SAMPLING

NA

VI. MONITORING/RECORDKEEPING

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

1. The permittee shall keep records of all material deliveries to each tank in FGTANKS, including the date of delivery and the amount of material delivered. **(R 336.1205, R 336.1224, R 336.1225, R 336.1702)**

VII. REPORTING

NA

VIII. STACK/VENT RESTRICTION(S)

NA

IX. OTHER REQUIREMENT(S)

NA

FGHEATERS
FLEXIBLE GROUP CONDITIONS

DESCRIPTION

Natural gas-fired space heaters, small water heaters and small air handling units.

Emission Unit: EUGUH001, EUGUH002, EUGUH003, EUGUH004, EUGUH005, EUGUH006, EUGUH007, EUGUH008, EUGUH009, EUIRH001, EUIRH002, EUIRH003, EUIRH004, EUIRH005, EUIRH006, EUIRH007, EUAHU01A, EUAHU01B, EUWH

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

NA

II. MATERIAL LIMIT(S)

1. The permittee shall burn only pipeline quality natural gas in FGHEATERS. **(R 336.1205(1)(a), R 336.1224, R 336.1225, R 336.1702(a))**

III. PROCESS/OPERATIONAL RESTRICTION(S)

NA

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The maximum combined design heat input capacity for FGHEATERS shall not exceed 10 MMBTU per hour on a fuel heat input basis. **(R 336.1205(1)(a), R 336.1225)**

V. TESTING/SAMPLING

NA

VI. MONITORING/RECORDKEEPING

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

1. The permittee shall keep manufacturer documentation showing the maximum heat input for each space heater, water heater and air handling unit in FGHEATERS. **(R 336.1205(1)(a), R 336.1225)**

VII. REPORTING

NA

VIII. STACK/VENT RESTRICTION(S)

NA

IX. OTHER REQUIREMENT(S)

NA

EGLE

RENEWABLE OPERATING PERMIT APPLICATION
AI-001: ADDITIONAL INFORMATION

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

	SRN: P0797	Section Number (if applicable):

1. Additional Information ID
AI-001C

Additional Information

2. Is This Information Confidential? ☐ Yes ☒ No

Criteria Pollutant/Hazardous Air Pollutant (HAP) Potential to Emit Calculations.

TABLE 1. Potential emissions for the Wärtsilä 18V50SG engines during normal operation.

TABLE 2. Potential emissions for the Wärtsilä 18V50SG engines during startup and shutdown.

TABLE 3. Total potential emissions for seven (7) Wärtsilä 18V50SG engines for all operation.

TABLE 4. Potential emissions for the 1,000 kW natural gas-fired emergency generator.

TABLE 5. Potential emissions for the natural gas-fired natural gas heater, EU-HEATER1.

TABLE 6. Potential emissions for the natural gas-fired space and convenience water heaters, Flexible Group FGHEATERS.

TABLE 7. Total potential facility-wide criteria and PSD regulated air emissions for the UMERC - F.D. Kuester Generating Station.

TABLE 8. Potential hazardous air pollutant (HAP) emissions for the Wärtsilä 18V50SG engines (2 pages).

TABLE 9. Hazardous air pollutant emissions for the 1,000 kW emergency generator (2 pages).

TABLE 10. Potential HAP emissions for the natural gas-fired heater, EUHEATER1, and the space and hot water heaters in Flexible Group FGHEATERS.

TABLE 11. Total potential facility-wide hazardous air emissions for the UMERC - F.D. Kuester Generating Station.

For the 20,000 Gallon Urea Tank, EUTANK1, the maximum potential urea emissions and the maximum potential ammonia emissions are expected to be much less than 1.0 pound per year for each substance.

For the 4,000 Gallon Propylene Glycol Tank, EUTANK2, the maximum potential propylene glycol emissions are expected to be less than 0.03 pounds per year (*please refer to attached TANKS 4.0.9d report*).

For the 7,000 Gallon Used Oil Tank, EUTANK3, and the 7,000 Gallon Oil Tank, EUTANK4, the maximum potential VOC emissions are expected to be less than 0.60 pounds per year for each tank (*please refer to attached TANKS 4.0.9d report*).

TABLE 1. Potential emissions for the Wärtsilä 18V50SG engines during normal operation.

POLLUTANT		NORMAL OPERATION					
		Heat Input per Engine	Maximum Emission Rate, each engine			Potential to Emit, tons per year	
		mmBtu /hr	ppmdv @ 15% O_2	lb/mmBtu	lb/hr	each engine	7 engines combined
Carbon Monoxide	CO	152.3	18	0.0361	5.50	21.1	147.6
Nitrogen Oxides	NO_x	152.3	5.5	0.0197	3.00	11.5	80.5
Particulate Matter	PM	152.3	14 mg/Nm^3	0.0244	3.72	14.3	99.8
Particulate Matter	PM_{10}	152.3	14 mg/Nm^3	0.0244	3.72	14.3	99.8
Particulate Matter	$PM_{2.5}$	152.3	14 mg/Nm^3	0.0244	3.72	14.3	99.8
Sulfur Dioxide	SO_2	152.3		0.0006	0.091	0.4	2.5
Volatile Org Cmpds	VOC	152.3	30	0.0361	5.50	21.1	147.6
Sulfuric Acid Mist	H_2SO_4	152.3		0.0002	0.023	0.1	0.61
Fluorides (as HF)	HF	152.3		0	0.000	0.0	0.0000
Lead	Pb	152.3		0.0000005	0.00008	0.0	0.0020
Carbon Dioxide	CO_2	152.3	NA	117.0	17,815	68,277.7	477,944.2
Greenhouse Gases	CO_2e	152.3	NA	117.1	17,834	68,348.3	478,437.8

Footnotes

1. The potential normal operating emissions in tons per year are based on a total operation of each engine for 8,760 hours per year MINUS 1,095 hours per year for startup and shutdown events.
2. The potential emissions for CO, NO_x, PM, PM_{10}, $PM_{2.5}$, and VOC emissions are from the engine manufacturer.
3. The SO_2 emission factor of 0.0006 lbs/mmBtu is based on combustion of pipeline quality natural gas from the U.S. EPA's *Compilation of Air Pollutant Emission Factors, AP-42* , 5th Edition, Table 1.4-2.
4. Sulfuric acid mist emissions are estimated as 25% of the SO2 emissions.
5. The lead (Pb) emission factor is based on combustion of pipeline quality natural gas from the U.S. EPA's *Compilation of Air Pollutant Emission Factors, AP-42* , 5th Edition, Table 1.4-2.
6. The emission factors for the greenhouse gases, including CO_2, N_2O and CH_4 are from 40 CFR 98, Tables C-1 and C-2. The CO_2e factors are from 40 CFR 98, Subpart A, Table A-1.

Pollutant		Emission Factor	Total GHG Emission Factor	
		lb/mmBtu	CO_2e Factor[4]	lb/mmBtu
Carbon Dioxide	CO_2	116.98	1	116.976
Methane	CH_4	0.0022	25	0.055
Nitrous Oxide	N_2O	0.00022	298	0.066
TOTAL GHG EMISSIONS, AS CO_2e				**117.1**

TABLE 2. Potential emissions for the Wärtsilä 18V50SG engines during startup and shutdown.

POLLUTANT		STARTUP/SHUTDOWN EMISSIONS					
		Startup		Shutdown		Normal Operation	
		minutes	lb/event	minutes	lb/event	minutes	lb/event
Carbon Monoxide	CO	30	13.2	1.2	0.083	28.8	2.6
Nitrogen Oxides	NO_x	30	14.7	1.2	0.041	28.8	1.4
Particulate Matter	PM	30	3.3	1.2	0.074	28.8	1.8
Particulate Matter	PM_{10}	30	3.3	1.2	0.074	28.8	1.8
Particulate Matter	$PM_{2.5}$	30	3.3	1.2	0.074	28.8	1.8
Sulfur Dioxide	SO_2	30	0.050	1.2	0.002	28.8	0.0
Volatile Organic Cmds	VOC	30	8.1	1.2	0.083	28.8	2.6
Sulfuric Acid Mist	H_2SO_4	30	0.013	1.2	0.0004	28.8	0.0
Fluorides (as HF)	HF	30	0.0	1.2	0.0	28.8	0.0
Lead	Pb	30	0.00001	1.2	0.000001	28.8	0.0
Carbon Dioxide	CO_2	30	1,480	1.2	297	28.8	8,551.4
Greenhouse Gases	CO_2e	30	1,482	1.2	297	28.8	8,560.3

POLLUTANT		STARTUP/SHUTDOWN EMISSIONS				
		Total		SU/SD (each)	Potential to Emit, tons per year	
		lb/event	lb/hour	hr/yr	each engine	7 engines combined
Carbon Monoxide	CO	13.3	15.9	1,095	8.7	61.0
Nitrogen Oxides	NO_x	14.7	16.2	1,095	8.9	62.0
Particulate Matter	PM	3.4	5.16	1,095	2.8	19.8
Particulate Matter	PM_{10}	3.4	5.16	1,095	2.8	19.8
Particulate Matter	$PM_{2.5}$	3.4	5.16	1,095	2.8	19.8
Sulfur Dioxide	SO_2	0.1	0.1	1,095	0.1	0.4
Volatile Organic Cmds	VOC	8.2	10.8	1,095	5.9	41.5
Sulfuric Acid Mist	H_2SO_4	0.0	0.024	1,095	0.013	0.091
Fluorides (as HF)	HF	0.0	0.000	1,095	0.000	0.000
Lead	Pb	0.0	0.00004	1,095	0.00002	0.00017
Carbon Dioxide	CO_2	1,777	10,328	1,095	5,654.5	39,581.7
Greenhouse Gases	CO_2e	1,778	10,339	1,095	5,660.4	39,622.6

Footnotes

1. Potential annual emissions are based on 1,095 hours per year of startup and shutdown events for each engine.
2. The expected heat input during the startup and shutdown events are:

Heat Input per Startup Event: 12.7

TABLE 3. Total potential emissions for seven (7) Wärtsilä 18V50SG engines for all operation.

POLLUTANT		TOTAL POTENTIAL TO EMIT		
		Normal Operation ton/year	Startup/Shutdown ton/year	Total Potential Emissions ton/year
Carbon Monoxide	CO	147.6	61.0	208.6
Nitrogen Oxides	NO_x	80.5	62.0	142.5
Particulate Matter	PM	99.8	19.8	119.6
Particulate Matter	PM_{10}	99.8	19.8	119.6
Particulate Matter	$PM_{2.5}$	99.8	19.8	119.6
Sulfur Dioxide	SO_2	2.5	0.4	2.8
Volatile Organic Compound	VOC	147.6	41.5	189.0
Sulfuric Acid Mist	H_2SO_4	0.6	0.1	0.7
Fluorides (as HF)	HF	0.0	0.0	0.0
Lead	Pb	0.0	0.0	0.0
Carbon Dioxide	CO_2	477,944.2	39,581.7	517,525.9
Greenhouse Gases	CO_2e	478,437.8	39,622.6	518,060.4

Footnotes

TABLE 4. Potential emissions for the 1,000 kW natural gas-fired emergency generator.

POLLUTANT		Natural Gas Input	Power Output	Emission Factor		Potential Emissions	
		mmBtu/hr	hp	lb/mmBtu	g/hp-hr	lb/hr	ton/year
Carbon Monoxide	CO	11.66	1,470		4.00	12.95	3.24
Nitrogen Oxides	NO_x	11.66	1,470		2.00	6.48	1.62
Particulate Matter	PM	11.66	1,470	0.010		0.116	0.029
Particulate Matter	PM_{10}	11.66	1,470	0.010		0.116	0.029
Particulate Matter	$PM_{2.5}$	11.66	1,470	0.010		0.116	0.029
Sulfur Dioxide	SO_2	11.66	1,470	0.0006		0.007	0.0017
Vol. Org. Cmpds	VOC	11.66	1,470		1.00	3.238	0.809
Sulfuric Acid Mist	H_2SO_4	11.66	1,470	0.00015		0.0017	0.0004
Fluorides (as HF)	F	11.66	1,470	0			0.000000
Lead	Pb	11.66	1,470	0.0000005		0.0000058	0.000001
Carbon Dioxide	CO_2	11.66	1,470	117.0		1,363.4	340.8
Greenhouse Gases	CO_2e	11.66	1,470	117.1		1,364.8	341.2

Footnotes

1. Potential emissions are based on 500 hours per year of operation at the full standby power output rating of 1,000 kW(e), and the manufacturer's stated natural gas fuel flow of 11,100 scfh, equal to 11.66 mmBtu/hr.

2. The CO, NOx, and VOC emission factors in g/hp-hr are the emission standards for emergency spark ignition engines in 40 CFR 60, Subpart JJJJ, Table 1.

3. The PM emission factor is for total filterable and condensable PM for 4 stroke, lean burn natural gas-fired engines from the U.S. EPA's *Compilation of Air Pollutant Emission Factors, AP-42* , 5th Edition, Table 3.2-2.

4. All PM emissions are also assumed to be PM_{10} and $PM_{2.5}$ emissions.

5. The SO_2 emission factor of 0.0006 lbs/mmBtu is based on combustion of pipeline quality natural gas from the U.S. EPA's *Compilation of Air Pollutant Emission Factors, AP-42* , 5th Edition, Table 1.4-2.

6. Sulfuric acid mist emissions are based on 25% conversion of SO_2 to sulfuric acid mist in the flue gas.

7. The lead (Pb) emission factor is based on combustion of natural gas from the U.S. EPA's *Compilation of Air Pollutant Emission Factors, AP-42* , 5th Edition, Table 1.4-2.

8. The emission factors for the greenhouse gases, including CO_2, N_2O and CH_4 are from 40 CFR 98, Tables C-1 and C-2. The CO_2e factors are from 40 CFR 98, Subpart A, Table A-1.

Pollutant		Emission Factor	Total GHG Emission Factor	
		lb/mmBtu	CO_2e Factor[4]	lb/mmBtu
Carbon Dioxide	CO_2	116.98	1	116.976
Methane	CH_4	0.0022	25	0.055
Nitrous Oxide	N_2O	0.00022	298	0.066
TOTAL GHG EMISSIONS, AS CO_2e				**117.1**

TABLE 5. Potential emissions for the natural gas-fired natural gas heater, EU-HEATER1.

Pollutant		Controlled Emission Factor		Heat Input Rate	Potential to Emit	
		lb/mmcf	lb/mmBtu	mmBtu/hr	lb/hr	ton/year
Carbon Monoxide	CO	84.0	0.084	1.23	0.10	0.45
Nitrogen Oxides	NO_x	150.0	0.15	1.23	0.18	0.81
Particulate Matter	PM	7.6	0.0076	1.23	0.009	0.04
Particulate Matter	PM_{10}	7.6	0.0076	1.23	0.009	0.04
Particulate Matter	$PM_{2.5}$	7.6	0.0076	1.23	0.009	0.04
Sulfur Dioxide	SO_2	0.6	0.0006	1.23	0.0007	0.00
Organic Compounds	VOC	5.5	0.0055	1.23	0.0068	0.03
Sulfuric Acid Mist	H_2SO_4		0.0000060	1.23	0.000007	0.00003
Fluorides (as HF)	HF			1.23	0.000000	0.000000
Lead	Pb	0.0005	0.0000005	1.23	0.000001	0.000003
Carbon Dioxide	CO_2		117.0	1.23	143.9	630.2
Greenhouse Gases	CO_2e	3,113.6	117.1	1.23	144.0	630.8

Footnotes

1. The heater has two (2) burners, each rated at 1.23 mmBtu per hour. However, only one heater may be used at a time. Therefore, potential emissions are based on 8,760 hours per year of operation for one (1) burner.
2. Emission factors for uncontrolled emissions of CO, NO_x, PM, PM_{10}, SO_2, VOC, and lead emissions are from the U.S. EPA document *AP-42, Compilation of Air Pollutant Emission Factors* , 5th Edition, section 1.4.
3. The emission rate in pounds per million cubic feet of gas (lb/mmcf) was converted to pounds per million Btu based on a natural gas heat content of 1,000 mmBtu per mmcf.
4. For natural gas, all PM_{10} emissions are also assumed to be $PM_{2.5}$.
5. Sulfuric acid mist emissions are based on 1% conversion of SO_2 to SO_3.
6. The following emission factors for CO_2, N_2O and CH_4 are from 40 CFR 98, Tables C-1 and C-2. The CO_2e factors are from 40 CFR 98, Subpart A, Table A-1.

Pollutant		Emission Factor	Total GHG Emission Factor	
		lb/mmBtu	CO_2e Factor[4]	lb/mmBtu
Carbon Dioxide	CO_2	116.98	1	116.976
Methane	CH_4	0.0022	25	0.055
Nitrous Oxide	N_2O	0.00022	298	0.066
TOTAL GHG EMISSIONS, AS CO_2e				**117.1**

TABLE 6. Potential emissions for the natural gas-fired space and convenience water heaters, Flexible Group FGHEATERS.

Pollutant		Controlled Emission Factor		Heat Input Rate	Potential to Emit	
		lb/mmcf	lb/mmBtu	mmBtu/hr	lb/hr	ton/year
Carbon Monoxide	CO	84.0	0.084	2.81	0.24	1.03
Nitrogen Oxides	NO_x	100.0	0.10	2.81	0.28	1.23
Particulate Matter	PM	7.6	0.0076	2.81	0.021	0.09
Particulate Matter	PM_{10}	7.6	0.0076	2.81	0.021	0.09
Particulate Matter	$PM_{2.5}$	7.6	0.0076	2.81	0.021	0.09
Sulfur Dioxide	SO_2	0.6	0.0006	2.81	0.0017	0.01
Organic Compounds	VOC	5.5	0.0055	2.81	0.0154	0.07
Sulfuric Acid Mist	H_2SO_4		0.0000060	2.81	0.000017	0.00007
Fluorides (as HF)	HF			2.81	0.000000	0.000000
Lead	Pb	0.0005	0.0000005	2.81	0.000001	0.000006
Carbon Dioxide	CO_2		117.0	2.81	328.1	1,437.2
Greenhouse Gases	CO_2e	3,113.6	117.1	2.81	328.5	1,438.6

Footnotes

1. The heater has two (2) burners, each rated at 1.23 mmBtu per hour. However, only one heater may be used at a time. Therefore, potential emissions are based on 8,760 hours per year of operation for one (1) burner.
2. Emission factors for uncontrolled emissions of CO, NO_x, PM, PM_{10}, SO_2, VOC, and lead emissions are from the U.S. EPA document *AP-42, Compilation of Air Pollutant Emission Factors* , 5th Edition, section 1.4.
3. The emission rate in pounds per million cubic feet of gas (lb/mmcf) was converted to pounds per million Btu based on a natural gas heat content of 1,000 mmBtu per mmcf.
4. For natural gas, all PM_{10} emissions are also assumed to be $PM_{2.5}$.
5. Sulfuric acid mist emissions are based on 1% conversion of SO_2 to SO_3.
6. The following emission factors for CO_2, N_2O and CH_4 are from 40 CFR 98, Tables C-1 and C-2. The CO_2e factors are from 40 CFR 98, Subpart A, Table A-1.

Pollutant		Emission Factor	Total GHG Emission Factor	
		lb/mmBtu	CO_2e Factor[4]	lb/mmBtu
Carbon Dioxide	CO_2	116.98	1	116.976
Methane	CH_4	0.0022	25	0.055
Nitrous Oxide	N_2O	0.00022	298	0.066
TOTAL GHG EMISSIONS, AS CO_2e				**117.1**

TABLE 7. Total potential facility-wide criteria and PSD regulated air emissions for the UMERC - F.D. Kuester Generating Station.

POLLUTANT		POTENTIAL TO EMIT, tons per year				
		7 Electric Generating Units	1,000 kW Emergency Generator	Natural Gas Heater	Space and Water Heaters	TOTAL FACILITY EMISSIONS
Carbon Monoxide	CO	208.6	3.24	0.45	1.03	212.3
Nitrogen Oxides	NO_x	142.5	1.62	0.81	1.23	144.9
Particulate Matter	PM	119.6	0.03	0.04	0.09	119.6
Particulate Matter	PM_{10}	119.6	0.03	0.04	0.09	119.6
Particulate Matter	$PM_{2.5}$	119.6	0.03	0.04	0.09	119.6
Sulfur Dioxide	SO_2	2.8	0.00	0.00	0.01	2.8
Volatile Organic Cmpds	VOC	189.0	0.81	0.03	0.07	189.9
Sulfuric Acid Mist	H_2SO_4	0.70	0.00	0.00	0.00	0.70
Fluorides (as HF)	HF	0.00	0.00	0.00	0.00	0.00
Lead	Pb	0.0022	0.0000	0.00	0.00	0.0022
Carbon Dioxide	CO_2	517,525.9	340.8	630.2	1,437.16	518,496.9
Greenhouse Gases	CO_2e	518,060.4	341.2	630.8	1,438.64	519,032.4

Footnotes

TABLE 8. Potential hazardous air pollutant (HAP) emissions for the Wärtsilä 18V50SG engines (2 pages).

Hazardous Air Pollutant	CAS No.	Federal HAP?	Emission Factor	Heat Input	Control Efficiency	Potential to Emit		
						Each Unit		7 engines combined
			lb/mmBtu	mmBtu/hr	%	lb/hr	ton/year	ton/year
Ammonia	7664-41-7	N	7.03E-03	152.3	0%	1.07	4.69	32.81
1,1,2,2-Tetrachloroethane	79-34-5	Y	4.00E-05	152.3	75%	0.0015	0.01	0.05
1,1,2-Trichloroethane	79-00-5	Y	3.18E-05	152.3	75%	0.0012	0.01	0.04
1,1-Dichloroethane	75-34-3	Y	2.36E-05	152.3	75%	0.0009	0.00	0.03
1,2,3-Trimethylbenzene	526-73-8	N	2.30E-05	152.3	75%	0.0009	0.00	0.03
1,2,4-Trimethylbenzene	95-63-6	N	1.43E-05	152.3	75%	0.0005	0.00	0.02
1,3,5-Trimethylbenzene	108-67-8	N	3.38E-05	152.3	75%	0.0013	0.01	0.04
1,2-Dichloroethane	107-06-2	Y	2.36E-05	152.3	75%	0.0009	0.00	0.03
1,2-Dichloropropane	78-87-5	Y	2.69E-05	152.3	75%	0.0010	0.00	0.03
1,3-Butadiene	106-99-0	Y	2.67E-04	152.3	75%	0.0102	0.04	0.31
1,3-Dichloropropene	542-75-6	Y	2.64E-05	152.3	75%	0.0010	0.00	0.03
2-Methylnaphthalene	91-57-6	N	3.32E-05	152.3	75%	0.0013	0.01	0.04
2,2,4-Trimethylpentane	540-84-1	Y	2.50E-04	152.3	75%	0.0095	0.04	0.29
Acenaphthene	83-32-9	N	1.25E-06	152.3	75%	0.0000	0.00	0.00
Acenaphthylene	208-96-8	N	5.53E-06	152.3	75%	0.0002	0.00	0.01
Acetaldehyde	75-07-0	Y	1.50E-02	152.3	75%	0.57	2.50	17.48
Acrolein	107-02-8	Y	1.73E-02	152.3	75%	0.66	2.89	20.24
Benzene	71-43-2	Y	4.40E-04	152.3	75%	0.0168	0.07	0.51
Benzo(b)fluoranthene	205-99-2	Y	1.66E-07	152.3	75%	0.0000	0.00	0.00
Benzo(e)pyrene	50-32-8	Y	4.15E-07	152.3	75%	0.0000	0.00	0.00
Benzo(g,h,i)perylene	191-24-2		4.14E-07	152.3	75%	0.0000	0.00	0.00
Biphenyl	92-52-4	Y	2.12E-04	152.3	75%	0.0081	0.04	0.25
Butane	106-97-8	N	5.41E-04	152.3	75%	0.0206	0.09	0.63
Butyr/Isobutyraldehyde	123-72-8	N	1.01E-04	152.3	75%	0.0038	0.02	0.12
Carbon Tetrachloride	56-23-5	Y	3.67E-05	152.3	75%	0.0014	0.01	0.04
Chlorobenzene	108-90-7	Y	3.04E-05	152.3	75%	0.0012	0.01	0.04
Chloroethane	75-00-3	Y	1.87E-06	152.3	75%	0.0001	0.00	0.00
Chloroform	67-66-3	Y	2.85E-05	152.3	75%	0.0011	0.00	0.03
Chrysene	218-01-9		6.93E-07	152.3	75%	0.0000	0.00	0.00
Cyclopentane	287-92-3		2.27E-04	152.3	75%	0.0086	0.04	0.26
Ethylbenzene	100-41-4	Y	3.97E-05	152.3	75%	0.0015	0.01	0.05
Ethylene Dibromide	106-93-4	Y	4.43E-05	152.3	75%	0.0017	0.01	0.05
Fluoranthene	206-44-0		1.11E-06	152.3	75%	0.0000	0.00	0.00
Fluorene	86-73-7	Y	5.67E-06	152.3	75%	0.0002	0.00	0.01

TABLE 8. Potential hazardous air pollutant (HAP) emissions for the Wärtsilä 18V50SG engines (2 pages).

Hazardous Air Pollutant	CAS No.	Federal HAP?	Emission Factor	Heat Input	Control Efficiency	Potential to Emit		
						Each Unit		7 engines combined
			lb/mmBtu	mmBtu/hr	%	lb/hr	ton/year	ton/year
Formaldehyde	50-00-0	Y	1.02E-02	152.3	75%	0.39	1.71	11.96
Methanol	67-56-1	Y	9.98E-03	152.3	75%	0.38	1.66	11.65
Methylcyclohexane	108-87-2		1.23E-03	152.3	75%	0.0468	0.21	1.44
Methylene Chloride	75-09-2	Y	2.00E-05	152.3	75%	0.0008	0.00	0.02
n-Hexane	110-54-3	Y	1.11E-03	152.3	75%	0.0423	0.19	1.30
n-Nonane	111-84-2		1.10E-04	152.3	75%	0.0042	0.02	0.13
n-Octane	111-65-9		3.51E-04	152.3	75%	0.0134	0.06	0.41
Naphthalene	91-20-3	Y	7.44E-05	152.3	75%	0.0028	0.01	0.09
PAH			2.69E-05	152.3	75%	0.0010	0.00	0.03
Phenanthrene	85-01-8		1.04E-05	152.3	75%	0.0004	0.00	0.01
Phenol	108-95-2	Y	2.40E-05	152.3	75%	0.0009	0.00	0.03
Pyrene	129-00-0		1.36E-06	152.3	75%	0.0001	0.00	0.00
Styrene	100-42-5	Y	2.36E-05	152.3	75%	0.0009	0.00	0.03
Tetrachloroethane	630-20-6	Y	2.48E-06	152.3	75%	0.0001	0.00	0.00
Toluene	108-88-3	Y	4.08E-04	152.3	75%	0.0155	0.07	0.48
Vinyl Chloride	75-01-4	Y	1.49E-05	152.3	75%	0.0006	0.00	0.02
Xylene	1330-20-7	Y	1.84E-04	152.3	75%	0.0070	0.03	0.21
TOTAL, Federal HAPs							**9.78**	**67.56**

Footnotes

1. Potential emissions are based on 8,760 hours per year of continuous operation.

2. The uncontrolled emission factors are for 4-stroke lean burn natural gas engines from the U.S. EPA's *Compilation of Air Pollutant Emission Factors, AP-42* , 5th Edition, Table 3.2-2 for all HAPs *EXCEPT* acetaldehyde, acrolein, formaldehyde, and methanol. Emissions of ethane, n-pentane, and propane are not included because these pollutants are not federal HAPs and they are not included in the Michigan Department Environmental Quality - Air Quality Division List of Screening Levels (ITSL, IRSL and SRSL).

3. The maximum hourly acetaldehyde, acrolein, formaldehyde, and methanol emission rates are engineering estimates from the engine manufacturer.

TABLE 9. Hazardous air pollutant emissions for the 1,000 kW emergency generator (2 pages).

Hazardous Air Pollutant	CAS No.	Federal HAP?	Emission Factor	Heat Input	Potential Emissions	
			lb/mmBtu	mmBtu/hr	pounds/hour	ton/year
1,1,2,2-Tetrachloroethane	79-34-5	Y	4.00E-05	11.66	0.00047	0.00012
1,1,2-Trichloroethane	79-00-5	Y	3.18E-05	11.66	0.00037	0.00009
1,1-Dichloroethane	75-34-3	Y	2.36E-05	11.66	0.00028	0.00007
1,2,3-Trimethylbenzene	526-73-8	N	2.30E-05	11.66	0.00027	0.00007
1,2,4-Trimethylbenzene	95-63-6	N	1.43E-05	11.66	0.00017	0.00004
1,3,5-Trimethylbenzene	108-67-8	N	3.38E-05	11.66	0.00039	0.00010
1,2-Dichloroethane	107-06-2	Y	2.36E-05	11.66	0.00028	0.00007
1,2-Dichloropropane	78-87-5	Y	2.69E-05	11.66	0.00031	0.00008
1,3-Butadiene	106-99-0	Y	2.67E-04	11.66	0.00311	0.00078
1,3-Dichloropropene	542-75-6	Y	2.64E-05	11.66	0.00031	0.00008
2-Methylnaphthalene	91-57-6	N	3.32E-05	11.66	0.00039	0.00010
2,2,4-Trimethylpentane	540-84-1	Y	2.50E-04	11.66	0.00291	0.00073
Acenaphthene	83-32-9	N	1.25E-06	11.66	0.00001	0.00000
Acenaphthylene	208-96-8	N	5.53E-06	11.66	0.00006	0.00002
Acetaldehyde	75-07-0	Y	8.36E-03	11.66	0.09744	0.02436
Acrolein	107-02-8	Y	5.14E-03	11.66	0.05991	0.01498
Benzene	71-43-2	Y	4.40E-04	11.66	0.00513	0.00128
Benzo(b)fluoranthene	205-99-2	Y	1.66E-07	11.66	0.00000	0.00000
Benzo(e)pyrene	50-32-8	Y	4.15E-07	11.66	0.00000	0.00000
Benzo(g,h,i)perylene	191-24-2		4.14E-07	11.66	0.00000	0.00000
Biphenyl	92-52-4	Y	2.12E-04	11.66	0.00247	0.00062
Butane	106-97-8	N	5.41E-04	11.66	0.00631	0.00158
Butyr/Isobutyraldehyde	123-72-8	N	1.01E-04	11.66	0.00118	0.00029
Carbon Tetrachloride	56-23-5	Y	3.67E-05	11.66	0.00043	0.00011
Chlorobenzene	108-90-7	Y	3.04E-05	11.66	0.00035	0.00009
Chloroethane	75-00-3	Y	1.87E-06	11.66	0.00002	0.00001
Chloroform	67-66-3	Y	2.85E-05	11.66	0.00033	0.00008
Chrysene	218-01-9		6.93E-07	11.66	0.00001	0.00000
Cyclopentane	287-92-3		2.27E-04	11.66	0.00265	0.00066
Ethylbenzene	100-41-4	Y	3.97E-05	11.66	0.00046	0.00012
Ethylene Dibromide	106-93-4	Y	4.43E-05	11.66	0.00052	0.00013
Fluoranthene	206-44-0		1.11E-06	11.66	0.00001	0.00000
Fluorene	86-73-7	Y	5.67E-06	11.66	0.00007	0.00002
Formaldehyde	50-00-0	Y	5.28E-02	11.66	0.61538	0.15385
Methanol	67-56-1	Y	2.50E-03	11.66	0.02914	0.00728
Methylcyclohexane	108-87-2		1.23E-03	11.66	0.01434	0.00358

TABLE 9. Hazardous air pollutant emissions for the 1,000 kW emergency generator (2 pages).

Hazardous Air Pollutant	CAS No.	Federal HAP?	Emission Factor	Heat Input	Potential Emissions	
			lb/mmBtu	mmBtu/hr	pounds/hour	ton/year
Methylene Chloride	75-09-2	Y	2.00E-05	11.66	0.00023	0.00006
n-Hexane	110-54-3	Y	1.11E-03	11.66	0.01294	0.00323
n-Nonane	111-84-2		1.10E-04	11.66	0.00128	0.00032
n-Octane	111-65-9		3.51E-04	11.66	0.00409	0.00102
Naphthalene	91-20-3	Y	7.44E-05	11.66	0.00087	0.00022
PAH			2.69E-05	11.66	0.00031	0.00008
Phenanthrene	85-01-8		1.04E-05	11.66	0.00012	0.00003
Phenol	108-95-2	Y	2.40E-05	11.66	0.00028	0.00007
Pyrene	129-00-0		1.36E-06	11.66	0.00002	0.00000
Styrene	100-42-5	Y	2.36E-05	11.66	0.00028	0.00007
Tetrachloroethane	630-20-6	Y	2.48E-06	11.66	0.00003	0.00001
Toluene	108-88-3	Y	4.08E-04	11.66	0.00476	0.00119
Vinyl Chloride	75-01-4	Y	1.49E-05	11.66	0.00017	0.00004
Xylene	1330-20-7	Y	1.84E-04	11.66	0.00214	0.00054
TOTAL						**0.2182**

Footnotes

1. Potential emissions are based on 500 hours per year of operation at the maximum rated capacity.

2. The uncontrolled emission factors are for 4-stroke lean burn natural gas engines from the U.S. EPA's *Compilation of Air Pollutant Emission Factors, AP-42* , 5th Edition, Table 3.2-2.

TABLE 10. Potential HAP emissions for the natural gas-fired heater, EUHEATER1, and the space and hot water heaters in Flexible Group FGHEATERS.

Pollutant	CAS No.	Emission Factor		Heat Input	Potential to Emit	
		lb/10^6 scf	lb/mmBtu	mmBtu/hr	lb/hr	ton/yr
Benzene	71-43-2	2.1E-03	2.1E-06	4.035	8.5E-06	3.7E-05
Dichlorobenzene	25321-22-6	1.2E-03	1.2E-06	4.035	4.8E-06	2.1E-05
Formaldehyde	50-00-0	7.5E-02	7.5E-05	4.035	3.0E-04	1.3E-03
Hexane	110-54-3	1.8E+00	1.8E-03	4.035	7.3E-03	3.2E-02
Naphthalene	91-20-3	6.1E-04	6.1E-07	4.035	2.5E-06	1.1E-05
Toluene	108-88-3	3.4E-03	3.4E-06	4.035	1.4E-05	6.0E-05
TOTAL, ALL HAPs COMBINED			**1.9E-03**	**4.035**	**0.01**	**0.033**

Footnotes

1. The emission factors for natural gas combustion in the U.S. EPA's AP-42, *Compilation of Air Pollutant Emission Factors* , 5th Edition, Natural Gas Combustion, Tables 1.4-3. Only the emission factors above the detection limit are included. The emission factors were converted from lb per million cubic feet of natural gas to pounds per million Btu based on a natural gas heat content of 1,000 Btu per cubic foot of gas.

TABLE 11. Total potential facility-wide hazardous air emissions for the UMERC - F.D. Kuester Generating Station.

Hazardous Air Pollutant	CAS No.	Federal HAP?	Potential to Emit, tons per year			
			Seven (7) Electric Generating Engines	550 kW Emergency Generator	EUHEATER1 and FGHEATERS	TOTAL FACILITY EMISSIONS
Ammonia	7664-41-7	N	32.81			32.81
1,1,2,2-Tetrachloroethane	79-34-5	Y	0.05	0.00		0.05
1,1,2-Trichloroethane	79-00-5	Y	0.04	0.00		0.04
1,1-Dichloroethane	75-34-3	Y	0.03	0.00		0.03
1,2,3-Trimethylbenzene	526-73-8	N	0.03	0.00		0.03
1,2,4-Trimethylbenzene	95-63-6	N	0.02	0.00		0.02
1,3,5-Trimethylbenzene	108-67-8	N	0.04	0.00		0.04
1,2-Dichloroethane	107-06-2	Y	0.03	0.00		0.03
1,2-Dichloropropane	78-87-5	Y	0.03	0.00		0.03
1,3-Butadiene	106-99-0	Y	0.31	0.00		0.31
1,3-Dichloropropene	542-75-6	Y	0.03	0.00		0.03
2-Methylnaphthalene	91-57-6	N	0.04	0.00		0.04
2,2,4-Trimethylpentane	540-84-1	Y	0.29	0.00		0.29
Acenaphthene	83-32-9	N	0.00	0.00		0.00
Acenaphthylene	208-96-8	N	0.01	0.00		0.01
Acetaldehyde	75-07-0	Y	17.48	0.02		17.50
Acrolein	107-02-8	Y	20.24	0.01		20.25
Benzene	71-43-2	Y	0.51	0.00	0.00004	0.51
Benzo(b)fluoranthene	205-99-2	Y	0.00	0.00		0.00
Benzo(e)pyrene	50-32-8	Y	0.00	0.00		0.00
Benzo(g,h,i)perylene	191-24-2		0.00	0.00		0.00
Biphenyl	92-52-4	Y	0.25	0.00		0.25
Butane	106-97-8	N	0.63	0.00		0.63
Butyr/Isobutyraldehyde	123-72-8	N	0.12	0.00		0.12
Carbon Tetrachloride	56-23-5	Y	0.04	0.00		0.04
Chlorobenzene	108-90-7	Y	0.04	0.00		0.04
Chloroethane	75-00-3	Y	0.00	0.00		0.00
Chloroform	67-66-3	Y	0.03	0.00		0.03
Chrysene	218-01-9		0.00	0.00		0.00
Cyclopentane	287-92-3		0.26	0.00		0.27
Dichlorobenzene					0.00002	0.00
Ethylbenzene	100-41-4	Y	0.05	0.00		0.05
Ethylene Dibromide	106-93-4	Y	0.05	0.00		0.05
Fluoranthene	206-44-0		0.00	0.00		0.00

TABLE 11. Total potential facility-wide hazardous air emissions for the UMERC - F.D. Kuester Generating Station.

Hazardous Air Pollutant	CAS No.	Federal HAP?	Potential to Emit, tons per year			
			Seven (7) Electric Generating Engines	550 kW Emergency Generator	EUHEATER1 and FGHEATERS	TOTAL FACILITY EMISSIONS
Fluorene	86-73-7	Y	0.01	0.00		0.01
Formaldehyde	50-00-0	Y	11.96	0.15	0.00133	12.11
Methanol	67-56-1	Y	11.65	0.01		11.66
Methylcyclohexane	108-87-2		1.44	0.00		1.44
Methylene Chloride	75-09-2	Y	0.02	0.00		0.02
n-Hexane	110-54-3	Y	1.30	0.00	0.03181	1.33
n-Nonane	111-84-2		0.13	0.00		0.13
n-Octane	111-65-9		0.41	0.00		0.41
Naphthalene	91-20-3	Y	0.09	0.00	0.00001	0.09
PAH			0.03	0.00		0.03
Phenanthrene	85-01-8		0.01	0.00		0.01
Phenol	108-95-2	Y	0.03	0.00		0.03
Pyrene	129-00-0		0.00	0.00		0.00
Styrene	100-42-5	Y	0.03	0.00		0.03
Tetrachloroethane	630-20-6	Y	0.00	0.00		0.00
Toluene	108-88-3	Y	0.48	0.00	0.00006	0.48
Vinyl Chloride	75-01-4	Y	0.02	0.00		0.02
Xylene	1330-20-7	Y	0.21	0.00		0.22
TOTAL, Federal HAPs			**67.56**	**0.22**	**0.03**	**67.81**

Footnotes

TANKS 4.0.9d
Emissions Report - Summary Format
Tank Indentification and Physical Characteristics

Identification

User Identification:	Kuester Lube Oil Tank
City:	Negaunee
State:	Michigan
Company:	UMERC
Type of Tank:	Horizontal Tank
Description:	This tank represents both the lube oil tank and the used oil tank. Since the annual throughputs are similar, the emissions are expected to be the same for both tanks.

Tank Dimensions

Shell Length (ft):		15.00
Diameter (ft):		9.00
Volume (gallons):		7,000.00
Turnovers:		9.00
Net Throughput(gal/yr):		63,000.00
Is Tank Heated (y/n):	Y	
Is Tank Underground (y/n):	N	

Paint Characteristics

Shell Color/Shade:	White/White
Shell Condition	Good

Breather Vent Settings

Vacuum Settings (psig):	0.00
Pressure Settings (psig)	0.00

Meterological Data used in Emissions Calculations: Sault St. Marie, Michigan (Avg Atmospheric Pressure = 14.34 psia)

TANKS 4.0.9d
Emissions Report - Summary Format
Liquid Contents of Storage Tank

Kuester Lube Oil Tank - Horizontal Tank
Negaunee, Michigan

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F) Avg.	Min.	Max.	Liquid Bulk Temp (deg F)	Vapor Pressure (psia) Avg.	Min.	Max.	Vapor Mol. Weight.	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
Distillate fuel oil no. 2	All	0.00	0.00	0.00	0.00	0.0031	0.0031	0.0031	130.0000			188.00	Option 1: VP40 = .0031

TANKS 4.0.9d
Emissions Report - Summary Format
Individual Tank Emission Totals

Emissions Report for: Annual

Kuester Lube Oil Tank - Horizontal Tank
Negaunee, Michigan

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Distillate fuel oil no. 2	0.60	0.00	0.60

TANKS 4.0.9d
Emissions Report - Summary Format
Tank Indentification and Physical Characteristics

Identification

User Identification:	Kuester 4,000 Gallon Propylene Glycol Tank
City:	Negaunee
State:	Michigan
Company:	UMERC
Type of Tank:	Horizontal Tank
Description:	

Tank Dimensions

Shell Length (ft):	12.00
Diameter (ft):	8.00
Volume (gallons):	4,000.00
Turnovers:	1.58
Net Throughput(gal/yr):	6,325.00
Is Tank Heated (y/n):	N
Is Tank Underground (y/n):	N

Paint Characteristics

Shell Color/Shade:	White/White
Shell Condition	Good

Breather Vent Settings

Vacuum Settings (psig):	-0.03
Pressure Settings (psig)	0.03

Meterological Data used in Emissions Calculations: Sault St. Marie, Michigan (Avg Atmospheric Pressure = 14.34 psia)

TANKS 4.0.9d
Emissions Report - Summary Format
Liquid Contents of Storage Tank

Kuester 4,000 Gallon Propylene Glycol Tank - Horizontal Tank
Negaunee, Michigan

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F) Avg.	Min.	Max.	Liquid Bulk Temp (deg F)	Vapor Pressure (psia) Avg.	Min.	Max.	Vapor Mol. Weight.	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
Propylene glycol	All	41.26	36.32	46.19	39.71	0.0003	0.0002	0.0004	76.1100			76.11	Option 2: A=8.2082, B=2085.9, C=203.54

TANKS 4.0.9d
Emissions Report - Summary Format
Individual Tank Emission Totals

Emissions Report for: Annual

Kuester 4,000 Gallon Propylene Glycol Tank - Horizontal Tank
Negaunee, Michigan

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Propylene glycol	0.00	0.02	0.03

EGLE

RENEWABLE OPERATING PERMIT APPLICATION
AI-001: ADDITIONAL INFORMATION

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

	SRN: P0797	Section Number (if applicable):

1. Additional Information ID
AI-001D

Additional Information

2. Is This Information Confidential? ☐ Yes ☒ No

Compliance Assurance Monitoring (CAM) Plan (4 pages).

COMPLIANCE ASSURANCE MONITORING PLAN

Upper Michigan Energy Resources

F.D. Kuester Generating Station
Negaunee, Michigan

Document #859767
Original Issue
July 15, 2024

Prepared By:

ENVIRONMENTAL DEPARTMENT
MILWAUKEE, WISCONSIN

Prepared By: Justin Kowalski
Sr. Environmental Consultant – Air Quality

Approved By:
Michael Kolb – Director – Air Quality

I. BACKGROUND

A. Emission Unit

Description: Nominally rated 25,828 HP (19,260kW) natural gas-fueled reciprocating internal combustion engine (RICE) generators with oxidation catalyst and selective catalytic reduction (SCR). The engines are used to provide electric generation at the F.D. Kuester Generating Station.

Identification: FGENGINES (EURICE1, EURICE2, EURICE3, EURICE4, EURICE5, EURICE6, EURICE7)

Facility: Upper Michigan Energy Resources
F.D. Station Kuester Generating Station
80 Eagle Mills Road
Negaunee, MI 49866

B. Applicable Regulation, Emission Limit, Monitoring Requirements

Permit Number: MI-ROP-P0797-2020

Emission Limits:

NO_X:	3.0 lb/hr, R 336.1205(1)(a) & (3), 40 CFR 52.21(c) & (d)
CO:	5.5 lb/hr, R 336.1205(1)(a) & (3), 40 CFR 52.21(d)
VOC:	5.5 lb/hr, R 336.1205(1)(a) & (3), R 336.1702(a)

Monitoring Requirements: Oxidation Catalyst Pressure Drop
Oxidation Catalyst Inlet Temperature
Following PM/MAP

C. Control Technology

Oxidation catalysts to control CO and VOC emissions, and SCR to control NOx.

II. MONITORING APPROACH

		Oxidation Catalyst Pressure Drop
A.	**Indicator**	Pressure drop measured across the catalytic bed.
B.	**Indicator Range**	An excursion is defined as a pressure drop change of more than 2 inches of water at 100% load +/- 10 percent from the pressure drop across the catalyst measured during the last performance test. Excursions trigger an inspection and corrective action as necessary.
C.	**QIP Threshold**	None selected
D.	**Control Bypass**	None present

		Oxidation Catalyst Inlet Temperature
E.	**Indicator**	Temperature at the oxidation catalyst inlet is monitored to assure proper pollutant destruction.
F.	**Indicator Range**	An excursion is defined as a catalyst inlet temperature greater than 1350 °F or less than 450 °F. Excursions trigger an inspection and corrective action as necessary.
G.	**QIP Threshold**	None selected
H.	**Control Bypass**	None present

III. PERFORMANCE CRITERIA

		Oxidation Catalyst Pressure Drop
A.	**Data Representativeness**	Pressure drop will be monitored. Pressure indicators are located at the inlet and outlet catalyst bed.
B.	**Verification of Operational Status**	Pressure drop indicators operate continuously.
C.	**QA/QC Practices and Criteria**	The pressure indicators are on a regular PM schedule.
D.	**Monitoring Frequency**	Pressure drop across the oxidation catalyst is continuously monitored.
E.	**Data Collection Procedure**	Pressure drop data is manually recorded once per month.
F.	**Averaging Period**	N/A

		Oxidation Catalyst Inlet Temperature
G.	**Data Representativeness**	The thermocouple is located at the inlet of the oxidation catalyst.
H.	**Verification of Operational Status**	The thermocouple operates continuously.
I.	**QA/QC Practices and Criteria**	The thermocouples are on a regular PM schedule.
J.	**Monitoring Frequency**	Temperature is continuously monitored.
K.	**Data Collection Procedure**	Temperature data collected at 15-minute intervals (4 per hour) and recorded electronically.
L.	**Averaging Period**	4-Hour Rolling Average

IV. JUSTIFICATION

A. Rationale for Selection of Performance Indicators

Monitoring of pressure drop across the oxidizer unit offers a method to identify operation changes that may affect its performance. A change in pressure drop may indicate clogging or fouling of the catalyst, which can impede airflow and reduce the efficiency of pollutant destruction. Therefore, monitoring pressure drop helps maintain optimal airflow and ensures the effective operation of the oxidizer.

Monitoring inlet temperature to the oxidation catalyst ensures the engine exhaust gas is in the correct range for the chemical reduction that takes place in the oxidizer. An inlet temperature that is too high can indicate engine problems that could damage the catalyst. An inlet temperature that is too low reduces the emissions reduction that takes place in the oxidation catalyst.

The site will follow a Preventative Maintenance/Malfunction Abatement Plan (PM/MAP). The PM/MAP provides assurance that the engine and control system are being properly maintained and are operating as anticipated.

B. Rational for Selection of Indicator Ranges

The pressure drop indicator range is established based on the pressure drop not deviating more than 2 inches of water from the benchmark established during the previous performance testing. This range is established based on the similar requirement of 40 CFR 63, Subpart ZZZZ. A change in pressure drop may indicate fouling of the catalyst and indicates cleaning or replacing of the catalyst bed may be necessary. 40 CFR 64.4(b) allows for justification of monitoring based on presumptively acceptable monitoring. The pressure drop monitoring mirrors that required by 40 CFR 63, Subpart ZZZZ, therefore it is presumptively acceptable monitoring for CAM and monthly measurement for pressure drop is acceptable.

The inlet temperature range is selected based on the required operating range from 40 CFR 63, Subpart ZZZZ. Operating outside of this range can cause damage to the catalyst bed and/or result in reduced pollutant control.

EGLE

RENEWABLE OPERATING PERMIT APPLICATION
AI-001: ADDITIONAL INFORMATION

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

	SRN: P0797	Section Number (if applicable):

1. Additional Information ID
AI-001E

Additional Information

2. Is This Information Confidential? ☐ Yes ☒ No

Other Plans (e.g., Malfunction Abatement, Fugitive Dust, Operation and Maintenance, etc.).

1. Site Specific Monitoring Plan 40 CFR Part 63, Subpart ZZZZ (5 pages).
2. Preventative Maintenance and Malfunction Abatement Plan (14 pages).

SITE SPECIFIC MONITORING PLAN
40 CFR Part 63, Subpart ZZZZ

Upper Michigan Energy Resources Corporation
F.D. Kuester Generating Station
Negaunee, Michigan

Document # 542898
Original Issue
April 22, 2019
Updated
July 11, 2024

Prepared By:

WEC Business Services
ENVIRONMENTAL DEPARTMENT
MILWAUKEE, WISCONSIN

Document Owner: Justin Kowalski
Senior Environmental Consultant

Approved By: _____
Director – Air Quality & Projects

Table of Contents

1. Introduction

This document describes the Continuous Parameter Monitoring System (CPMS) Site-Specific Monitoring Plan (SSMP) for the continuous parameter monitoring systems at the Upper Michigan Energy Resources Corporation F.D. Kuester Generating Station facility. The SSMP provides guidance for plant operating procedures.

This plan complies with 40 CFR 63.6625(b)(1) requirements to develop a plan that addresses the monitoring system design, data collection and quality assurance/quality control requirements.

The following sources at F.D. Kuester Generating Station are included in this SSMP:

Engine	Output Rating	MACT Control Device(s)	Parameters Monitored
EURICE1 (K11)	19,260 kW Natural Gas-Fired Engine	Oxidation Catalyst	SCR Inlet Temperature
EURICE 2 (K12)	19,260 kW Natural Gas-Fired Engine	Oxidation Catalyst	SCR Inlet Temperature
EURICE3 (K13)	19,260 kW Natural Gas-Fired Engine	Oxidation Catalyst	SCR Inlet Temperature
EURICE4 (K14)	19,260 kW Natural Gas-Fired Engine	Oxidation Catalyst	SCR Inlet Temperature
EURICE5 (K25)	19,260 kW Natural Gas-Fired Engine	Oxidation Catalyst	SCR Inlet Temperature
EURICE6 (K26)	19,260 kW Natural Gas-Fired Engine	Oxidation Catalyst	SCR Inlet Temperature
EURICE7 (K27)	19,260 kW Natural Gas-Fired Engine	Oxidation Catalyst	SCR Inlet Temperature

2. Monitoring System Design

The CPMS is designed to measure the following:

- Selective Catalytic Reduction (SCR) inlet gas temperature.

2.1. Monitoring System Equipment

The CPMS is composed of the following components/interface:

- Thermocouple; and
- Data acquisition and handling system.

The specified design of the SCR inlet thermocouple CPMS is Endress Hauser, TH51, or equivalent. The thermocouple meets the requirements of 40 CFR §63.6625(b)(1)(4). The type K thermocouple accuracy is 0.75% of the measured range. See Figure 1.

Maximum measured error Thermocouples corresponding to ASTM E-230.

	Temperature Range		Standard Tolerance (IEC Class 2)	Special Tolerance (IEC Class 1)
Type	[°C]	[°F]	[°C] (whichever is greater)	[°C] (whichever is greater)
E	0 to 870	32 to 1600	±1.7 or ±0.5%	±1 or ±0.4%
J	0 to 760	32 to 1400	±2.2 or ±0.75%	±1.1 or ±0.4%
K	0 to 1260	32 to 2300	±2.2 or ±0.75%	±1.1 or ±0.4%
T	0 to 370	32 to 700	±1 or ±0.75%	±0.5 or ±0.4%
N	0 to 1260	32 to 2300	±2.2 or ±0.75%	±1.1 or ±0.4%

Note!
For measurement errors in °F, calculate using equation above in °C, then multiply the outcome by 1.8.

Figure 1. Thermocouple accuracy.

The specified design of the data acquisition and handling system is Environmental Systems Corporation, or equivalent.

Spare parts necessary for routine repairs of the CPMS are required to be readily available or kept on-site.

2.2. Sampling Interface Locations

See Figure 2. The SCR inlet gas temperature thermocouple is located at the inlet of the SCR; the temperature signal is T501.

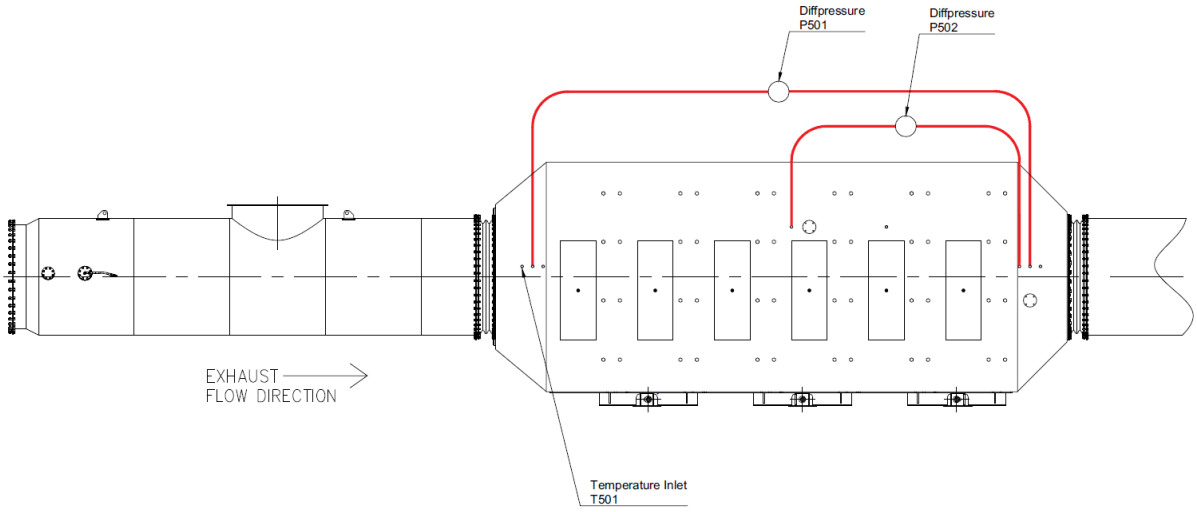

Figure 2. SCR Layout.

3. Data Collection

The SCR inlet gas temperature for each engine is collected on a continuous basis, meaning at least once every 15 minutes, and is recorded in the data logger. The data logger reduces the values to an hourly average which is then used to develop 4-hour rolling averages.

4. Equipment Performance Evaluations

For quality assurance and quality control purposes, performance evaluations are required.

An annual performance evaluation (calibration) of the SCR inlet temperature CPMS is required. Annual is defined by this plan as at least each calendar year. The calibration requirements are as follows:

- Perform a "loop check" of each thermocouple to determine if the signal induced into the circuit results in the expected response.
- The performance specification for the annual calibration of thermocouples is:

  |Expected Value – Instrument Measurement| < 5°F[1]

5. Ongoing Operation and Maintenance

The CPMS is required to be maintained and operated in accordance with manufacturer's recommendations and in accordance with the requirements of this document.

Parts necessary for routine repairs of the CPMS are required to be readily accessible or kept on-site.

6. Recordkeeping and Reporting

Records of all required CPMS measurements, including monitoring data recorded during unavoidable CPMS breakdowns and out-of-control periods will be maintained electronically.

Results of the most recent CPMS annual performance evaluation will be submitted to the permitting authority with results from the required emissions test.

The following records will be maintained upon occurrence of an event:

- The date and time identifying each period during which the CMS was out of control;
- The specific identification (i.e., the date and time of commencement and completion) of each period of excess emissions and parameter monitoring exceedances, that occurs during startups, shutdowns, and malfunctions of the affected source; and
- The specific identification (i.e., the date and time of commencement and completion) of each time period of excess emissions and parameter monitoring exceedance that occurs during periods other than startups, shutdowns, and malfunctions of the affected source.
- The nature and cause of any malfunction (if known);
- The corrective action taken or preventive measures adopted;
- The nature of the repairs or adjustments to the CMS that was inoperative or out of control;

Records of total process operating time during a semi-annual reporting period will be maintained electronically.

If applicable, copies of plant procedures that relate to completion of annual performance evaluations will be maintained electronically.

[1] An alternate performance specification of 1% of the measurement range of the instrument may be used instead of 5°F, whichever is larger.

PREVENTATIVE MAINTENANCE and MALFUNCTION ABATEMENT PLAN

Upper Michigan Energy Resources

F.D. Kuester Generating Station
Negaunee, Michigan

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1.0 INTRODUCTION

The F.D. Kuester Generating Station, located in Negaunee, Michigan, consists of seven Wärtsilä natural gas-fired reciprocating internal combustion engine (RICE) generator sets and auxiliary equipment, including a 1,000kW emergency generator as well as a natural gas conditioning heater.

The information contained in this Malfunction Abatement Plan (MAP) describes the air emission sources and air pollution control equipment malfunction related operation at F.D. Kuester Generating Station. This plan is prepared in accordance with Michigan Department of Environmental Quality, Part 9 Rule 336.1911.

The plan outlines steps taken to prevent, detect, and correct malfunctions or equipment failures which may cause any applicable emission limitation to be exceeded.

2.0 SOURCE DESCRIPTIONS

2.1 *Wärtsilä 18V50SG Engines*

The generator sets consist of seven (7) Wärtsilä 50 SG natural gas-fired, 4-stroke, spark ignition, lean burn reciprocating internal combustion engines (RICE) coupled with a nominally rated 19,260 kW electric generator.

The engine generating sets are powered by heavy-duty medium-speed four-stroke engines. The generating sets consist of a RICE coupled directly to a generator. In these engines, natural gas is mixed with air before the inlet valves. During the intake period, gas is also fed into a small pre-chamber where the gas mixture is rich compared to the gas in the cylinder. At the end of the compression phase, the gas-air mixture in the pre-chamber is ignited by a spark plug. The flames from the nozzle of the pre-chamber ignite the gas-air mixture in the whole cylinder. To maintain a correct air-fuel ratio, the engine is equipped with an exhaust gas wastegate. It keeps the air pressure in the receiver at an optimal level to match the best power output with the emission requirements. After the working phase, the cylinder is emptied of exhaust and the process starts again.

The engines fire pipeline quality natural gas, and are equipped with state-of-the-art air quality control systems including selective catalytic reduction (SCR) for nitrogen oxides (NOx) control, and oxidation catalyst systems for carbon monoxide (CO), volatile organic compound (VOC), and organic hazardous air pollutant (HAP) control.

2.2 *Caterpillar G3512 EPA Emergency Standby Generator*

The facility is also equipped with one (1) Caterpillar G3512 natural gas-fired, spark ignition, lean- burn, 4-stroke, RICE based emergency generator. This engine is equipped with an air/fuel ratio control and will be subject to the Standards of Performance for Stationary Spark Ignition Internal Combustion Engines under 40 CFR 60, Subpart JJJJ. The emergency generator is certified by the manufacturer to comply with the emission standards of 40 CFR 60, Subpart JJJJ.

3.0 AIR EMISSIONS CONTROL DEVICES AND DESCRIPTION

3.1 *Wärtsilä 18V50SG Engines*

The seven (7) natural gas-fired reciprocating internal combustion engines are equipped with state-of-the-art air quality control systems including selective catalytic reduction (SCR) for nitrogen oxides (NOx) control, oxidation catalyst systems for carbon monoxide (CO), volatile organic compound (VOC), and organic hazardous air pollutant (HAP) controls.

The SCR system is used for control of NOx. In the SCR process, nitrogen oxides are reduced to nitrogen and water vapor, with the help of urea, the reducing agent.

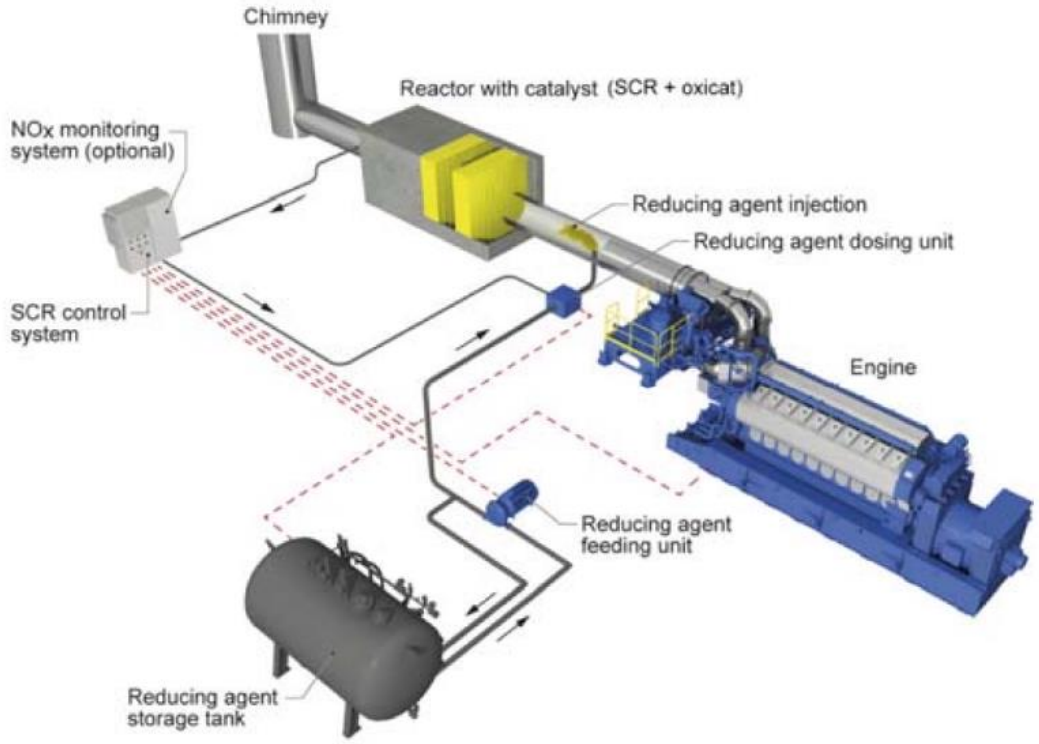
The SCR system includes an automated process control that automatically adjusts the amount of urea injected into the flue gas stream.

The feeding unit pumps urea from the storage tank to the reagent dosing unit. The dosing unit controls the amount of urea fed into the exhaust gas stream.

To reduce CO, VOC, and HAP emissions, an oxidation catalyst is fitted into the same housing as the SCR.

The catalytic oxidation method is used for controlling CO emissions. The abatement method uses catalytically active metals to accelerate the oxidation reactions between the combustible components and the residual oxygen present in the exhaust gases. Other agents or reactants are not needed.

Figure 1- Example of an SCR system with oxidation catalyst



3.2 *Caterpillar G3512 EPA Emergency Standby Generator*

The emergency generator is equipped with an Air/Fuel Ratio Control system. The fuel system includes a fuel metering valve, engine control module (ECM), inlet manifold pressure sensor, NOx sensor, load signal, and an inlet manifold temperature sensor.

The fuel metering valve controls the flow of fuel to the engine. The ECM determines the requirement for the mixture of air and fuel. The ECM sends a signal to the fuel metering valve. The fuel metering valve controls the volume of the gas flow to the engine.

The fuel flows through the fuel metering valve into the air inlet elbow. The mixture of air and fuel flows through the turbocharger compressor. The mixture enters the aftercooler through a throttle, which is electronically controlled. The air/fuel mixture is cooled in the aftercooler. The mixture then enters the inlet manifold. The ECM sends an electronic throttle signal to the electronic actuator. The throttle is controlled by the actuator.

4.0 EQUIPMENT OPERATING VARIABLES, RANGES, & FREQUENCY

Table 1 – Equipment Operating Variables, Ranges, & Frequency

Description of Observation	Method of Observation	Normal Operating Range	Frequency of Observation	Comments
SCR Inlet Temperature	Engine control system	600-780 F	Continuously. Inlet temperature is continuously monitored by thermocouples. If a temperature exceeds 895F the engine automatically shuts down.	Range determined during stack testing conducted at full load
Urea Injection Rate	Engine control system	4-10 gallons/hour	Continuous. Urea injection rate is continuously monitored. Metering equipment is used to measure urea and water to achieve proper injection rate.	Range determined during stack testing conducted at full load
SCR Pressure Drop	Engine control system	0.20-0.65 psi	Continuous. Pressure drop across the SCR is continuously monitored.	Range determined during stack testing conducted at full load
Oxidation Catalyst Pressure Drop	Engine control system	0.05-0.35 psi	Continuous. Pressure drop across the oxidation catalyst is continuously monitored.	Range determined during stack testing conducted at full load

5.0 ENGINE EMISSIONS LIMITS

5.1 *Wärtsilä Engine Emission Limits*

Table 2 - Wärtsilä Engine Emission Limits

Pollutant	Limit	Time Period / Operating Scenario	Underlying Applicable Requirements
NOx	3.0 pph	Hourly, excluding periods of startup and shutdown	R 336.1205(1)(a) & (3), 40 CFR 52.21(c) & (d)
NOx	1.0 g/HP-hr or 82 ppmvd at 15% O_2	Hourly, excluding periods of startup and shutdown	40 CFR 60.4233(e), Table 1 to 40 CFR Part 60 Subpart JJJJ
CO	5.5 pph	Hourly, excluding periods of startup and shutdown	R 336.1205(1)(a) & (3), 40 CFR 52.21(d)
CO	2.0 g/HP-hr or 270 ppmvd at 15% O_2	Hourly, excluding periods of startup and shutdown	40 CFR 60.4233(e), Table 1 to 40 CFR Part 60 Subpart JJJJ
VOC	5.5 pph	Hourly, excluding periods of startup and shutdown	R 336.1205(1)(a) & (3), R 336.1702(a)
VOC	0.7 g/HP-hr or 60 ppmvd at 15% O_2	Hourly, excluding periods of startup and shutdown	40 CFR 60.4233(e), Table 1 to 40 CFR Part 60 Subpart JJJJ
Formaldehyde or CO as a surrogate for HAPs	≤14 ppmvd at 15% O2 or CO reduction limit of ≥93% reduction	Hourly, excluding periods of startup and shutdown	40 CFR 63.6600(b) Table 2a

5.2 *Caterpillar G3512 EPA Emergency Standby Generator*

Table 3 - Caterpillar G3512 EPA Emergency Standby Generator

Pollutant	Limit	Time Period / Operating Scenario	Underlying Applicable Requirements
NOx	2.0 g/HP-hr OR 160 ppmvd	Hourly	40 CFR 52.21(c) & (d) 40 CFR 60.4233(e) Table 1 to 40 CFR Part 60, Subpart JJJJ
CO	4.0 g/HP-hr OR 540 ppmvd	Hourly	40 CFR 60.4233(e) Table 1 to 40 CFR Part 60, Subpart JJJJ
VOC	1.0 g/HP-hr OR 86 ppmvd	Hourly	R 336.1702(b), 40 CFR 60.4233(e) Table 1 to 40 CFR Part 60, Subpart JJJJ

ppmvd = parts per million by volume at 15 percent oxygen and on a dry gas basis

6.0 PREVENTATIVE MAINTENANCE SCHEDULE (ITEMS INSPECTED AND FREQUENCY)

Maintenance information involving the sources noted in this Preventative Maintenance and Malfunction Abatement Plan will be stored in the maintenance management system. UMERC will utilize internal resources, as well contracted vendors to conduct maintenance, repairs, and calibration, as necessary.

6.1 *Wärtsilä 18V50SG Engines Preventative Maintenance Schedule*

Table 4 - Wärtsilä 18V50SG Engines Preventative Maintenance Schedule

Inspection Item	Maintenance Type	Frequency
Cylinder Head With Valves		
Yoke, valve rotators & valve clearances	Check	Approximately every 2,000 operating hours
Main starting valve	Overhaul / Maintain	Approximately every 20,000 operating hours
Valve rotators	Overhaul / Maintain	Approximately every 30,000 operating hours
All cylinder heads	Overhaul / Maintain	Approximately every 30,000 operating hours
Turbocharging, Charge Air Cooling and Waste Gate		
Charge air cooler	Clean	Approximately every 4,000 operating hours
Bypass/Wastegate valve and actuator	Check	Approximately every 4,000 operating hours
Bypass/Wastegate valve and actuator	Overhaul / Maintain	Approximately every 15,000 operating hours
Air filter cartridge	Replace	Approximately every 10,000 operating hours
Turbocharger	Clean/adjust/lubricate	Approximately every 20,000 operating hours
Turbocharger bearings	Replace	Approximately every 20,000 operating hours
Turbocharger parts	Check	Approximately every 20,000 operating hours
Turbocharger gas-inlet/outlet casings	Check	Approximately every 40,000 operating hours
Ignition System		
Spark plugs	Replace	Approximately every 1,000 operating hours
Ignition coil	Replace	Approximately every 30,000 operating hours
Prechamber valve	Clean/adjust/lubricate/calibrate	Approximately every 15,000 operating hours
Prechamber tips	Replace	Approximately every 15,000 operating hours
Prechamber assemblies	Replace	Approximately every 30,000 operating hours
Fuel System		
Gas system leak test	Check	Approximately every 2,000 operating hours
Gas filter cartridges	Replace	Approximately every 10,000 operating hours
Main gas admission valves	Replace	Approximately every 20,000 operating hours
Automation and Engine Controls		
Safety System and Automatic stop device	Check	Approximately every 10,000 operating hours

6.2 SCR and Oxidation System Preventative Maintenance Schedule

Table 5 - SCR and Oxidation System Preventative Maintenance Schedule

Equipment	Job	Frequency
Pump unit	Inspect reducing agent pump	Monthly
NOx sensors and process control analyzers	Calibrate measurement cell of NOxBOx analyzer	Monthly
NOx sensors and process control analyzers	Maintain NOxBOx analyzer	Every three months
Reactor	Inspect differential pressure transmitter	Every six months
NOx sensors and process control analyzers	If necessary, replace the NOx sensors	Annually or every 4,000 hours
Reactor	Clean and inspect the catalyst	Annually
Pump unit	Maintain reducing agent filter	Approximately every 6,000 hours
Dosing unit	Maintain compressed air filter	Approximately every 6,000 hours
Pump unit	Change the reducing agent pump gear box oil	Approximately every 16,000 hours
Pump unit	Overhaul the reducing agent pump stator	Approximately every 16,000 hours
Reducing agent injection	Maintain the atomizing lance	Approximately every 16,000 hours
Pump unit	Overhaul the reducing agent pump	Approximately every 32,000 hours

6.3 Caterpillar G3512 EPA Emergency Standby Generator Preventative Maintenance Schedule

Table 6 - Caterpillar G3512 EPA Emergency Standby Generator Preventative Maintenance Schedule

Equipment	Job	Frequency
Electrical connection	Check	Monthly
Engine air cleaner service indicator	Inspect	Monthly
Oil filter differential pressure	Check	Monthly
Fuel filter differential pressure	Check	Monthly
Generator set	Set	Monthly
Coolant sample	Obtain	Approximately every 250 hours or annually
Engine oil sample	Obtain	Approximately every 250 hours or annually
Fumes disposal filter	Drain	Approximately every 250 hours or annually

Fan drive bearings	Lubricate	Approximately every 500 hours or annually
Gas filter condensation	Drain	Approximately every 6 months
Gas pressure regulator condensation	Drain	Approximately every 6 months
Inlet air system	Check	Approximately every 1000 hours
Engine oil and filter	Change or obtain sample	Annually
Cooling System Supplemental Coolant Additive	Test/Add	Annually
Engine Air Cleaner Element (Single Element)	Inspect/Replace	Annually
Fumes Disposal Filter Differential Pressure	Check	Annually
Generator Bearing	Inspect	Annually
Radiator	Clean	Annually
Spark Plugs	Inspect/Adjust/Replace	Annually
Coolant Sample (Level 2)	Obtain	Approximately every 3000 hours
Exhaust Bypass	Inspect	Approximately every 4500 hours
Nitrogen Oxide Sensor	Calibrate/Replace	Approximately every 8000 hours
Coolant	Change	Every 3 years
Coolant Temperature Regulator	Replace	Every 6 years
Generator Bearing	Replace	Every 10 Years
Ignition Transformer Extender	Replace	Every 10 Years
Turbocharger	Inspect	Every 10 Years

7.0 CORRECTIVE ACTIONS

In the event of a malfunction, as per defined by the Michigan Department of Environmental Quality [Rule R336.1113 (a)], or an operational variable that is out of range, responsible personnel or designee(s) will take actions to evaluate and if necessary, initiate action(s) to correct the situation as soon as practicable, in accordance with safe operating practices. If necessary, this includes evaluating if emissions have the potential to or are exceeding permitted limits.

Notice will occur to the Department if a malfunction that results in emission of a hazardous or toxic air pollutant which continues for more than one hour in excess of any applicable standard or limitation. Notice and a written report will be provided if an emissions of any air contaminant continuing for more than two hours in excess of an applicable standard or limitation, as required in Rule 912 [Rule R336.1912].

8.0 MAJOR PARTS REPLACEMENTS LIST

Items noted will be maintained in inventory for replacement during repairs and maintenance on the SCR system, including the Oxidation Catalyst system.

Table 7 – Major Parts Replacement List

Filter housing cartridges 100MY 10”	Filter (pack of 25)
Filter housing gaskets	Air filter
Filter housing top nut gasket	Probe sinter
Fuses	Glass tube fuse 4 Amperes 217 Series, 5 × 20 mm, Fast-acting
Injector gaskets	Glass tube fuse 2 Amperes 217 Series, 5 × 20 mm, Fast-acting
Side service hatch glass fiber ribbon sealing material (50m roll)	Electrochemical cells, Nitric oxide (NO)
Grease ceramic sealing paste (injector inst.)	Peristaltic pumps
NOx Sensors	3-way valves
Filter cartridges	Sample pump LMG4 24V AC
Peristaltic pump replacement tube	Spark plug

9.0 RESPONSIBLE PERSONNEL

The individuals responsible for implementing this plan is the UMERC Asset Manager and Supervisor. These individuals are responsible for developing procedures that will be utilized to inspect and perform routine maintenance on the equipment included in this plan. These individuals may designate other personnel who will be tasked with implementing the requirements of this plan, including inspections, maintenance, and repair of emission control devices, along with overall management of the emission sources.

10.0 RETENTION OF RECORDS

Appropriate records, as specified in the Air Permit and according to appropriate EGLE regulations, will be kept on file and retained accordingly.

11.0 UPDATES TO PREVENTATIVE MAINTENANCE / MALFUNCTION ABATEMENT PLAN

Updates to the Preventative Maintenance / Malfunction Abatement Plan will be submitted to the Air Quality Division District Supervisor for written approval.