From:	Houser, Coryn
To:	EGLE-ROP
Cc:	DeLand, Doug
Subject:	N6996 - ROP Renewal Application
Date:	Wednesday, April 12, 2023 10:19:20 AM
Attachments:	2023 Caro PTEs Title V.pdf AI-001 Renewal Form.docx CAM 2018 final.doc CAR-MAP Revision September 2020.docx N6996 DRAFT 3-16-2023.docx Signed ROP Renewal Application Form.pdf PTI 39-19 Final.pdf

Hello,

Attached are the electronic copies as requested for Caro's ROP Renewal. A hard copy of each document will be sent in the mail today.

If you have any questions, please let me know!

Coryn Houser
EH&S Specialist

1551 Empire Drive, Caro, MI 48723
+1 (989) 286-3847
Coryn.Houser@POET.COM
poet.com

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)
N6996	2869	325193	MI-ROP-N6996-2018	

Source Name
Poet Biorefining – Caro, LLC

Street Address
1551 Empire Drive

City	State	ZIP Code	County
Caro	MI	48723	Tuscola

Section/Town/Range (if address not available)

Source Description
Poet Caro is an Ethanol production facility with a capacity of 95,000,000 gallons per year.

☒ 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)
Doug DeLand	

Mailing address (☒ check if same as source address)

City	State	ZIP Code	County	Country

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

SRN: N6996	Section Number (if applicable):

PART A: GENERAL INFORMATION (continued)

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

CONTACT INFORMATION

Contact 1 Name			Title	
Doug Deland			General Manager	
Company Name & Mailing address (☒ check if same as source address)				
City	State	ZIP Code	County	Country
Phone number		E-mail address		
989-286-3903		Doug.DeLand@poet.com		

Contact 2 Name (optional)			Title	
Coryn Houser			EHS	
Company Name & Mailing address (☒ check if same as source address)				
City	State	ZIP Code	County	Country
Phone number		E-mail address		
989-553-6385		Coryn.houser@poet.com		

RESPONSIBLE OFFICIAL INFORMATION

Responsible Official 1 Name			Title	
Doug DeLand			General Manager	
Company Name & Mailing address (☒ check if same as source address)				
City	State	ZIP Code	County	Country
Phone number		E-mail address		
989-286-3903		Doug.DeLand@poet.com		

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

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

SRN: N6996	Section Number (if applicable):

PART B: APPLICATION SUBMITTAL and CERTIFICATION by Responsible Official

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

Listing of ROP Application Contents. Check the box for the items included with your application.

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

Doug DeLand

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.

Doug DeLand

Signature of Responsible Official

04-12-2023

Date

SRN: N6996	Section Number (if applicable):

PART C: SOURCE REQUIREMENT INFORMATION

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

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

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

SRN: N6996	Section Number (if applicable):

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

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

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

If No, go to Part E.

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

Emission Unit ID	**Emission Unit Description**	**Rule 212(4) Citation** [e.g. Rule 212(4)(c)]	**Rule 201 Exemption Rule Citation** [e.g. Rule 282(2)(b)(i)]
EUSPACEHEATER	Diesel Space Heaters	212(4)(c)	282(2)(b)(ii)
EUOILSTORAGE	Lubricating and Hydraulic Oil Storage	212(4)(d)	284(c)
EUGASTANK	Gasoline Tank	212(4)(d)	284(g)
EUTORCHCUTTING	Torch Cutting Equipment	212(4)(e)	285(2)(j)

Comments:

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

SRN: N6996	Section Number (if applicable):

PART E: EXISTING ROP INFORMATION

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

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

Comments:

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

SRN: N6996	Section Number (if applicable):

PART F: PERMIT TO INSTALL (PTI) INFORMATION

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

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

Permit to Install Number	Emission Units/Flexible Group ID(s)	Description (*Include Process Equipment, Control Devices and Monitoring Devices*)	Date Emission Unit was Installed/ Modified/ Reconstructed
39-19	FERM&DIST, DDGSDRYERS,ETH LOAD, NSPSVVA	See attached.	May 20, 2019

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

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

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

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

Comments:

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

SRN: N6996	Section Number (if applicable):

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

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

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

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

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

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

Comments:

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

SRN: N6996	Section Number (if applicable):

PART H: REQUIREMENTS FOR ADDITION OR CHANGE

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

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

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

SRN: N6996	Section Number (if applicable):

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

H8. Does the source propose to add, change and/or delete **emission limit** requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below.	☐ Yes ☒ No
H9. Does the source propose to add, change and/or delete **material limit** requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below.	☐ Yes ☒ No
H10. Does the source propose to add, change and/or delete **process/operational restriction** requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below.	☐ Yes ☒ No
H11. Does the source propose to add, change and/or delete **design/equipment parameter** requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below.	☐ Yes ☒ No
H12. Does the source propose to add, change and/or delete **testing/sampling** requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below.	☐ Yes ☒ No
H13. Does the source propose to add, change and/or delete **monitoring/recordkeeping** requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below. Cyclone is inherent process equipment and not a control device.	☒ Yes ☐ No
H14. Does the source propose to add, change and/or delete **reporting** requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below.	☐ Yes ☒ No

SRN: N6996	Section Number (if applicable):

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

H15. Does the source propose to add, change and/or delete **stack/vent restrictions**? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below.	☐ Yes ☒ No
H16. Does the source propose to add, change and/or delete any **other** requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below.	☐ Yes ☒ No
H17. Does the source propose to add terms and conditions for an alternative operating scenario or intra-facility trading of emissions? If Yes, identify the proposed conditions in a mark-up of the corresponding section of the ROP and provide a justification below.	☐ Yes ☒ No
☒ Check here if an AI-001 Form is attached to provide more information for Part H. Enter AI-001 Form ID: **AI-**Attachments	

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: N6996	Section Number (if applicable):

1. Additional Information ID
AI-Attachments

Additional Information

2. Is This Information Confidential? ☐ Yes ☒ No

Updated CAM Plan
Marked up ROP
Potential to emit calculations
Updated MAP Plan
PTI 39-19

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

EFFECTIVE DATE: October 30, 2018
REVISION DATE: {DATE}

ISSUED TO

Poet Biorefining – Caro, LLC

State Registration Number (SRN): N6996

LOCATED AT

1551 Empire Drive, Caro, Michigan 48723

RENEWABLE OPERATING PERMIT

Permit Number: MI-ROP-N6996-2018a

Expiration Date: October 30, 2023

Administratively Complete ROP Renewal Application Due Between
April 30, 2022 and April 30, 2023

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

SOURCE-WIDE PERMIT TO INSTALL

Permit Number: MI-PTI-N6996-2018a

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

Michigan Department of Environment, Great Lakes, and Energy

_____
Chris Hare, Saginaw Bay District Supervisor

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AUTHORITY AND ENFORCEABILITY

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

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

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

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

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

A. GENERAL CONDITIONS

Permit Enforceability

- All conditions in this permit are both federally enforceable and state enforceable unless otherwise noted. **(R 336.1213(5))**

- Those conditions that are hereby incorporated in a state-only enforceable Source-Wide PTI pursuant to Rule 201(2)(d) are designated by footnote one. **(R 336.1213(5)(a), R 336.1214a(5))**

- Those conditions that are hereby incorporated in a federally enforceable Source-Wide PTI pursuant to Rule 201(2)(c) are designated by footnote two. **(R 336.1213(5)(b), R 336.1214a(3))**

General Provisions

1. The permittee shall comply with all conditions of this ROP. Any ROP noncompliance constitutes a violation of Act 451, and is grounds for enforcement action, for ROP revocation or revision, or for denial of the renewal of the ROP. All terms and conditions of this ROP that are designated as federally enforceable are enforceable by the Administrator of the United States Environmental Protection Agency (USEPA) and by citizens under the provisions of the federal Clean Air Act (CAA). Any terms and conditions based on applicable requirements which are designated as "state-only" are not enforceable by the USEPA or citizens pursuant to the CAA. **(R 336.1213(1)(a))**

2. It shall not be a defense for the permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this ROP. **(R 336.1213(1)(b))**

3. This ROP may be modified, revised, or revoked for cause. The filing of a request by the permittee for a permit modification, revision, or termination, or a notification of planned changes or anticipated noncompliance does not stay any ROP term or condition. This does not supersede or affect the ability of the permittee to make changes, at the permittee's own risk, pursuant to Rule 215 and Rule 216. **(R 336.1213(1)(c))**

4. The permittee shall allow the department, or an authorized representative of the department, upon presentation of credentials and other documents as may be required by law and upon stating the authority for and purpose of the investigation, to perform any of the following activities: **(R 336.1213(1)(d))**
   a. Enter, at reasonable times, a stationary source or other premises where emissions-related activity is conducted or where records must be kept under the conditions of the ROP.
   b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of the ROP.
   c. Inspect, at reasonable times, any of the following:
      i. Any stationary source.
      ii. Any emission unit.
      iii. Any equipment, including monitoring and air pollution control equipment.
      iv. Any work practices or operations regulated or required under the ROP.
   d. As authorized by Section 5526 of Act 451, sample or monitor at reasonable times substances or parameters for the purpose of assuring compliance with the ROP or applicable requirements.

5. The permittee shall furnish to the department, within a reasonable time, any information the department may request, in writing, to determine whether cause exists for modifying, revising, or revoking the ROP or to determine compliance with this ROP. Upon request, the permittee shall also furnish to the department copies of any records that are required to be kept as a term or condition of this ROP. For information which is claimed by the permittee to be confidential, consistent with the requirements of the 1976 PA 442, MCL §15.231 et seq., and known as the Freedom of Information Act, the person may also be required to furnish the records directly to the USEPA together with a claim of confidentiality. **(R 336.1213(1)(e))**

6. A challenge by any person, the Administrator of the USEPA, or the department to a particular condition or a part of this ROP shall not set aside, delay, stay, or in any way affect the applicability or enforceability of any other condition or part of this ROP. **(R 336.1213(1)(f))**

7. The permittee shall pay fees consistent with the fee schedule and requirements pursuant to Section 5522 of Act 451. **(R 336.1213(1)(g))**

8. This ROP does not convey any property rights or any exclusive privilege. **(R 336.1213(1)(h))**

Equipment & Design

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

10. Any air cleaning device shall be installed, maintained, and operated in a satisfactory manner and in accordance with the Michigan Air Pollution Control rules and existing law. **(R 336.1910)**

Emission Limits

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

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

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

Testing/Sampling

13. The department may require the owner or operator of any source of an air contaminant to conduct acceptable performance tests, at the owner's or operator's expense, in accordance with Rule 1001 and Rule 1003, under any of the conditions listed in Rule 1001(1).[2] **(R 336.2001)**

14. Any required performance testing shall be conducted in accordance with Rule 1001(2), Rule 1001(3) and Rule 1003. **(R 336.2001(2), R 336.2001(3), R 336.2003(1))**

15. Any required test results shall be submitted to the Air Quality Division (AQD) in the format prescribed by the applicable reference test method within 60 days following the last date of the test. **(R 336.2001(5))**

Monitoring/Recordkeeping

16. Records of any periodic emission or parametric monitoring required in this ROP shall include the following information specified in Rule 213(3)(b)(i), where appropriate. **(R 336.1213(3)(b))**
    a. The date, location, time, and method of sampling or measurements.
    b. The dates the analyses of the samples were performed.
    c. The company or entity that performed the analyses of the samples.
    d. The analytical techniques or methods used.
    e. The results of the analyses.
    f. The related process operating conditions or parameters that existed at the time of sampling or measurement.

17. All required monitoring data, support information and all reports, including reports of all instances of deviation from permit requirements, shall be kept and furnished to the department upon request for a period of not less than 5 years from the date of the monitoring sample, measurement, report or application. Support information includes all calibration and maintenance records and all original strip-chart recordings, or other original data records, for continuous monitoring instrumentation and copies of all reports required by the ROP. **(R 336.1213(1)(e), R 336.1213(3)(b)(ii))**

Certification & Reporting

18. Except for the alternate certification schedule provided in Rule 213(3)(c)(iii)(B), any document required to be submitted to the department as a term or condition of this ROP shall contain an original certification by a Responsible Official which states that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete. **(R 336.1213(3)(c))**

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

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

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

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

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

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

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

Permit Shield

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

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

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

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

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

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

Revisions

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

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

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

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

Reopenings

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

Renewals

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

Stratospheric Ozone Protection

36. If the permittee is subject to Title 40 of the Code of Federal Regulations (CFR), Part 82 and services, maintains, or repairs appliances except for motor vehicle air conditioners (MVAC), or disposes of appliances containing refrigerant, including MVAC and small appliances, or if the permittee is a refrigerant reclaimer, appliance owner or a manufacturer of appliances or recycling and recovery equipment, the permittee shall comply with all applicable standards for recycling and emissions reduction pursuant to 40 CFR Part 82, Subpart F.

37. If the permittee is subject to 40 CFR Part 82, and performs a service on motor (fleet) vehicles when this service involves refrigerant in the MVAC, the permittee is subject to all the applicable requirements as specified in 40 CFR Part 82, Subpart B, Servicing of Motor Vehicle Air Conditioners. The term "motor vehicle" as used in Subpart B does not include a vehicle in which final assembly of the vehicle has not been completed by the original equipment manufacturer. The term MVAC as used in Subpart B does not include the air-tight sealed refrigeration system used for refrigerated cargo or an air conditioning system on passenger buses using Hydrochlorofluorocarbon-22 refrigerant.

Risk Management Plan

38. If subject to Section 112(r) of the CAA and 40 CFR Part 68, the permittee shall register and submit to the USEPA the required data related to the risk management plan for reducing the probability of accidental releases of any regulated substances listed pursuant to Section 112(r)(3) of the CAA as amended in 40 CFR 68.130. The list of substances, threshold quantities, and accident prevention regulations promulgated under 40 CFR Part 68, do not limit in any way the general duty provisions under Section 112(r)(1).

39. If subject to Section 112(r) of the CAA and 40 CFR Part 68, the permittee shall comply with the requirements of 40 CFR Part 68, no later than the latest of the following dates as provided in 40 CFR 68.10(a):
    a. June 21, 1999,
    b. Three years after the date on which a regulated substance is first listed under 40 CFR 68.130, or
    c. The date on which a regulated substance is first present above a threshold quantity in a process.

40. If subject to Section 112(r) of the CAA and 40 CFR Part 68, the permittee shall submit any additional relevant information requested by any regulatory agency necessary to ensure compliance with the requirements of 40 CFR Part 68.

41. If subject to Section 112(r) of the CAA and 40 CFR Part 68, the permittee shall annually certify compliance with all applicable requirements of Section 112(r) as detailed in Rule 213(4)(c)). **(40 CFR Part 68)**

Emission Trading

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

Permit to Install (PTI)

43. The process or process equipment included in this permit shall not be reconstructed, relocated, or modified unless a PTI authorizing such action is issued by the department, except to the extent such action is exempt from the PTI requirements by any applicable rule.[2] **(R 336.1201(1))**

44. The department may, after notice and opportunity for a hearing, revoke PTI terms or conditions if evidence indicates the process or process equipment is not performing in accordance with the terms and conditions of the PTI or is violating the department's rules or the CAA.[2] **(R 336.1201(8), Section 5510 of Act 451)**

45. The terms and conditions of a PTI shall apply to any person or legal entity that now or hereafter owns or operates the process or process equipment at the location authorized by the PTI. If a new owner or operator submits a written request to the department pursuant to Rule 219 and the department approves the request, this PTI will be amended to reflect the change of ownership or operational control. The request must include all of the information required by Subrules (1)(a), (b) and (c) of Rule 219. The written request shall be sent to the appropriate AQD District Supervisor, MDEQ.[2] **(R 336.1219)**

46. If the installation, reconstruction, relocation, or modification of the equipment for which PTI terms and conditions have been approved has not commenced within 18 months of the original PTI issuance date, or has been interrupted for 18 months, the applicable terms and conditions from that PTI, as incorporated into the ROP, shall become void unless otherwise authorized by the department. Furthermore, the person to whom that PTI was issued, or the designated authorized agent, shall notify the department via the Supervisor, Permit Section, MDEQ, AQD, P. O. Box 30260, Lansing, Michigan 48909, if it is decided not to pursue the installation, reconstruction, relocation, or modification of the equipment allowed by the terms and conditions from that PTI.[2] **(R 336.1201(4))**

Footnotes:
[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).

B. SOURCE-WIDE CONDITIONS

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

The permittee shall comply with all specific details in the special conditions and the underlying applicable requirements cited. If a specific condition type does not apply to this source, NA (not applicable) has been used in the table.

SOURCE-WIDE CONDITIONS

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMITS

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. Individual HAP	Less than 10 TPY[2]	12-month rolling time period as determined at the end of each calendar month	All emission units located at the facility	SC VI.2	**R 336.1205(2)**
2. Total HAPs	Less than 25 TPY[2]	12-month rolling time period as determined at the end of each calendar month	All emission units located at the facility	SC VI.2	**R 336.1205(2)**

II. MATERIAL LIMIT(S)

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

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall comply with all provisions of the federal NSPS as specified in Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry for Which Construction, Reconstruction, or Modification Commenced After November 7, 2006, of 40 CFR Part 60, Subparts A and VVa.[2] **(40 CFR Part 60, Subparts A and VVa)**

2. The permittee shall not operate any equipment unless the malfunction abatement plan (MAP), revised as necessary according to the procedures of Rule 911, is implemented and maintained. The MAP shall include procedures for maintaining and operating equipment in a satisfactory manner, including during malfunction events, and a program for corrective action for such events. If the MAP 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 MAP within 45 days after such an event occurs.[2] **(R 336.1225, R 336.1331, R 336.1702(a), R 336.1910, R 336.1911, 40 CFR 52.21(c) and (d))**

3. The permittee shall not operate any equipment unless an emergency response plan (aka emergency action plan), to be followed in the event of an emergency, has been submitted to the local fire department or county emergency response agency and is implemented and maintained. By October 1 each year, the permittee shall review this plan with the local fire department or emergency response agency and make any necessary updates.[1] **(R 336.1901)**

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

V. TESTING/SAMPLING

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

NA

VI. MONITORING/RECORDKEEPING

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

1. The permittee shall monitor emissions and operating information in accordance with the federal NSPS as specified in Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry for Which Construction, Reconstruction, or Modification Commenced After November 7, 2006, of 40 CFR Part 60, Subparts A and VVa.[2] **(R 336.1225, R 336.1702(b), 40 CFR Part 60, Subparts A and VVa)**

2. The permittee shall keep, in a satisfactory manner, records of monthly and 12-month rolling time period individual HAP and total HAP emission rate calculations, as required by SC I.I and SC I.2. All records shall be kept on file for a period of at least five years and made available to the Department upon request.[2] **(R 336.1205(2))**

VII. REPORTING

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

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

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

4. The permittee shall keep records of emissions and operating information to comply with the federal NSPS as specified in 40 CFR Part 60, Subparts A and VVa. Information required to be submitted to the Administrator shall be submitted to the AQD District Supervisor in an acceptable format within 30 days following the end of the semiannual period in which the data were collected. The permittee shall keep all required records on file for a period of at least five years and make them available to the Department upon request.[2] **(R 336.1225, R 336.1702(b), 40 CFR 60.486a, 40 CFR 60.487a)**

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

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

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

IX. OTHER REQUIREMENT(S)

NA

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

C. EMISSION UNIT CONDITIONS

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

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

EMISSION UNIT SUMMARY TABLE

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

Emission Unit ID	Emission Unit Description (Including Process Equipment & Control Device(s))	Installation Date/ Modification Date	Flexible Group ID
EUCORNPIT	Corn dump pit and auger	11/4/2002	FGCORN-DDGS
EUCORNELEV1	Corn elevator from corn dump pit	11/4/2002	FGCORN-DDGS
EUCORNBIN1	Corn bin 1	11/4/2002	FGCORN-DDGS
EUCORNBIN2	Corn bin 2	11/4/2002	FGCORN-DDGS
EUCORNBIN3	Corn bin 3	11/4/2002	FGCORN-DDGS
EUCORNBIN4	Corn bin 4	11/4/2002	FGCORN-DDGS
EUCORNBIN5	Corn bin 5	10/15/2007	FGCORN-DDGS
EUCORNBIN6	Corn bin 6	10/15/2007	FGCORN-DDGS
EUCORNBIN7	Corn bin 7	10/15/2007	FGCORN-DDGS
EUDDGSPIT	DDGS[1] dump pit and auger	11/4/2002	FGCORN-DDGS
EUDDGSELEV	DDGS elevator	11/4/2002	FGCORN-DDGS
EUDDGCONV	DDG fill conveyor	11/4/2002	FGCORN-DDGS
EURAILLOAD1	Rail load spout #1 (for DDGS)	11/4/2002	FGCORN-DDGS
EUTRUCKLOAD1	Truck load spout #1 (for DDGS)	11/4/2002	FGCORN-DDGS
EUCORNELEV2	Corn elevator from corn bins	11/4/2002	FGSCALP
EUSCALPER	Scalper	11/4/2002	FGSCALP
EUHAMMERMILL1	Hammermill #1	10/20/2005	FGFLOUR
EUHAMMERMILL2	Hammermill #2	10/20/2005	FGFLOUR
EUHAMMERMILL3	Hammermill #3	10/20/2005	FGFLOUR
EUHAMMERMILL4	Hammermill #4	10/20/2005	FGFLOUR
EUHAMMERMILL5	Hammermill #5	4/1/2016	FGFLOUR
EUFLOURELEV	Flour elevator	11/4/2002	FGFLOUR
EUFLOURCONV	Flour conveyor	11/4/2002	FGFLOUR
EUFERMENTER1	Fermenter #1	11/4/2002	FGFERM&DIST FGNSPSVVa
EUFERMENTER2	Fermenter #2	11/4/2002	FGFERM&DIST FGNSPSVVa
EUFERMENTER3	Fermenter #3	11/4/2002	FGFERM&DIST FGNSPSVVa
EUFERMENTER4	Fermenter #4	11/4/2002	FGFERM&DIST FGNSPSVVa
EUFERMENTER5	Fermenter #5	10/20/2005	FGFERM&DIST FGNSPSVVa
EUFERMENTER6	Fermenter #6	10/20/2005	FGFERM&DIST FGNSPSVVa
EUFERMENTER7	Fermenter #7	4/1/2016	FGFERM&DIST FGNSPSVVa

Emission Unit ID	Emission Unit Description (Including Process Equipment & Control Device(s))	Installation Date/ Modification Date	Flexible Group ID
EUBEERWELL	Beer well	11/4/2002	FGFERM&DIST FGNSPSVVa
EUBEERSTRIP	Beer stripper	11/4/2002	FGFERM&DIST FGNSPSVVa
EUBEERSTRIP2	Beer stripper #2	TBD	FGFERM&DIST FGNSPSVVa
EURECTIFIER	Rectifier	11/4/2002	FGFERM&DIST FGNSPSVVa
EUSIDESTRIP	Side stripper	11/4/2002	FGFERM&DIST FGNSPSVVa
EUSIEVE	Molecular sieve	11/4/2002	FGFERM&DIST FGNSPSVVa
EUSIEVE2	Molecular sieve #2	4/1/16	FGFERM&DIST FGNSPSVVa
EUYEAST	Yeast tank	11/4/2002	FGFERM&DIST
EUEVAPORATOR	Evaporator	11/4/2002	FGFERM&DIST
EURTO	Regenerative Thermal Oxidizer	10/20/2005	FGDDGSDRYERS
EUTO&HRB	Thermal oxidizer and heat recovery boiler	10/20/2005	FGDDGSDRYERS
EUDDGSDRYER1	DDGS dryer	11/4/2002	FGDDGSDRYERS
EUDDGSDRYER2	DDGS dryer	11/4/2002	FGDDGSDRYERS
EUCENTRIFUGE1	Centrifuge #1	11/4/2002	FGDDGSDRYERS
EUCENTRIFUGE2	Centrifuge #2	11/4/2002	FGDDGSDRYERS
EUCENTRIFUGE3	Centrifuge #3	11/4/2002	FGDDGSDRYERS
EUCENTRIFUGE4	Centrifuge #4	11/4/2002	FGDDGSDRYERS
EUCENTRIFUGE5	Centrifuge #5	10/1/2005	FGDDGSDRYERS
EUCENTRIFUGE6	Centrifuge #6	4/1/2016	FGDDGSDRYERS
EUFBCOOLER	Fluidized bed cooler w/fabric filter collector (CE008)	11/4/2002	NA
EUDDGSSILO	DDGS silo w/ Fabric filter collectors (F-849 & F-620))	11/4/2002	NA
EUTRUCKLOAD3	Truck load spout #3 (for ethanol, including E85)	11/4/2002 5/22/2009	FGETHLOAD FGNSPSVVa
EUTRUCKLOAD4	Truck load spout #4 (for ethanol, including E85)	11/4/2002 5/22/2009	FGETHLOAD FGNSPSVVa
EURAILLOAD2	Rail load spout #2 (for ethanol, including E85)	11/4/2002 5/22/2009	FGETHLOAD FGNSPSVVa
EUGENSET	1129 break HP CI, Diesel generator	11/4/2002	NA
EUBOILER	Package Boiler	10/20/2005	NA
EUINHIBITANK	Storage tank for corrosion inhibitor	11/4/2002	NA
EUNATGASTANK1	Storage tank T-802 for denaturant (natural gasoline)	3/12/2008	FGNSPSTANKS FGNSPSVVa
EU200TANK1	Storage tank T-803 for 200 proof ethanol	3/12/2008	FGETHANOLTANKS FGNSPSVVa
EU200TANK2	Storage tank T-804 for 200 proof ethanol	3/12/2008	FGETHANOLTANKS FGNSPSVVa
EU190TANK	Storage tank T-801 for 190 proof ethanol	11/4/2002	FGETHANOLTANKS FGNSPSVVa
EUNATGASTANK2	Storage tank T-805 for denaturant (natural gasoline)	3/12/2008	FGNSPSTANKS FGNSPSVVa
EUFLOURCONV	Drag Flour Conveyor	4/1/2016	FGFLOUR
EUFLOURELEV	Flour Elevator	4/1/2016	FGFLOUR
EUBEERSTRIP2	Beer Stripper #2	4/1/2016	FGFERM&DIST

Emission Unit ID	Emission Unit Description (Including Process Equipment & Control Device(s))	Installation Date/ Modification Date	Flexible Group ID
EUEVAPORATOR	Two-stage evaporator	11/4/2002 4/1/2016	NA
EUSTILLAGETANK	Whole Stillage Tank	4/1/2016	FGDDGSDRYERS ~~FGFERM&DIST~~
EUFBCOOLER	Fluidized Bed Cooler w/fabric filter collector.	11/4/2002 4/1/2016 5/20/2019	NA ~~FGFERM&DIST~~

[1]DDGS refers to Dried Distiller's Grains and Solubles.

EUFBCOOLER
EMISSION UNIT CONDITIONS

DESCRIPTION

Fluidized bed cooler. PTI No. 39-19 ~~175-15B~~.

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT

Fabric filter collector (CE008)

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. PM	0.0060 lbs per 1000 lbs of gas[a,2]	Hourly	EUFBCOOLER	SC V.1, VI.2	**R 336.1331**
2. PM10	0.65 lb/hr[2]	Hourly	EUFBCOOLER	SC V.1, VI.2	**40 CFR 52.21(c) & (d)**
3. PM 2.5	0.65 lb/hr[2]	Hourly	EUFBCOOLER	SC V.1, VI.2	**40 CFR 52.21(c) & (d)**
4. VOC	7.54 ~~6.6~~ lb/hr[2]	Hourly	EUFBCOOLER	SC V.1, VI.1	**R 336.1225, R 336.1702(a)**

[a] Calculated on a dry gas basis

II. MATERIAL LIMIT(S)

NA

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

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall not operate EUFBCOOLER unless the fabric filter collector (CE008) is installed, maintained, and operated in a satisfactory manner.[2] **(R 336.1331, R 336.1910, 40 CFR 52.21(c) & (d))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

V. TESTING/SAMPLING

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

1. Upon request of the AQD District Supervisor, the permittee shall verify PM, PM10, PM2.5, and VOC emission rates from EUFBCOOLER by testing at the owner's expense, in accordance with Department requirements. Testing shall be performed using an approved EPA Method listed in Reference Test Method Table #1. 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.[2] **(R 336.1225, R 336.1331, R 336.1702, R 336.2001, R 336.2003, R 336.2004, 40 CFR 52.21(c) & (d))**

Reference Test Method Table #1

Pollutant	Test Method Reference
PM	40 CFR Part 60, Appendix A; Part 10 of the Michigan Air Pollution Control Rules
PM10/PM2.5	40 CFR Part 51, Appendix M
VOCs	40 CFR Part 60, Appendix A

VI. MONITORING/RECORDKEEPING

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

1. The permittee shall keep production records on a monthly basis and other records necessary to demonstrate compliance with the VOC emission rate limit. The VOC emission rate shall be calculated based upon monthly records prorated to an hourly rate.[2] **(R 336.1225, R 336.1702(a))**

2. The permittee shall monitor and record the pressure drop and/or a visible emission check of the fabric filter collector (CE008) on a daily basis, during days of operation, and will inspect the fabric filter collector (CE008) on an annual basis to confirm satisfactory operation. For the purpose of this condition, a visible emission check does not have to be in accordance with Method 9. If a check reveals any visible emissions from the vent (excluding uncombined water vapor), the permittee shall perform any maintenance required to eliminate visible emissions. The permittee shall keep records of the results of the visible emission check and of any maintenance performed after visible emissions are observed.[2] **(R 336.1331, 40 CFR 52.21(c) & (d)~~R 336.1213(3)(a)(ii)~~)**

VII. REPORTING

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

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

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

4. The permittee shall submit any performance test reports to the AQD Technical Programs Unit and District Office, in a format approved by the AQD. **(R 336.1213(3)(c), R 336.2001(5))**

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

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

Stack & Vent ID	Maximum Exhaust Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SV007	37[2]	35[2]	R 336.1225, 40 CFR 52.21(c) & (d)

IX. OTHER REQUIREMENT(S)

NA

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

EUDDGSSILO
EMISSION UNIT CONDITIONS

DESCRIPTION

Dried distiller's grains and solubles silo. PTI No. 175-15B.

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT

- Fabric filter collector (F-849 – associated with the silo and vent no. SV008). Product is discharged to either the silo or flat storage, but not both.
- Fabric filter collector (F-620 – associated with flat storage and vent no. SV008).

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. PM	0.0080 lbs per 1000 lbs of gas[a2]	Hourly	EUDDGSSILO	SC V.1, VI.1	**R 336.1331**
2. PM10	0.15 lb/hr[2]	Hourly	EUDDGSSILO	SC V.1, VI.1	**40 CFR 52.21(c) & (d)**
3. PM2.5	0.07 lb/hr[2]	Hourly	EUDDGSSILO	SC V.1, VI.1	**40 CFR 52.21(c) & (d)**

[a] Calculated on a dry gas basis

II. MATERIAL LIMIT(S)

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

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall not operate EUDDGSSILO unless the fabric filter collectors (F-849 & F-620) are installed, maintained, and operated in a satisfactory manner.[2] **(R 336.1331, R 336.1910, 40 CFR 52.21(c) & (d))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

V. TESTING/SAMPLING

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

1. Upon request of the AQD District Supervisor, the permittee shall verify PM, PM10, and PM2.5 emission rates from EUDDGSSILO by testing at the owner's expense, in accordance with Department requirements. Testing shall be performed using an approved EPA Method listed in Reference Test Method Table #2. 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 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.[2] **(R 336.1225, R 336.1331, R 336.1702, R 336.2001, R 336.2003, R 336.2004, 40 CFR 52.21(c) & (d))**

Reference Test Method Table #2

Pollutant	Test Method Reference
PM	40 CFR Part 60, Appendix A; Part 10 of the Michigan Air Pollution Control Rules
PM10/PM2.5	40 CFR Part 51, Appendix M

VI. MONITORING/RECORDKEEPING

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

1. The permittee shall monitor and record the pressure drop and/or a visible emissions check of fabric filter collector F-620 or F-849 on a daily basis, during days of operation, and will inspect the fabric filter collectors (F-620 & F-849) on an annual basis to confirm satisfactory operation. For the purpose of this condition, a visible emission check does not have to be in accordance with Method 9. If a check reveals any visible emissions from the vent (excluding uncombined water vapor), the permittee shall perform any maintenance required to eliminate visible emissions. The permittee shall keep records of the results of the visible emission check and of any maintenance performed after visible emissions are observed. **(R 336.1213(3))**

VII. REPORTING

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

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

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

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

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

Stack & Vent ID	Maximum Exhaust Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SV008[a]	16 x 18[2]	112[2]	**40 CFR 52.21(c) & (d)**
[a] Discharges horizontally			

IX. OTHER REQUIREMENT(S)

NA

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

EUINHIBITTANK
EMISSION UNIT CONDITIONS

DESCRIPTION

Storage tank for corrosion inhibitor. PTI No. 210-01.

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

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

II. MATERIAL LIMIT(S)

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

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall not fill EUINHIBTANK unless it is equipped with submerged fill piping. Submerged fill, similar to bottom fill, means that liquid entering the vessel must enter below the liquid level in the vessel.[2] **(R 336.1225, R 336.1702(a), R 336.1910)**

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

V. TESTING/SAMPLING

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

NA

VI. MONITORING/RECORDKEEPING

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

NA

VII. REPORTING

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

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

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

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

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

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

IX. OTHER REQUIREMENT(S)

NA

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

EUGENSET
EMISSION UNIT CONDITIONS

DESCRIPTION

An existing emergency stationary reciprocating internal combustion engine (RICE) located at an Area Source of Hazardous Air Pollutants (HAP) emissions, as identified within Title 40 of the Code of Federal Regulations (CFR), Part 63, National Emission Standard for HAP (NESHAP) for Stationary RICE, Subpart ZZZZ (40 CFR 63.6580-6675). PTI No. 210-01.

Engine ID or Serial Number	Engine Manufacturer	Engine Model	Purchase Date	Engine Build Date	Rated Horsepower	Fuel in Use	CI or SI	Is Engine Certified?** (yes/no)
EUGENSET	-	-	5/17/2002	11/4/2002	1129 break	Diesel	CI	No

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

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

II. MATERIAL LIMIT(S)

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

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall change oil and filter every 500 hours of operation or annually, whichever comes first. **(40 CFR Part 63, Subpart ZZZZ, Table 2d.4)**

2. The permittee shall inspect air cleaner every 1,000 hours of operation or annually, whichever comes first, and replace as necessary. **(40 CFR Part 63, Subpart ZZZZ, Table 2d.4)**

3. The permittee shall inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary. **(40 CFR Part 63, Subpart ZZZZ, Table 2d.4)**

4. The permittee shall operate the minimize the engine's time spent at idle during startup and minimize the engine's startup time to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes, after which time the emissions standards applicable to all times other than startup apply. **(40 CFR 63.6625(h))**

5. There is no time limit on the use of emergency stationary RICE in emergency situations. **(40 CFR 63.6640(f)(1))**

6. The permittee may operate the emergency stationary RICE for 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 for a maximum of 100 hours per calendar year. **(40 CFR 63.6640(f)(2))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall operate and maintain the stationary RICE and after-treatment control device (if any) according to the manufacturer's emission-related written instructions or develop your own maintenance plan which must provide to the extent practicable for the maintenance and operation of the engine in a manner consistent with good air pollution control practice for minimizing emissions. **(40 CFR 63.6625(e))**

2. The permittee shall install a non-resettable hour meter if one is not already installed. **(40 CFR 6625(f))**

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 maintain records of the maintenance conducted on the stationary RICE in order to demonstrate that you operated and maintained the stationary RICE and after-treatment control device (if any) according to your own maintenance plan. **(40 CFR 63.6655(e))**

2. The permittee shall keep records of the hours of operation of the engine that is recorded through the non-resettable hour meter. **(40 CFR 63.6655(f))**

3. The permittee shall document how many hours are spent for emergency operation, including what classified the operation as emergency and how many hours are spent for non-emergency operation. **(40 CFR 63.6655(f))**

VII. REPORTING

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

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

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

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

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

Stack & Vent ID	Maximum Exhaust Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SV017	8^2	12^2	**R 336.1225, 40 CFR 52.21(c) & (d)**

IX. OTHER REQUIREMENT(S)

1. The permittee shall comply with the applicable requirements of 40 CFR Part 63, Subpart ZZZZ (NESHAP for stationary reciprocating internal combustion engines). If applicable, permittee shall also comply with 40 CFR Part 60, Subpart IIII. **(40 CFR Part 63, Subpart ZZZZ, 40 CFR Part 60, Subpart IIII)**

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).

EUBOILER
EMISSION UNIT CONDITIONS

DESCRIPTION

Natural Gas Package Boiler. PTI 210-01B.

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. PM10	7.6 LB/MMft^3 natural gas consumed[2]	Hourly	EUBOILER	SC VI.1	**R 336.1331**

II. MATERIAL LIMIT(S)

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

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall only use sweet natural gas as fuel in EUBOILER.[2] **(40 CFR 52.21(c) and (d))**

2. The permittee shall comply with all provisions of the federal NSPS Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units as specified in 40 CFR Part 60, Subparts A and Dc, as they apply to the equipment in EUBOILER.[2] **(40 CFR Part 60, Subparts A & Dc)**

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

V. TESTING/SAMPLING

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

NA

VI. MONITORING/RECORDKEEPING

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

1. The permittee shall keep records of the natural gas consumed by EUBOILER on a daily basis. The permittee shall keep these records on file for a period of at least five years and make them available to the Department upon request.[2] **(R 336.1331, 40 CFR Part 60, Subparts A & Dc)**

2. The permittee shall maintain copies of utility bills indicating the receipt of natural gas from a supplier of commercial grade natural gas. **(R 336.1213(3)(b)(i))**

VII. REPORTING

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

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

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

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

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

Stack & Vent ID	Maximum Exhaust Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SV023	48[2]	75[2]	**40 CFR 52.21(c) & (d)**

IX. OTHER REQUIREMENT(S)

NA

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

D. FLEXIBLE GROUP CONDITIONS

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

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

FLEXIBLE GROUP SUMMARY TABLE

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

Flexible Group ID	Flexible Group Description	Associated Emission Unit IDs
FGCORN-DDGS	Corn and DDGS handling area w/fabric filter collector (CE001). This flexible group is subject to the requirements of 40 CFR Part 60, Subpart DD.	EUCORNPIT, EUCORNELEV1, EUCORNBIN1, EUCORNBIN2, EUCORNBIN3, EUCORNBIN4, EUCORNBIN5, EUCORNBIN6, EUCORNBIN7, EUDDGSPIT, EUDDGSELEV, EUDDGCONV, EURAILLOAD1, EUTRUCKLOAD1
FGSCALP	Scalper unit w/fabric filter collector (CE002).	EUCORNELEV2, EUSCALPER
FGFLOUR	Milling area w/baghouses. (Hammermill 1-5)	EUFLOURELEV, EUFLOURCONV, EUHAMMERMILL1, EUHAMMERMILL2 EUHAMMERMILL3, EUHAMMERMILL4, EUHAMMERMILL5
FGFERM&DIST	Fermentation and Distillation processes that exhaust to one of two packed-bed wet scrubbers (CE004 or CE014). If the scrubbers are down for maintenance the exhaust can be rerouted to the RTO (CE012). FGFERM&DIST is subject to the requirements of 40 CFR Part 64. The CAM subject pollutant is VOC. This flexible group is also subject to the requirements of 40 CFR Part 60, Subpart VVa.	EUFERMENTER1, EUFERMENTER2, EUFERMENTER3, EUFERMENTER4, EUFERMENTER5, EUFERMENTER6, EUFERMENTER7, EUBEERWELL, EUBEERSTRIP, EUBEERSTRIP2, EURECTIFIER, EUSIDESTRIP, EUSIEVE, EUSIEVE2, EUYEAST, EUEVAPORATOR, ~~EUSTILLAGETANK,~~ EURTO
FGDDGSDRYERS	Dried Distiller's Grains with Solubles (DDGS) Dryers and Centrifugation with the following air pollution control equipment: • Multiclone dust collector (CE006 & CE007) • Thermal Oxidizer & Heat Recovery Boiler (TO&HRB) (CE010) • Regenerative Thermal Oxidizer (RTO) (CE012) FGDDGSDRYERS is subject to the requirements of 40 CFR Part 64. The CAM subject pollutant is VOC.	EUDDGSDRYER1, EUDDGSDRYER2, EUTO&HRB, EURTO, EUCENTRIFUGE1, EUCENTRIFUGE2, EUCENTRIFUGE3, EUCENTRIFUGE4, EUCENTRIFUGE5, EUCENTRIFUGE6 EUSTILLAGETANK
FGETHLOAD	Ethanol truck and rail load out. FGETHLOAD is subject to the requirements of 40 CFR Part 60, Subpart VVa.	EUTRUCKLOAD3, EUTRUCKLOAD4, EURAILLOAD2

Flexible Group ID	Flexible Group Description	Associated Emission Unit IDs
FGNSPSTANKS	Denaturant storage w/ tank nos. T-802 and T-805. FGNSPSTANKS is subject to the requirements of 40 CFR Part 60, Subpart VVa and Kb.	EUNATGASTANK1, EUNATGASTANK2
FGNSPSVVa	All pumps, valves and pressure relief devices in light liquid and heavy liquid service; all valves and pressure relief devices in gas/vapor service; each open-ended valve or line and all associated closed vent systems and control devices. FGNSPSVVa is subject to the requirements of Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry for Which Construction, Reconstruction, or Modification Commenced After November 7, 2006 of 40 CFR Part 60, Subpart VVa.	EUFERMENTER1, EUFERMENTER2, EUFERMENTER3, EUFERMENTER4, EUFERMENTER5, EUFERMENTER6, EUFERMENTER7, EUBEERWELL, EUBEERSTRIP, EUBEERSTRIP2, EURECTIFIER, EUSIDESTRIP, EUSIEVE, EUSIEVE2, EUTRUCKLOAD3, EUTRUCKLOAD4, EURAILLOAD2, EUNATGASTANK1, EUNATGASTANK2, EU190TANK, EU200TANK1, EU200TANK2
FGETHANOLTANKS	Ethanol storage tank nos. T-801, T-803 and T-804. FGETHANOLTANKS is subject to the requirements of 40 CFR Part 60, Subpart VVa and Kb.	EU190TANK, EU200TANK1, EU200TANK2

FGCORN-DDGS
FLEXIBLE GROUP CONDITIONS

DESCRIPTION

Corn and DDGS handling area. PTI No. 175-15B.

Emission Units: EUCORNPIT, EUCORNELEV1, EUCORNBIN1, EUCORNBIN2, EUCORNBIN3, EUCORNBIN4, EUCORNBIN5, EUCORNBIN6, EUCORNBIN7, EUDDGSPIT, EUDDGSELEV, EUDDGCONV, EURAILLOAD1, EUTRUCKLOAD1

POLLUTION CONTROL EQUIPMENT

Fabric filter collector (CE001)

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. PM	0.0050 lbs per 1000 lbs of gas[a2]	Hourly	FGCORN-DDGS	SC V.1, VI.1	**R 336.1331**
2. PM10	0.56 lb/hr[2]	Hourly	FGCORN-DDGS	SC V.1, VI.1	**40 CFR 52.21(c) & (d)**
3. PM2.5	0.36 lb/hr[2]	Hourly	FGCORN-DDGS	SC V.1, VI.1	**40 CFR 52.21(c) & (d)**

[a] Calculated on a dry gas basis.

II. MATERIAL LIMIT(S)

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

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall not exceed a throughput of 9,700 tons of grain per day in EUCORNELEV1.[2] **(R 336.1331, 40 CFR 52.21(c) & (d))**

2. The permittee shall not operate any equipment in FGCORN-DDGS unless the fabric filter collector (CE001) is installed, maintained, and operated in a satisfactory manner.[2] **(R 336.1331, R 336.1910, 40 CFR 52.21(c) & (d))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

V. TESTING/SAMPLING

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

1. Upon request of the AQD District Supervisor, the permittee shall verify PM, PM10, and PM2.5 emission rates from FGCORN-DDGS by testing at the owner's expense, in accordance with Department requirements. Testing shall be performed using an approved EPA Method listed in Reference Test Method Table #3. 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.[2] **(R 336.1225, R 336.1331, R 336.1702, R 336.1702, R 336.2001, R 336.2003, R 336.2004, 40 CFR 52.21(c) & (d))**

Reference Test Method Table #3

Pollutant	Test Method Reference
PM	40 CFR Part 60, Appendix A; Part 10 of the Michigan Air Pollution Control Rules
PM10/PM2.5	40 CFR Part 51, Appendix M

VI. MONITORING/RECORDKEEPING

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

1. The permittee shall keep, in a satisfactory manner, records of the tons of grain processed in EUCORNELEV1 on a daily basis, as required by SC III.1.[2] **(R 336.1331, R 336.1910, 40 CFR 52.21(c) and (d))**

2. The permittee shall monitor and record the pressure drop and/or a visible emissions check of the fabric filter collector (CE001) on a daily basis and will inspect the fabric filter collector (CE001) an annual basis to confirm satisfactory operation. For the purpose of this condition, a visible emission check does not have to be in accordance with Method 9. If a check reveals any visible emissions from the vent (excluding uncombined water vapor), the permittee shall perform any maintenance required to eliminate visible emissions. The permittee shall keep records of the results of the visible emission check and of any maintenance performed after visible emissions are observed. **(R 336.1213(3))**

VII. REPORTING

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

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

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

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

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

Stack & Vent ID	Maximum Exhaust Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SV001	36 [2]	105 [2]	**40 CFR 52.21(c) & (d)**

IX. OTHER REQUIREMENT

1. The permittee shall comply with all provisions of the federal NSPS Standards of Performance for Grain Elevators as specified in 40 CFR Part 60, Subparts A and DD, as they apply to the equipment in FGCORNDDGS.[2] **(40 CFR Part 60, Subparts A & DD)**

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).

FGSCALP
FLEXIBLE GROUP CONDITIONS

DESCRIPTION

Scalper unit. PTI 175-15B.

Emission Units: EUCORNELEV2, EUSCALPER

POLLUTION CONTROL EQUIPMENT

Fabric filter collector (CE002)

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. PM	0.010 lbs per 1000 lbs of gas[a2]	Hourly	FGSCALP	SC V.1	**R 336.1331**
2. PM10	0.09 lb/hr[2]	Hourly	FGSCALP	SC V.1	**40 CFR 52.21(c) & (d)**
3. PM2.5	0.04 lb/hr[2]	Hourly	FGSCALP	SC V.1	**40 CFR 52.21(c) & (d)**

[a] Calculated on a dry gas basis.

II. MATERIAL LIMIT(S)

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

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall not operate any equipment in FGSCALP unless the fabric filter collector (CE002) is installed, maintained, and operated in a satisfactory manner.[2] **(R 336.1331, R 336.1910, 40 CFR 52.21(c) & (d))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

V. TESTING/SAMPLING

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

1. Upon request of the AQD District Supervisor, the permittee shall verify PM, PM10, and PM2.5 emission rates from FGSCALP by testing at the owner's expense, in accordance with Department requirements. Testing shall be performed using an approved EPA Method listed in Reference Test Method Table #4. 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.[2] **(R 336.1225, R336.1331, R336.1702, R 336.2001, R 336.2003, R 336.2004, 40 CFR 52.21(c) & (d))**

Reference Test Method Table #4

Pollutant	Test Method Reference
PM	40 CFR Part 60, Appendix A; Part 10 of the Michigan Air Pollution Control Rules
PM10/PM2.5	40 CFR Part 51, Appendix M

VI. MONITORING/RECORDKEEPING

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

1. The permittee shall monitor and record the pressure drop and/or a visible emissions check of the fabric filter collector (CE002) on a daily basis and will inspect the fabric filter collector (CE002) an annual basis to confirm satisfactory operation. For the purpose of this condition, a visible emission check does not have to be in accordance with Method 9. If a check reveals any visible emissions from the vent (excluding uncombined water vapor), the permittee shall perform any maintenance required to eliminate visible emissions. The permittee shall keep records of the results of the visible emission check and of any maintenance performed after visible emissions are observed. **(R 336.1213(3))**

VII. REPORTING

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

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

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

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

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

Stack & Vent ID	Maximum Exhaust Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SV002[a]	12[2]	68[2]	**40 CFR 52.21(c) & (d)**
[a] This stack discharges horizontally			

IX. OTHER REQUIREMENT(S)

NA

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

FGFLOUR
FLEXIBLE GROUP CONDITIONS

DESCRIPTION

Milling area. PTI No. 175-15B.

Emission Units: EUFLOURELEV, EUFLOURCONV, EUHAMMERMILL1, EUHAMMERMILL2, EUHAMMERMILL3, EUHAMMERMILL4, EUHAMMERMILL5

POLLUTION CONTROL EQUIPMENT

Hammermill-1 baghouse (F-110), Hammermill-2 baghouse (F-111), Hammermill-3 baghouse (F-112), Hammermill-4 baghouse (F-113), Hammermill-5 baghouse (F114)

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. PM	0.0040 lbs per 1000 lbs of gas[a2]	Hourly	FGFLOUR	SC V.1, VI.1	**R 336.1331**
2. PM10	1.10 lb/hr[2]	Hourly	EUHAMMERMILL1-5	SC V.1, VI.1	**40 CFR 52.21(c) & (d)**
3. PM2.5	0.93 lb/hr[2]	Hourly	EUHAMMERMILL1-5	SC V.1, VI.1	**40 CFR 52.21(c) & (d)**

[a] Calculated on a dry gas basis. The emission limit applies to the combined emissions of all emission units in the flexible group.

II. MATERIAL LIMIT(S)

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

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall not operate any equipment in FGFLOUR unless its associated baghouses (Hammermill 1-5) are installed, maintained, and operated in a satisfactory manner.[2] **(R 336.1331, R 336.1910, 40 CFR 52.21(c) & (d))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

V. TESTING/SAMPLING

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

1. Upon request of the AQD District Supervisor, the permittee shall verify PM, PM10, and PM2.5 emission rates from FGFLOUR by testing at the owner's expense, in accordance with Department requirements. Testing shall be performed using an approved EPA Method listed in Reference Test Method Table #5. 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.[2] **(R 336.1225, R336.1331, R336.1702, R 336.2001, R 336.2003, R 336.2004, 40 CFR 52.21(c) & (d))**

Reference Test Method Table #5

Pollutant	Test Method Reference
PM	40 CFR Part 60, Appendix A; Part 10 of the Michigan Air Pollution Control Rules
PM10/PM2.5	40 CFR Part 51, Appendix M

VI. MONITORING/RECORDKEEPING

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

1. The permittee shall monitor and record the pressure drop and/or conduct a visible emissions check of each of the baghouses (Hammermill 1–5) on a daily basis and will inspect the baghouses on an annual basis to confirm satisfactory operation. For the purpose of this condition, a visible emission check does not have to be in accordance with Method 9. If a check reveals any visible emissions from the stack (excluding uncombined water vapor), the permittee shall perform any maintenance required to eliminate visible emissions. The permittee shall keep records of the results of the visible emission check and of any maintenance performed after visible emissions are observed. **(R 336.1213(3))**

VII. REPORTING

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

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

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

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

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

Stack & Vent ID	Maximum Exhaust Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SV035	54[2]	48[2]	**40 CFR 52.21(c) & (d)**

IX. OTHER REQUIREMENT(S)

NA

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

FGFERM&DIST
FLEXIBLE GROUP CONDITIONS

DESCRIPTION

Fermentation and distillation processes. FGFERM&DIST is subject to the requirements of 40 CFR Part 64. The CAM subject pollutant is VOC. This flexible group is also subject to the requirements of the federal NSPS Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry for Which Construction, Reconstruction, or Modification Commenced After November 7, 2006, as specified in 40 CFR Part 60, Subpart VVa. PTI No. 39-19 ~~175-15B~~.

Emission Units: EUFERMENTER1, EUFERMENTER2, EUFERMENTER3, EUFERMENTER4, EUFERMENTER5, EUFERMENTER6, EUFERMENTER7, EUBEERWELL, EUBEERSTRIP, EUBEERSTRIP2, EURECTIFIER, EUSIDESTRIP, EUSIEVE, EUSIEVE2, EUYEAST, EUEVAPORATOR, ~~EUSTILLAGETANK,~~ EURTO

POLLUTION CONTROL EQUIPMENT

Packed-bed wet scrubbers (CE004 or CE014); regenerative thermal oxidizer (RTO) (CE012) for Scrubber Bypass Episode. These are CAM subject control devices.

I. EMISSION LIMIT

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. VOC	19.66 lb/hr**[2]	Hourly	FGFERM&DIST	SC IV.1, 2, V.1, VI.1, 2, 3,.4	**R 336.1225, R 336.1702(a)**
2. VOC	30.74 lb/hr***[2]	Hourly	FGFERM&DIST	SC V.2, VI.5	**R 336.1225, R 336.1702(a)**
3. Acetaldehyde	1.50 lb/hr[1]	Hourly	FGFERM&DIST	SC IV.1, 2, V.1	**R 336.1225**
** Emission limit will apply when venting through the scrubber (CE004 or CE014).					
*** Emission Limit will apply when venting through the RTO(CE012).					

II. MATERIAL LIMIT(S)

NA

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

III. PROCESS/OPERATIONAL RESTRICTION

1. The permittee shall maintain a minimum overall VOC control efficiency of 97.0 percent across the scrubbers (CE004 and CE014).[2] **(R 336.1225, R 336.1702(a))**

2. The permittee shall not operate the scrubber (CE004 or CE014) at a reduced water flow rate unless a revised malfunction abatement plan (MAP) has been developed and implemented for FGFERM&DIST. The revised plan shall be updated as necessary to reflect changes in equipment, to implement corrective actions and to address malfunctions. The MAP shall be made available to the AQD upon request.[2] **(R 336.1910, R 336.1912)**

3. Scrubber Bypass Episode: the permittee may operate equipment in FGFERM&DIST without the associated scrubber and chiller installed, maintained, and operated in a satisfactory manner if, in the event that both associated scrubbers (CE004 and CE014) are unavailable due to maintenance or other operational reason, the equipment in FGFERM&DIST is vented to the RTO (CE012). The RTO must be installed, maintained and operated in a satisfactory manner according to the MAP. The permittee shall not operate FGFERM&DIST while bypassing the scrubbers for more than 100 hours per 12-month rolling time period.[2] **(R 336.1225, R 336.1702(a), R 336.1910)**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall not operate any equipment in FGFERM&DIST unless the chiller associated with the scrubber in operation (CE004 or CE014) is installed, maintained, and operated in a satisfactory manner, except allowed by SC III.3. Satisfactory operation of the chiller includes maintaining the exhaust temperature of the scrubber in the range identified in the MAP as constituting satisfactory operation.[2] **(R 336.1225, R 336.1702(a), R 336.1901, R 336.1910)**

2. The permittee shall not operate any equipment in FGFERM&DIST unless one of the scrubbers (CE004 or CE014) is installed, maintained, and operated in a satisfactory manner, except as allowed by SC III.3. Satisfactory operation of the scrubber includes maintaining the scrubber liquid flow rate and pressure drop in the range identified in the MAP as constituting satisfactory operation. An excursion of the scrubber liquid flow rate and pressure drop limit is the exceedance of the operational parameter limit or acceptable range defined in the MAP. Upon detecting an excursion of the liquid flow rate and pressure drop limit, the permittee shall restore operation of the scrubber to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing emissions.[2] **(R 336.1225, R 336.1702(a), R 336.1901, R 336.1910, 40 CFR 64.6(c) & 64.7(d))**

3. The permittee shall equip and maintain each scrubber (CE004 and CE014) with a liquid flow rate indicator capable of accurately indicating the scrubber liquid flow rate over the entire range of flow rates that constitutes satisfactory operation, as described in the MAP. This includes, but is not limited to, maintaining necessary parts for routine repairs of the monitoring equipment, and maintaining the device according to manufacturer's specifications (e.g., equipment calibration, etc.).[2] **(R 336.1225, R 336.1702(a), R 336.1910, 40 CFR 64.6(c) & 64.7(b))**

4. The permittee shall equip and maintain each scrubber (CE004 and CE014) with a pressure drop measuring device. This includes, but is not limited to, maintaining necessary parts for routine repairs of the monitoring equipment, and maintaining the device according to manufacturer's specifications (e.g., equipment calibration, etc.).[2] **(R 336.1225, R 336.1702(a), R 336.1910, 40 CFR 64.6(c) & 64.7(b))**

5. The permittee shall equip and maintain each scrubber (CE004 and CE014) with a temperature indicator that is capable of accurately indicating the exhaust temperature over the entire range of temperatures that constitutes satisfactory operation as described in the MAP.[2] **(R 336.1225, R 336.1702(a), R 336.1910)**

V. TESTING/SAMPLING

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

1. On or before ~~six months of the ROP expiration date~~, the permittee shall verify VOC and Acetaldehyde emission rates from FGFERM&DIST by testing at the owner's expense, in accordance with Department requirements. Testing shall be performed using an approved EPA Method listed in Reference Test Method Table #6. 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.[2] **(R 336.1225, R 336.1702(a), R 336.1902, R 336.2001, R 336.2003, R 336.2004, 40 CFR 52.21(c) & (d))**

Reference Test Method Table #6

Pollutant	Test Method Reference
VOCs	40 CFR Part 60, Appendix A
Acetaldehyde	40 CFR Part 63, Appendix A

2. Upon request of the AQD District Supervisor, the permittee shall verify VOC emission rates from FGFERM&DIST during the Scrubber Bypass Episode, as described in SC III.3, by testing at the owner's expense in accordance with Department requirements. Testing shall be performed using an approved EPA Method listed in 40 CFR Part 60, Appendix A. An alternate method, or a modification to the approved EPA Method, may be specified in an AQD approved Test Protocol. No less than 30 days prior to testing, the permittee shall submit a complete test plan to the AQD Technical Programs Unit and District Office. The AQD must approve the final plan prior to testing, including any modifications to the method in the test protocol that are proposed after initial submittal. 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.[2] **(R 336.1225, R 336.1702(a), R 336.1902, R 336.2001, R 336.2003, R336.2004, 40 CFR 52.21(c) & (d))**

VI. MONITORING/RECORDKEEPING

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

1. The permittee shall complete all required calculations in a format acceptable to the AQD District Supervisor by the 15th day of the calendar month, for the previous calendar month, unless otherwise specified in any monitoring/recordkeeping special condition.[2] **(R 336.1225, R 336.1702(a))**

2. The permittee shall monitor the scrubber liquid flow rate and exhaust temperature of the operational scrubber (CE004 or CE014) on a continuous basis during operation of FGFERM&DIST.[2] **(R 336.1225, R 336.1702(a), R 336.1901, R 336.1910)**

3. The permittee shall record the scrubber liquid flow rate, exhaust temperature and pressure drop of the operational scrubber (CE004 or CE014) on a daily basis. The data point recorded shall be the average of all data collected during the operating day.[2] **(R 336.1225, R 336.1702(a), R 336.1901, R 336.1910)**

4. The permittee shall keep production records on a monthly basis and other records necessary to demonstrate compliance with the VOC emission rate limit listed in SC I.1. The VOC emission rate shall be calculated based upon monthly records, prorated to an hourly rate. The permittee shall keep these records on file for a period of at least five years and make them available to the Department upon request.[2] **(R 336.1225, R 336.1702(a))**

5. The permittee shall keep, in a satisfactory manner, records of the number of scrubber bypass episodes per calendar month and 12-month rolling time period as determined at the end of each calendar month. The permittee shall also record the duration, in hours, of each scrubber bypass episode and the reason the scrubber bypass episode occurred. The permittee shall keep all records on file at the facility and make them available to the Department upon request.[2] **(R 336.1225, R 336.1702(a))**

VII. REPORTING

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

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

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

4. The permittee shall submit any performance test reports to the AQD Technical Programs Unit and District Office, in a format approved by the AQD. **(R 336.1213(3)(c), R 336.2001(5))**

5. Each semiannual report of deviations shall include summary information on the number, duration and cause of excursions and/or exceedances and the corrective actions taken. **(40 CFR 64.9(a)(2)(i))**

6. Each semiannual report of deviations shall include summary information on the number, duration and cause (including unknown cause, if applicable) for monitor downtime incidents (other than monitor downtime associated with zero and span or other daily calibration checks, if applicable). **(40 CFR 64.9(a)(2)(ii))**

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

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

Stack & Vent ID	Maximum Exhaust Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SV004	24[1]	83[1]	**R 336.1225**
2. SV024*	44[1]	100[1]	**R 336.1225**
3. SV029	24[1]	61[1]	**R 336.1225**
*During a bypass episode only			

IX. OTHER REQUIREMENTS

1. The permittee shall comply with all applicable requirements of Compliance Assurance Monitoring (CAM) as specified in 40 CFR Part 64. **(40 CFR Part 64)**

2. The permittee shall comply with all provisions of the federal NSPS Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry for Which Construction, Reconstruction, or Modification Commenced After November 7, 2006, as specified in 40 CFR Part 60, Subparts A and VVa, as they apply. **(40 CFR Part 60, Subparts A and VVa)**

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).

FGDDGSDRYERS
FLEXIBLE GROUP CONDITIONS

DESCRIPTION

Dried Distiller's Grains with Solubles (DDGS) dryers and centrifugation. FGDDGSDRYERS is subject to the requirements of Compliance Assurance Monitoring (CAM) as specified in 40 CFR Part 64. The CAM subject pollutant is VOC. PTI No. 39-19 ~~175-15B~~.

Emission Units: EUDDGSDRYER1, EUDDGSDRYER2, EUTO&HRB, EURTO, EUCENTRIFUGE1, EUCENTRIFUGE2, EUCENTRIFUGE3, EUCENTRIFUGE4, EUCENTRIFUGE5, EUCENTRIFUGE6, EUSTILLAGETANK

POLLUTION CONTROL EQUIPMENT

- ~~Multiclone dust collector (CE006 & CE007)~~
- Thermal Oxidizer & Heat Recovery Boiler (TO&HRB) (CE010)
- Regenerative Thermal Oxidizer (RTO) (CE012)

The TO&HRB and RTO are CAM subject control devices.

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. PM	4.00 lb/hr[2]	Hourly	EUTO&HRB	SC V.2, VI.4, 5	**R 336.1331**
2. PM10	4.00 lb/hr[2]	Hourly	EUTO&HRB	SC V.1, VI.4, 5	**40 CFR 52.21(c) & (d)**
3. PM 2.5	4.00 lb/hr[2]	Hourly	EUTO&HRB	SC V.1, VI.4, 5	**40 CFR 52.21(c) & (d)**
4. PM	6.00 lb/hr[2]	Hourly	EURTO	SC V.2, VI.4, 5	**R 336.1331**
5. PM10	6.00 lb/hr[2]	Hourly	EURTO	SC V.1, VI.4, 5	**40 CFR 52.21(c) & (d)**
6. PM2.5	6.00 lb/hr[2]	Hourly	EURTO	SC V.1, VI.4, 5	**40 CFR 52.21(c) & (d)**
7. VOC	9.00 lb/hr combined**[2]	Hourly	FGDDGSDRYERS	SC V.1, VI.1, 2, 3, 6	**R 336.1225, R 336.1702(a), R 336.1901**
8. VOC	6.13 lb/hr combined***[2]	Hourly	EUCENTRIFUGE1 to 6 and EUSTILLAGETANK	SC V.3, VI.1, 2, 3, 7	**R 336.1225, R 336.1702(a), R 336.1901**
9. NO_X	0.10 lb/MMBtu[2]	Hourly	FGDDGSDRYERS	SC V.1	**40 CFR 52.21(c) & (d)**

**Combined refers to TO&HRB stack and RTO stack.
***Combined refers to stack 025 when producing wet cake and TO&HRB and RTO are not operating.

II. MATERIAL LIMIT(S)

NA

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

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall only use sweet natural gas as fuel in EUDDGSDRYER1 and EUDDGSDRYER2.[2] **(40 CFR 52.21(c) & (d))**

2. The permittee shall only use sweet natural gas as supplemental fuel in the thermal oxidizer EUTO&HRB (CE010) and in the regenerative thermal oxidizer EURTO (CE012).[2] **(40 CFR 52.21(c) & (d))**

3. The permittee shall comply with all provisions of the federal Standards of Performance for New Stationary Sources as specified in 40 CFR Part 60, Subparts A and Dc, as they apply to the equipment in FGDDGSDRYERS.[2] **(40 CFR Part 60, Subparts A & Dc)**

4. The permittee shall only exhaust emissions from EUCENTRIFUGE1 to 6 and EUSTILLAGETANK to stack SV025 when wet cake is produced. Otherwise, the permittee shall not operate EUCENTRIFUGE1 to 6 unless EUTO&HRB (CE010) or EURTO (CE012) are installed, maintained and operated in a satisfactory manner according to the MAP.[2] **(R 336.1225, R 336.1702(a), R 336.1901)**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall not operate either dryer in FGDDGSDRYERS unless the associated multiclone ~~(CE006 or CE007)~~ is installed, maintained, and operated in a satisfactory manner. ~~Satisfactory operation of each multiclone includes maintaining it according to the MAP.[2]~~ **(R 336.1331, R 336.1910, 40 CFR 52.21(c) & (d))**

2. The permittee shall not feed materials to either dryer in FGDDGSDRYERS unless either the thermal oxidizer EUTO&HRB (CE010) or the regenerative thermal oxidizer EURTO (CE012) is installed, maintained, and operated in a satisfactory manner and overall operation complies with a scenario in SC IV.2(c). Satisfactory operation includes taking the actions listed below:[2] **(R 336.1225, R 336.1331, R 336.1702(a), R 336.1901, R 336.1910, 40 CFR 52.21(c) & (d))**
   a. Satisfactory operation of the thermal oxidizer (CE010) includes maintaining it according to the MAP, attaining a minimum VOC destruction efficiency of 95.0 percent by weight, and maintaining a minimum temperature consistent with satisfactory operation, as described in the MAP; **~~(R 336.1225, R 336.1331, R 336.1702(a), R 336.1901, R 336.1910, 40 CFR 52.21(c) & (d))~~**
   b. Satisfactory operation of the regenerative thermal oxidizer (CE012) includes maintaining it according to the MAP, attaining a minimum VOC destruction efficiency of 95.0 percent by weight, and maintaining a minimum temperature consistent with satisfactory operation, as described in the MAP;~~[2]~~ **~~(R 336.1225, R 336.1331, R 336.1702(a), R 336.1901, R 336.1910, 40 CFR 52.21(c) & (d))~~**
   c. Acceptable operating scenarios for each dryer and oxidizer in FGDDGSDRYERS are the following:
      i. If both oxidizers are operating, the permittee may operate one or both dryers;
      ii. If the thermal oxidizer (CE010) is the only oxidizer operating, the permittee may operate one or both dryers;
      iii. If the regenerative thermal oxidizer (CE012) is the only oxidizer operating, the permittee shall not operate more than one dryer.

V. TESTING/SAMPLING

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

1. On or before ~~six months of the ROP expiration date~~, the permittee shall verify PM, PM10, PM2.5, VOC, and NOx emission rates from EUTO&HRB (CE010) and EURTO (CE012) by testing at the owner's expense, in accordance with Department requirements. Testing shall be performed using an approved EPA Method listed in Reference Test Method Table #7. 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.[2] **(R 336.1331, R 336.1702, R 336.1902, R 336.2001, R 336.2003, R 336.2004, 40 CFR 52.21(c) & (d))**

Reference Test Method Table #7

Pollutant	Test Method Reference
PM	40 CFR Part 60, Appendix A; Part 10 of the Michigan Air Pollution Control Rules
PM10/PM2.5	40 CFR Part 51, Appendix M
NOx	40 CFR Part 60, Appendix A
VOCs	40 CFR Part 60, Appendix A

2. Upon request of the AQD District Supervisor, the permittee shall verify PM emission rates from EUTO&HRB (CE010) and EURTO (CE012) by testing at the owner's expense in accordance with Department requirements. Testing shall be performed using an approved EPA Method listed in 40 CFR Part 60, Appendix A or Part 10 of the Michigan Air Pollution Control Rules. 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.[2] **(R 336.1331, R 336.1902, R 336.2001, R 336.2003, R 336.2004, 40 CFR 52.21(c) & (d))**

3. Upon request of the AQD District Supervisor, the permittee shall verify VOC emission rates from EUCENTRIFUGE1 to 6 and EUSTILLAGETANK by testing at the owner's expense in accordance with Department requirements. Testing shall be performed using an approved EPA Method listed in 40 CFR Part 60, Appendix A. An alternate method, or a modification to the approved EPA Method, may be specified in an AQD approved Test Protocol. No less than 30 days prior to testing, the permittee shall submit a complete test plan to the AQD Technical Programs Unit and District Office. The AQD must approve the final plan prior to testing, including any modifications to the method in the test protocol that are proposed after initial submittal. 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.[2] **(R 336.1225, R 336.1702, R 336.1902, R 336.2001, R 336.2003, R 336.2004)**

VI. MONITORING/RECORDKEEPING

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

1. The permittee shall install, calibrate, maintain, and operate in a satisfactory manner a device to monitor and record on a continuous basis the minimum temperature to which exhaust gases from the dryers are exposed in the thermal oxidizer EUTO&HRB (CE010).[2] **(R 336.1225, R 336.1702(a), R 336.1901, R 336.1910)**

2. The permittee shall install, calibrate, maintain, and operate in a satisfactory manner a device to monitor and record on a continuous basis the minimum temperature to which exhaust gases from the dryers are exposed in the regenerative thermal oxidizer EURTO (CE012).[2] **(R 336.1225, R 336.1702(a), R 336.1901, R 336.1910)**

3. The permittee shall keep, in a satisfactory manner, continuous records of the minimum temperature to which exhaust gases from the dryers are exposed in the thermal oxidizer EUTO&HRB (CE010) and the regenerative thermal oxidizer EURTO (CE012).[2] **(R 336.1225, R 336.1702(a), R 336.1901, R 336.1910)**

~~4. The permittee shall monitor the multiclone dust collector (CE006 & CE007) pressure drop on a continuous basis during operation of FGDDGSDRYERS. **(R 336.1213(3), R 336.1331, 40 CFR 52.21(c) & (d))**~~

~~5. The permittee shall record the multiclone dust collector (CE006 & CE007) pressure drop on a daily basis. The data point recorded shall be the average of all data collected during the operating day. **(R 336.1213(3), 40 CFR 52.21(c) & (d))**~~

6. The permittee shall keep monthly production records, monthly records of the ethanol content of distillation bottoms, and other records necessary to demonstrate compliance with the VOC emission rate limit listed in SC I.7 from FGDDGSDRYERS. The emission rate shall be calculated based upon monthly records, prorated to an hourly rate. The permittee shall keep these records on file for a period of at least five years and make them available to the Department upon request.[2] **(R 336.1225, R 336.1702(a), R 336.1901, R 336.1910)**

7. The permittee shall keep monthly wet cake production records and other records necessary to demonstrate compliance with the VOC emission rate limit listed in SC I.8 when EUCENTRIFUGE1 to 6 and EUSTILLAGETANK are not being vented to EUTO&HRB (CE010) or EURTO (CE012). The emission rate shall be calculated based upon monthly records, prorated to an hourly rate based on actual hours operated manufacturing wet cake when EUCENTRIFUGE1 to 6 and EUSTILLAGETANK are not being vented to EUTOHRB (CE010) or EURTO (CE012). The permittee shall keep these records on file for a period of at least five years and make them available to the Department upon request.[2] **(R 336.1225, R 336.1702(a), R 336.1901, R 336.1910)**

8. The permittee shall keep, in a satisfactory manner, records of the natural gas consumed by EUTO&HRB on a daily basis. The permittee shall keep these records on file for a period of at least five years and make them available to the Department upon request.[2] **(R 336.1331, 40 CFR Part 60, Subparts A and Dc)**

9. The permittee shall continuously monitor the temperature of the thermal oxidizer EUTO&HRB (CE010) and the regenerative thermal oxidizer EURTO (CE012). Continuous shall be defined as sampling at least every 15 minutes. **(40 CFR 64.6 (c)(1))**

10. The permittee shall conduct all required monitoring per the applicable CAM Plan for EUTO&HRB (CE010) and EURTO (CE012) and otherwise satisfy the requirements specified in 40 CFR 64.7 through 40 CFR 64.9. **(40 CFR 64.6(c)(3), 40 CFR 64.7(a))**

11. An excursion is defined by any three-hour block average where the temperature from the thermal oxidizer EUTO&HRB (CE010) or the temperature from the regenerative thermal oxidizer EURTO (CE012) falls below the normal operating values specified in the MAP. Excursions trigger an internal investigation, corrective action(s) and a CAM excursion summary reporting requirement. **(40 CFR 64.6(c)(2))**

12. The permittee shall promptly notify AQD for the need to modify the CAM Plan for EUTO&HRB (CE010) or EURTO (CE012) if it is found to be inadequate and shall submit a proposed modification to the ROP, if necessary. **(40 CFR 64.7(e))**

VII. REPORTING

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

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

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

4. The permittee shall submit any performance test reports to the AQD Technical Programs Unit and District Office, in a format approved by the AQD. **(R 336.1213(3)(c), R 336.2001(5))**

5. Each semiannual report of deviations shall include summary information on the number, duration and cause of excursions and/or exceedances and the corrective actions taken. **(40 CFR 64.9(a)(2)(i))**

6. Each semiannual report of deviations shall include summary information on the number, duration and cause (including unknown cause, if applicable) for monitor downtime incidents (other than monitor downtime associated with zero and span or other daily calibration checks, if applicable). **(40 CFR 64.9(a)(2)(ii))**

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

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

Stack & Vent ID	Maximum Exhaust Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SV006	80[2]	125[2]	**R 336.1225, R 336.1901, 40 CFR 52.21(c) & (d)**
2. SV024	44[2]	100[2]	**R 336.1225, R 336.1901, 40 CFR 52.21(c) & (d)**
3. SV025	6[1] ~~Not restricted*~~	35[1]	**R 336.1225**
~~* Horizontal discharge for this stack.~~			

IX. OTHER REQUIREMENT(S)

1. Permittee shall maintain copies of utility bills indicating the receipt of natural gas from a supplier of commercial grade natural gas. **(R 336.1213(b)(i))**

2. The permittee shall comply with all applicable requirements of Compliance Assurance Monitoring (CAM) as specified in 40 CFR Part 64**. (40 CFR Part 64)**

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).

FGETHLOAD
FLEXIBLE GROUP CONDITIONS

DESCRIPTION

Ethanol truck and rail load out. FGETHLOAD is subject to the requirements of the federal NSPS Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry for Which Construction, Reconstruction, or Modification Commenced After November 7, 2006, as specified in 40 CFR Part 60, Subpart VVa. PTI No. 39-19 ~~175-15B~~.

Emission Units: EUTRUCKLOAD3, EUTRUCKLOAD4, EURAILLOAD2

POLLUTION CONTROL EQUIPMENT

Thermal oxidizer EUTO&HRB (CE010) for truck load out.

I. EMISSION LIMIT(S)

NA

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

II. MATERIAL LIMIT(S)

1. The FGETHLOAD throughput shall not exceed the following:
   a. 5,000,000 gallons per 12-month rolling time period of natural gasoline, hereinafter "denaturant;"[1] ~~**(R 336.1225, R 336.1227(2))**~~
   b. 95,000,000 ~~89,250,000~~ gallons per 12-month rolling time period of total ethanol and denaturant, combined;[1] **(R 336.1225)**
   c. A total of 5,000,000 gallons per 12-month rolling time period of total ethanol and denatured ethanol, combined under all of the following conditions combined:~~[1]~~ ~~**(R 336.1225, R 336.1227(2))**~~
      i. While the displaced vapor contents from loading trucks through EUTRUCKLOAD3 and EUTRUCKLOAD4 are not being controlled by the thermal oxidizer (CE010);~~[1]~~ ~~**(R 336.1225, R 336.1227(2))**~~
      ii. While transferring through EURAILLOAD2 to receiving railcars that last transported denaturant.[1] ~~**(R 336.1225, R 336.1227(2))**~~

   Each annual throughput limit above shall be based on a rolling 12-month time period as determined at the end of each calendar month.~~[1]~~ **(R 336.1225, R 336.1227(2), R 336.1702(a))**

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall not load trucks through EUTRUCKLOAD3 (SV014) while the vapor recovery system fan is not operating.[1] **(R 336.1225, R 336.1227(2))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall not transfer material through EURAILLOAD2 unless the receiving railcar has been certified as dedicated to transporting ethanol, including denatured ethanol, except as allowed by SC II.1(c)(ii).[1] **(R 336.1225, R 336.1227(2))**

2. Except as allowed by SC II.1(c)(i), the permittee shall not load trucks through EUTRUCKLOAD3 and EUTRUCKLOAD4 unless the thermal oxidizer (CE010) is installed, maintained, and operated in a satisfactory manner. Satisfactory operation of the thermal oxidizer (CE010) is specified in FGDDGSDRYERS SC IV.2(a).[2] **(R 336.1225, R 336.1702(a), R 336.1901, R 336.1910)**

V. TESTING/SAMPLING

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

NA

VI. MONITORING/RECORDKEEPING

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

1. The permittee shall keep, in a satisfactory manner, the following records for FGETHLOAD for each calendar month and for the rolling 12-month time period ending each calendar month:
   a. Throughput of denaturant, ethanol, and denatured ethanol for FGETHLOAD;[1] **(R 336.1225, R 336.1227(2))**
   b. Throughput of total ethanol and denatured ethanol for EUTRUCKLOAD3 and EUTRUCKLOAD4 combined while displaced vapor contents of the trucks being loaded are exhausted through SV014 or SV015;[1] **(R 336.1225, R 336.1227(2))**
   c. Throughput of total ethanol and denatured ethanol for EURAILLOAD2 to receiving railcars that last transported denaturant;[1] **(R 336.1225, R 336.1227(2))**
   d. Total of throughputs recorded for SC VI.1.b and SC VI.1.c;[1] **(R 336.1225, R 336.1227(2))**
   e. Railcars receiving material through EURAILLOAD2 each month and which railcars have been certified as dedicated to transporting ethanol, including denatured ethanol.[1] **(R 336.1225, R 336.1227(2))**

VII. REPORTING

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

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

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

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

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

Stack & Vent ID	Maximum Exhaust Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SV006	80[1]	125[1]	**R 336.1225**
2. SV014	12[1]	10[1]	**R 336.1225**
3. SV015	12[1]	10[1]	**R 336.1225**
4. SV016	4[1]	25[1]	**R 336.1225**

IX. OTHER REQUIREMENT(S)

1. The permittee shall comply with all provisions of the federal NSPS Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry for Which Construction, Reconstruction, or Modification Commenced After November 7, 2006, as specified in 40 CFR Part 60, Subparts A and VVa, as they apply. **(40 CFR Part 60, Subparts A and VVa)**

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).

FGNSPSTANKS
FLEXIBLE GROUP CONDITIONS

DESCRIPTION

Denaturant storage. FGNSPSTANKS is subject to the requirements of Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984, as specified in 40 CFR Part 60, Subpart Kb and Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry for Which Construction, Reconstruction, or Modification Commenced After November 7, 2006, as specified in 40 CFR Part 60, Subpart VVa. PTI No. 210-01.

Emission Units: EUNATGASTANK1 (T-802), EUNATGASTANK2 (T-805)

POLLUTION CONTROL EQUIPMENT

Floating roof

I. EMISSION LIMIT(S)

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

II. MATERIAL LIMIT(S)

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

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall comply with all provisions of the federal Standards of Performance for New Stationary Sources as specified in 40 CFR Part 60, Subparts A and Kb, as they apply to each storage tank in FGNSPSTANKS.[2] **(40 CFR Part 60, Subparts A and Kb)**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall equip and maintain each storage tank in FGNSPSTANKS with an internal floating roof that meets or exceeds the requirements of 40 CFR 60.112b(a)(1).[2] **(R 336.1225, R 336.1702(b), R 336.1910, 40 CFR 60.112b(a)(1))**

V. TESTING/SAMPLING

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

NA

VI. MONITORING/RECORDKEEPING

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

1. For each storage tank in FGNSPSTANKS, in accordance with the federal NSPS as specified in 40 CFR Part 60, Subparts A and Kb, the permittee shall do both of the following:
   a. keep records of inspections and operating information;

b. report defects found during inspections.
The permittee shall keep the records on file for a period of at least five years and make them available to the Department upon request. All defect reports required to be submitted to the Administrator shall be submitted to the District Supervisor, Air Quality Division, within 30 days of the inspection in which the defect was discovered.[2] **(R 336.1225, R 336.1702(b), 40 CFR 60.115b(a))**

2. For each storage tank in FGNSPSTANKS, the permittee shall keep a record of the tank's dimensions and an analysis showing the tank's capacity in accordance with the federal NSPS as specified in 40 CFR Part 60, Subparts A and Kb. The permittee shall keep each tank's record and analysis on file for the life of the tank and make the records and analyses available to the Department upon request.[2] **(40 CFR 60.116b(b))**

VII. REPORTING

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

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

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

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

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

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

IX. OTHER REQUIREMENT(S)

1. The permittee shall comply with all provisions of the federal NSPS as specified in 40 CFR Part 60, Subparts A and VVa, as they apply. **(40 CFR Part 60, Subparts A and VVa)**

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).

FGNSPSVVa
FLEXIBLE GROUP CONDITIONS

DESCRIPTION

All pumps, valves and pressure relief devices in light liquid and heavy liquid service; all valves and pressure relief devices in gas/vapor service; each open-ended valve or line and all associated closed vent systems and control devices. FGNSPSVVa is subject to the requirements of Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry for Which Construction, Reconstruction, or Modification Commenced After November 7, 2006 of 40 CFR Part 60, Subpart VVa.

Emission Unit: EUFERMENTER1, EUFERMENTER2, EUFERMENTER3, EUFERMENTER4, EUFERMENTER5, EUFERMENTER6, EUFERMENTER7, EUBEERWELL, EUBEERSTRIP, EUBEERSTRIP2, EURECTIFIER, EUSIDESTRIP, EUSIEVE, EUSIEVE2, EUTRUCKLOAD3, EUTRUCKLOAD4, EURAILLOAD2, EUNATGASTANK1, EUNATGASTANK2, EU190TANK, EU200TANK1, EU200TANK2

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

NA

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall operate each pressure relief device in gas/vapor service with no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background, as determined by the methods specified in 40 CFR 60.485a(c), except during pressure releases and as provided in 40 CFR 60.482-4a(c) and (d). After each pressure release, the permittee shall return the pressure relief device to a condition of no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background, as soon as practicable, but no later than five calendar days after the pressure release, except as provided in 40 CFR 60.482-9a. No later than five calendar days after the pressure release, the permittee shall monitor the pressure relief device to confirm the conditions of no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background.[2] **(40 CFR 60.482-4a(a) and (b))**

2. The permittee shall design and operate enclosed combustion devices used to comply with 40 CFR Part 60, Subpart VVa to reduce the VOC emissions vented to them with an efficiency of 95 percent or greater, or to an exit concentration of 20 ppmv, on a dry basis, corrected to 3 percent oxygen, whichever is less stringent or to provide a minimum residence time of 0.75 seconds at a minimum temperature of 816 C.[2] **(40 CFR 60.482-10a(c))**

3. The permittee shall, if evidence of a potential leak is found by visual, audible, olfactory, or any other detection method at pumps and valves in heavy liquid service, pressure relief devices in light liquid or heavy liquid service, and connectors follow either one of the following procedures:[2] **(40 CFR 60.482-8a(a))**
   a. Monitor the equipment within 5 days by the method specified in 40 CFR 60.485a(b). If an instrument reading of 10,000 ppm or greater is measured, a leak is detected. **(40 CFR 60.482-8a(a)(1))**
      i. When a leak is detected, the permittee shall repair it as soon as practicable, but not later than 15 calendar days after it is detected, except as provided in 40 CFR 60.482-9a. The first attempt at the repair shall be made no later than five calendar days after each leak is detected. First attempts at

repair include, but are not limited to, the best practices described in 40 CFR 60.482-7a(e). **(40 CFR 60.482-8a(b) through (d))**

b. Eliminate the visual, audible, olfactory, or other indication of a potential leak. **(40 CFR 60.482-8a(a)(2))**

4. The permittee may delay repair of equipment for which leaks have been detected if: **(40 CFR 60.482-9a)**
   a. Repair within 15 days is technically infeasible without a process unit shutdown. Repair of this equipment shall occur before the end of the next process unit shutdown. **(40 CFR 60.482-9a(a))**
   b. The equipment is isolated from the process and does not remain in VOC service. **(40 CFR 60.482-9a(b))**
   c. The permittee demonstrates that emissions of purged material resulting from immediate repair are greater than the fugitive emissions likely to result from delay of repair and when repair procedures are affected, the purged material is collected and destroyed or recovered in a control device complying with 40 CFR 60.482-10a. **(40 CFR 60.482-9a(c))**
   d. For pumps, if repair requires the use of a dual mechanical seal system that includes a barrier fluid system and repair is completed as soon as practicable, but not later than six months after the leak was detected. **(40 CFR 60.482-9a(d))**

   Delay of repair beyond a process unit shutdown will be allowed for a valve, if valve assembly replacement is necessary during the process unit shutdown, valve assembly supplies have been depleted, and valve assembly supplies had been sufficiently stocked before the supplies were depleted. Delay of repair beyond the next process unit shutdown will not be allowed unless the next process unit shutdown occurs sooner than six months after the first process unit shutdown.[2] **(40 CFR 60.482-9a(e))**

5. The permittee shall repair leaks of a closed vent system, as indicated by an instrument reading greater than 500 ppmv above background or by visual inspections, as soon as practicable except as provided below. A first attempt at repair shall be made no later than five calendar days after the leak is detected. Repair shall be completed no later than 15 calendar days after the leak is detected.[2] **(40 CFR 60.482-10a(g))**
   a. Delay of repair of a closed vent system for which leaks have been detected is allowed if the repair is technically infeasible without a process unit shutdown or if the permittee determines that emissions resulting from immediate repair would be greater than the fugitive emissions likely to result from delay of repair. Repair of such equipment shall be complete by the end of the next process unit shutdown. **(40 CFR 60.482-10a(h))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall equip each open-ended valve or line with a cap, blind flange, plug or a second valve, except as provided in 40 CFR 60.482-1a(c); 40 CFR 60.482-6a(d) or (e), which shall seal the open end at all times except during operations requiring process fluid flow through the open-ended valve or line. In addition, the permittee shall ensure that:[2] **(40 CFR 60.482-6a)**
   a. Each open-ended valve or line equipped with a second valve shall be operated in a manner such that the valve on the process fluid end is closed before the second valve is closed; **(40 CFR 60.482-6a(b))**
   b. When a double block-and-bleed system is being used, the bleed valve or line may remain open during operations that require venting the line between the block valves but shall comply with 40 CFR 60.482-6a(a) at all other times. **(40 CFR 60.482-6a(c))**

2. The permittee shall operate closed vent systems and control devices used to comply with 40 CFR Part 60, Subpart VVa at all times when emissions may be vented to them.[2] **(40 CFR 60.482-10a(m))**

3. The permittee shall, when each leak is detected as specified in 40 CFR 60.482-2a, 60.482-7a, 60.482-8a, 60.482-10a do the following:[2] **(40 CFR 60.486a)**
   a. Attach a weatherproof and readily visible identification, marked with the equipment identification number, to the leaking equipment. The identification on a valve may be removed after it has been monitored for two successive months as specified in 40 CFR 60.482-7a(c) and no leak has been detected during those two months. The identification on equipment except on a valve, may be removed after it has been repaired. **(40 CFR 60.486a(b))**
   b. Record the following information in a log that shall be kept for 5 years in a readily accessible location: **(40 CFR 60.486a(c))**

i. The instrument and operator identification numbers and the equipment identification number;
ii. The date the leak was detected and the dates of each attempt to repair the leak;
iii. Repair methods applied in each attempt to repair the leak;
iv. "Above 10,000" if the maximum instrument reading measured by the methods specified in 40 CFR 60.485a(a) after each repair attempt is equal to or greater than 10,000 ppm;
v. "Repair delayed" and the reason for the delay if a leak is not repaired within 15 calendar days after discovery of the leak;
vi. The signature of the permittee (or designate) whose decision it was that repair could not be affected without a process shutdown;
vii. The expected date of successful repair of the leak if a leak is not repaired within 15 days;
viii. Dates of process unit shutdowns that occur while the equipment is unrepaired;
ix. The date of successful repair of the leak.

V. TESTING/SAMPLING

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

1. The permittee shall demonstrate compliance with the requirements of 40 CFR Part 60, Subparts A and VVa within 180 days of initial startup. All required testing shall be at the owner's expense. The permittee shall notify the AQD District Supervisor in writing within 15 days of the date of commencement of trial operation in accordance with 40 CFR 60.7(a)(3). Performance testing procedures shall be in accordance with the applicable federal Reference Methods, 40 CFR Part 60, Appendix A. 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. Compliance with 40 CFR 60.482-1a through 40 CFR 60.482-10a will be determined by review of records and reports, review of performance test results, and inspection using the methods and procedures specified in 40 CFR 60.485a. Equipment that is in vacuum service is excluded from the requirements of 40 CFR 60.482-2a to 40 CFR 60.482-10a if it is identified as required in 40 CFR 60.486a(e)(5). **(R 336.1225, R 336.1702(b), 40 CFR Part 60, Subparts A and VVa, 40 CFR 60.482-1a, 40 CFR 60.485a)**

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

VI. MONITORING/RECORDKEEPING

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

1. The permittee shall monitor each pump in light liquid service as follows:
   a. Check, by visual inspection, each calendar week for indications of liquids dripping from the pump seal, except as provided in 40 CFR 60.482-1a(f). If there are indications of liquids dripping from the pump seal, the permittee shall follow the procedure specified in 40 CFR 60.482-2a(b)(2)(i) or 40 CFR 60.482-2a(b)(2)(ii). **(40 CFR 60.482-2a(a)(2) and 40 CFR 60.482(a)(b)(2))**
   b. Monitor monthly to detect leaks by the methods specified in 40 CFR 60.485a(b), except as provided in 40 CFR 60.482-1a(c) and (f) and 40 CFR 60.482-2a(d), (e), and (f). If an instrument reading of 2,000 ppm or greater is measured, a leak is detected. **(40 CFR 60.482-2a(a)(1) and 40 CFR 60.482-2a(b)(1)(ii))**

   When a leak is detected, the permittee shall repair it as soon as practicable, but not later than 15 calendar days after it is detected, except as provided in 40 CFR 60.482-9a. A first attempt at repair shall be made no later than five calendar days after each leak is detected.[2] **(40 CFR 60.482-2a(c))**

2. The permittee shall monitor each valve in gas/vapor service and in light liquid service monthly to detect leaks by the methods specified in 40 CFR 60.485a(b) and shall comply with the following, except as provided in 40 CFR 60.482-7a(f), (g) and (h); 40 CFR 60.482-1a(c) and (f); 40 CFR 60.483-1a and 40 CFR 60.483-2a:[2] **(40 CFR 60.482-7a)**
   a. If an instrument reading of 500 ppm or greater is measured, a leak is detected; **(40 CFR 60.482-7a(b))**
   b. Any valve for which a leak is not detected for two successive months may be monitored for the first month of every quarter, beginning with the next quarter, until a leak is detected. If a leak is detected, the valve shall be monitored monthly until a leak is not detected for two successive months; **(40 CFR 60.482-7a(c))**

c. When a leak is detected, it shall be repaired as soon as practicable, but no later than 15 calendar days after the leak is detected, except as provided in 40 CFR 60.482-9a. A first attempt at repair shall be made no later than five calendar days after each leak is detected. **(40 CFR 60.482-7a(d))**
d. First attempts at repair include, but are not limited to, the following best practices where practicable: **(40 CFR 60.482-7a(e))**
   i. Tightening of bonnet bolts;
   ii. Replacement of bonnet bolts;
   iii. Tightening of packing gland nuts;
   iv. Injection of lubricant into lubricated packing.
e. Any value that is designated, as described in 40 CFR 60.486a(e)(2), for no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background, is exempt from the monthly monitoring if the valve has no external actuating mechanism in contact with the process fluid, is operated with emissions less than 500 ppm above background as determined by the method specified in 40 CFR 60.485a(c) and is tested for compliance with the 500 ppm above background instrument reading initially upon designation, annually, and at other times requested by the AQD District Supervisor; **(40 CFR 60.482-7a(f))**
f. Any value that is designated, as described in 40 CFR 60.486a(f)(1), as an unsafe-to-monitor valve is exempt from the monthly monitoring if the permittee demonstrates that the valve is unsafe to monitor because monitoring personnel would be exposed to an immediate danger as a consequence of performing monthly monitoring, and the permittee adheres to a written plan that requires monitoring of the valve as frequently as practicable during safe-to-monitor times; **(40 CFR 60.482-7a(g))**
g. Any value that is designated, as described in 40 CFR 60.486a(f)(2), as a difficult-to-monitor valve is exempt from the monthly monitoring if: **(40 CFR 60.482-7a(h))**
   i. The permittee demonstrates that the valve cannot be monitored without elevating the monitoring personnel more than 2 meters above a support surface;
   ii. Has less than 3% of its total number of valves designated as difficult-to-monitor;
   iii. The permittee follows a written plan that requires monitoring of the valve at least once per calendar year.

3. The permittee shall monitor control devices used to comply with 40 CFR Part 60, Subpart VVa to ensure that they are operated and maintained in conformance with their designs.[2] **(40 CFR 60.482-10a(e))**

4. The permittee shall inspect each closed vent system according to the procedures and schedule specified in 40 CFR 60.482-10a(f), except as follows:[2] **(40 CFR 60.482-10a(f))**
   a. The vapor collection system or closed vent system is operated under a vacuum; **(40 CFR 60.482-10a(i))**
   b. Any parts of the closed vent system that are designated, as described in 40 CFR 60.482-10a(l)(1), as unsafe to inspect are exempt from the inspection requirements if the comply with the following: **(40 CFR 60.482-10a(j))**
      i. The permittee determines that the equipment is unsafe to inspect because inspecting personnel would be exposed to an imminent or potential danger; and
      ii. The permittee has a written plan that requires inspection of the equipment as frequently as practicable during safe-to-inspect times;
   c. Any parts of the closed vent system that are designated, as described in 40 CFR 60.482-10a(l)(2), as difficult to inspect are exempt from the inspection requirements if they comply with the following: **(40 CFR 60.482-10a(k))**
      i. The permittee demonstrates that the equipment cannot be monitored without elevating the monitoring personnel more than 2 meters above a support surface;
      ii. Has less than 3% of the total number of closed vent system equipment designated as difficult to inspect;
      iii. The permittee follows a written plan that requires inspection of the equipment at least once every five years. A closed vent system is exempt from inspection if it is operated under a vacuum.

5. The permittee shall record the following information:[2] **(40 CFR 60.482-10a(l))**
   a. Identification of all parts of the closed vent system that are designated as unsafe to inspect, an explanation of why the equipment is unsafe to inspect, and the plan for inspecting the equipment;

b. Identification of all parts of the closed vent system that are designated as difficult to inspect, an explanation of why the equipment is difficult to inspect, and the plan for inspecting the equipment;
c. For each inspection during which a leak is detected, a record of the information specified in 40 CFR 60.486a(c);
d. For each inspection conducted in accordance with 40 CFR 60.485a(b) during which no leaks are detected, a record that the inspection was performed, the date of the inspection, and a statement that no leaks were detected;
e. For each visual inspection conducted in accordance with 40 CFR 60.482-10a(f)(1)(ii) during which no leaks are detected, a record that the inspection was performed, the date of the inspection, and a statement that no leaks were detected.

6. The permittee shall record the following information pertaining to the design requirements for closed vent systems and control devices described in 40 CFR 60.482-10a. This information shall be kept in a readily accessible location:[2] **(40 CFR 60.486a(d))**
   a. Detailed schematics, design specifications, and piping and instrumentation diagrams;
   b. The dates and descriptions of any changes in the design specifications;
   c. A description of the parameter or parameters monitored, as required in 40 CFR 60.482-10a(e). To ensure that control devices are operated and maintained in conformance with their design and an explanation of why that parameter (or parameters) was selected for the monitoring;
   d. Periods when the closed vent systems and control devices required in 40 CFR 60.482-2a and 40 CFR 60.482-4a are not operated as designed, including periods when a flare pilot light does not have a flame;
   e. Dates of startups and shutdowns of the closed vent systems and control devices required in 40 CFR 60.482-2a and 40 CFR 60.482-4a.

7. The permittee shall record the following information pertaining to all equipment subject to the requirements in 40 CFR 60.482-1a to 40 CFR 60.482-10a. This information shall be kept in a readily accessible location:[2] **(40 CFR 60.486a(e))**
   a. A list of identification numbers for equipment subject to the requirements in 40 CFR Part 60 Subpart VVa;
   b. A list of identification numbers for equipment that are designated for no detectable emissions under the provisions of 40 CFR 60.482-2a(e) and 40 CFR 60.482-7a(f). The designation of this equipment shall be signed by the permittee;
   c. A list of equipment identification numbers for pressure relief devices required to comply with 40 CFR 60.482-4a;
   d. The dates of each compliance test as required in 40 CFR 60.482-2a(e), 60.482-4a, and 60.482-7a(f), the background level measured during each compliance test, and the maximum instrument reading measured at the equipment during each compliance test;
   e. A list of identification numbers for equipment in vacuum service.

8. The permittee shall record the following information pertaining to all valves subject to the requirements of 40 CFR 60.482-7a(g) and (h) and to all pumps subject to the requirements of 40 CFR 60.482-2a(g). This information shall be kept in a readily accessible location:[2] **(40 CFR 40.486a(f))**
   a. A list of identification numbers for valves and pumps that are designated as unsafe-to-monitor, an explanation for each valve or pump stating why the valve or pump is unsafe-to-monitor, and the plan for monitoring each valve or pump;
   b. A list of identification numbers for valves that are designated as difficult-to-monitor, an explanation for each valve stating why the valve is difficult-to-monitor, and the schedule for monitoring each valve.

9. The permittee shall record a schedule of monitoring and the percent of valves found leaking during each monitoring period for valves complying with 40 CFR 60.483-2a.[2] **(40 CFR 60.486a(g))**

10. The permittee shall record the design criterion required in 40 CFR 60.482-2a(d)(5) and an explanation of the design criterion and any changes to this criterion and the reasons for the changes. This information shall be kept in a readily accessible location.[2] **(40 CFR 60.486a(h))**

11. The permittee shall record the following information for use in determining exemptions as provided in 40 CFR 60.480a(d). This information shall be kept in a readily accessible location:[2] **(40 CFR 60.486a(i))**
    a. An analysis demonstrating the design capacity of the affected facility;
    b. A statement listing the feed or raw materials and products from the affected facilities and an analysis demonstrating whether these chemicals are heavy liquids or beverage alcohol; and
    c. An analysis demonstrating that equipment is not in VOC service.

12. The permittee shall record information and data used to demonstrate that a piece of equipment is not in VOC service. This information shall be kept in a readily accessible location.[2] **(40 CFR 60.486a(j))**

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))**

5. The permittee shall submit any performance test reports to the AQD Technical Programs Unit and District Office, in a format approved by the AQD. **(R 336.1213(3)(c), R 336.2001(5))**

6. The permittee shall submit reports as required to comply with the federal NSPS as specified in 40 CFR Part 60, Subparts A and VVa. Information required to be submitted to the Administrator shall be submitted to the AQD District Supervisor in an acceptable format within 30 days following the end of the semiannual period in which the data were collected. Information required to be submitted includes semiannual reports, beginning six months after the initial startup date. The initial semiannual report shall include the information listed in 40 CFR 60.487a(b) and all semiannual reports shall include the information listed in 40 CFR 60.487a(c). The permittee shall keep all records on file and make them available to the Department upon request.[2] **(40 CFR 60.487a)**

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

NA

IX. OTHER REQUIREMENT(S)

1. The permittee shall comply with all provisions of the federal Standards of Performance for New Stationary Sources as specified in the 40 CFR Part 60, Subparts A and VVa, as they apply to the equipment in FGNSPSVVa.[2] **(40 CFR Part 60, Subparts A and VVa)**

2. The permittee shall comply with all provisions of the federal NSPS as specified in 40 CFR Part 60, Subparts A and Kb, Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984, as they apply.[2] **(40 CFR Part 60, Subparts A and Kb)**

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).

FGETHANOLTANKS
FLEXIBLE GROUP CONDITIONS

DESCRIPTION

Ethanol storage. FGETHANOLTANKS is subject to the requirements of Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry for Which Construction, Reconstruction, or Modification Commenced After November 7, 2006, as specified in 40 CFR Part 60, Subpart VVa. PTI No. 210-01.

Emission Units: EU190TANK (T-801), EU200TANK1 (T-803), EU200TANK2 (T-804)

POLLUTION CONTROL EQUIPMENT

Floating roof

I. EMISSION LIMIT(S)

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

II. MATERIAL LIMIT(S)

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

III. PROCESS/OPERATIONAL RESTRICTION(S)

NA

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall not operate EU190TANK, EU200TANK1, or EU200TANK2 unless the associated internal floating roof is installed, maintained, and operated in a satisfactory manner. Satisfactory operation includes maintaining the internal floating roofs for EU190TANK, EU200TANK1, and EU200TANK2 according to the MAP.[2] **(R 336.1225, R 336.1702(a), R 336.1910)**

2. The permittee shall equip and maintain EU190TANK, EU200TANK1, and EU200TANK2 with internal floating roofs that meet or exceed the requirements of 40 CFR 60.112b(a)(1).[2] **(R 336.1225, R 336.1702(a), R 336.1910)**

V. TESTING/SAMPLING

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

NA

VI. MONITORING/RECORDKEEPING

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

1. The permittee shall keep, in a satisfactory manner, a continuing record of inspections of the floating roofs in EU190TANK, EU200TANK1, and EU200TANK2. The record shall include descriptions of the defects or

malfunctions, if any, that were discovered during such inspections, and of the corrective action taken. The permittee shall keep these records on file for a period of at least five years and make them available to the Department upon request.[2] **(R 336.1225, R 336.1702(a), R 336.1910)**

VII. REPORTING

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

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

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

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

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

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

IX. OTHER REQUIREMENT(S)

1. The permittee shall comply with all provisions of the federal NSPS as specified in 40 CFR Part 60, Subparts A and VVa, as they apply. **(40 CFR Part 60, Subparts A and VVa)**

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).

FGNSPSVVa

FLEXIBLE GROUP CONDITIONS

Commented [OC(1)]: Already incorporated above.

DESCRIPTION

All pumps, valves and pressure relief devices in light liquid and heavy liquid service; all valves and pressure relief devices in gas/vapor service; each open-ended valve or line and all associated closed vent systems and control devices. FGNSPSVVa is subject to the requirements of Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry for Which Construction, Reconstruction, or Modification Commenced After November 7, 2006 of 40 CFR Part 60, Subpart VVa.

Emission Unit: EUFERMENTER1, EUFERMENTER2, EUFERMENTER3, EUFERMENTER4, EUFERMENTER5, EUFERMENTER6, EUFERMENTER7, EUBEERWELL, EUBEERSTRIP, EUBEERSTRIP2, EURECTIFIER, EUSIDESTRIP, EUSIEVE, EUSIEVE2, EUTRUCKLOAD3, EUTRUCKLOAD4, EURAILLOAD2, EUNATGASTANK1, EUNATGASTANK2, EU190TANK, EU200TANK1, EU200TANK2

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

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

II. MATERIAL LIMIT(S)

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

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall operate each pressure relief device in gas/vapor service with no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background, as determined by the methods specified in 40 CFR 60.485a(c), except during pressure releases and as provided in 40 CFR 60.482-4a(c) and (d). After each pressure release, the permittee shall return the pressure relief device to a condition of no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background, as soon as practicable, but no later than five calendar days after the pressure release, except as provided in 40 CFR 60.482-9a. No later than five calendar days after the pressure release, the permittee shall monitor the pressure relief device to confirm the conditions of no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background. **(40 CFR 60.482-4a(a) and (b))**

2. The permittee shall design and operate enclosed combustion devices used to comply with 40 CFR Part 60, Subpart VVa to reduce the VOC emissions vented to them with an efficiency of 95 percent or greater, or to an exit concentration of 20 ppmv, on a dry basis, corrected to 3 percent oxygen, whichever is less stringent or to provide a minimum residence time of 0.75 seconds at a minimum temperature of 816 C. **(40 CFR 60.482-10a(c))**

3. The permittee shall, if evidence of a potential leak is found by visual, audible, olfactory, or any other detection method at pumps and valves in heavy liquid service, pressure relief devices in light liquid or heavy liquid service, and connectors follow either one of the following procedures: **(40 CFR 60.482-8a(a))**
   a. Monitor the equipment within 5 days by the method specified in 40 CFR 60.485a(b). If an instrument reading of 10,000 ppm or greater is measured, a leak is detected. **(40 CFR 60.482-8a(a)(1))**
      i. When a leak is detected, the permittee shall repair it as soon as practicable, but not later than 15 calendar days after it is detected, except as provided in 40 CFR 60.482-9a. The first attempt at the repair shall be made no later than five calendar days after each leak is detected. First attempts at repair include, but are not limited to, the best practices described in 40 CFR 60.482-7a(e).
      (40 CFR 60.482-8a(b) through (d))
   b. Eliminate the visual, audible, olfactory, or other indication of a potential leak. **(40 CFR 60.482-8a(a)(2))**

4. The permittee may delay repair of equipment for which leaks have been detected if: **(40 CFR 60.482-9a)**
   a. Repair within 15 days is technically infeasible without a process unit shutdown. Repair of this equipment shall occur before the end of the next process unit shutdown. **(40 CFR 60.482-9a(a))**
   b. The equipment is isolated from the process and does not remain in VOC service. **(40 CFR 60.482-9a(b))**
   c. The permittee demonstrates that emissions of purged material resulting from immediate repair are greater than the fugitive emissions likely to result from delay of repair and when repair procedures are affected, the purged material is collected and destroyed or recovered in a control device complying with 40 CFR 60.482-10a. **(40 CFR 60.482-9a(c))**
   d. For pumps, if repair requires the use of a dual mechanical seal system that includes a barrier fluid system and repair is completed as soon as practicable, but not later than six months after the leak was detected. **(40 CFR 60.482-9a(d))**

      Delay of repair beyond a process unit shutdown will be allowed for a valve, if valve assembly replacement is necessary during the process unit shutdown, valve assembly supplies have been depleted, and valve assembly supplies had been sufficiently stocked before the supplies were depleted. Delay of repair beyond the next process unit shutdown will not be allowed unless the next process unit shutdown occurs sooner than six months after the first process unit shutdown. **(40 CFR 60.482-9a(e))**

5. The permittee shall repair leaks of a closed vent system, as indicated by an instrument reading greater than 500 ppmv above background or by visual inspections, as soon as practicable except as provided below. A first attempt at repair shall be made no later than five calendar days after the leak is detected. Repair shall be completed no later than 15 calendar days after the leak is detected. **(40 CFR 60.482-10a(g))**
   a. Delay of repair of a closed vent system for which leaks have been detected is allowed if the repair is technically infeasible without a process unit shutdown or if the permittee determines that emissions resulting from immediate repair would be greater than the fugitive emissions likely to result from delay of repair. Repair of such equipment shall be complete by the end of the next process unit shutdown. **(40 CFR 60.482-10a(h))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

4. The permittee shall equip each open-ended valve or line with a cap, blind flange, plug or a second valve, except as provided in 40 CFR 60.482-1a(c); 40 CFR 60.482-6a(d) or (e), which shall seal the open end at all times except during operations requiring process fluid flow through the open-ended valve or line. In addition, the permittee shall ensure that: **(40 CFR 60.482-6a)**
   a. Each open-ended valve or line equipped with a second valve shall be operated in a manner such that the valve on the process fluid end is closed before the second valve is closed; **(40 CFR 60.482-6a(b))**
   b. When a double block-and-bleed system is being used, the bleed valve or line may remain open during operations that require venting the line between the block valves but shall comply with 40 CFR 60.482-6a(a) at all other times. **(40 CFR 60.482-6a(c))**

5. The permittee shall operate closed vent systems and control devices used to comply with 40 CFR Part 60, Subpart VVa at all times when emissions may be vented to them. **(40 CFR 60.482-10a(m))**

6. The permittee shall, when each leak is detected as specified in 40 CFR 60.482-2a, 60.482-7a, 60.482-8a, 60.482-10a do the following:
   a. Attach a weatherproof and readily visible identification, marked with the equipment identification number, to the leaking equipment. The identification on a valve may be removed after it has been monitored for two successive months as specified in 40 CFR 60.482-7a(c) and no leak has been detected during those two months. The identification on equipment except on a valve, may be removed after it has been repaired. **(40 CFR 60.486a(b))**
   b. Record the following information in a log that shall be kept for 5 years in a readily accessible location: **(40 CFR 60.486a(c))**
      i. The instrument and operator identification numbers and the equipment identification number;
      ii. The date the leak was detected and the dates of each attempt to repair the leak;
      iii. Repair methods applied in each attempt to repair the leak;
      iv. "Above 10,000" if the maximum instrument reading measured by the methods specified in 40 CFR 60.485a(a) after each repair attempt is equal to or greater than 10,000 ppm;
      v. "Repair delayed" and the reason for the delay if a leak is not repaired within 15 calendar days after discovery of the leak;
      vi. The signature of the permittee (or designate) whose decision it was that repair could not be affected without a process shutdown;
      vii. The expected date of successful repair of the leak if a leak is not repaired within 15 days;
      viii. Dates of process unit shutdowns that occur while the equipment is unrepaired;
      ix. The date of successful repair of the leak.

V. TESTING/SAMPLING

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

2. The permittee shall demonstrate compliance with the requirements of 40 CFR Part 60, Subparts A and VVa within 180 days of initial startup. All required testing shall be at the owner's expense. The permittee shall notify the AQD District Supervisor in writing within 15 days of the date of commencement of trial operation in accordance with 40 CFR 60.7(a)(3). Performance testing procedures shall be in accordance with the applicable federal Reference Methods, 40 CFR Part 60, Appendix A. 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. Compliance with 40 CFR 60.482-1a through 40 CFR 60.482-10a will be determined by review of records and reports, review of performance test results, and inspection using the methods and procedures specified in 40 CFR 60.485a. Equipment that is in vacuum service is excluded from the requirements of 40 CFR 60.482-2a to 40 CFR 60.482-10a if it is identified as required in 40 CFR 60.486a(e)(5). **(R 336.1225, R 336.1702(b), 40 CFR Part 60, Subparts A and VVa, 40 CFR 60.482-1a, 40 CFR 60.485a)**

VI. MONITORING/RECORDKEEPING

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

5. The permittee shall monitor each pump in light liquid service as follows:
   a. Check, by visual inspection, each calendar week for indications of liquids dripping from the pump seal, except as provided in 40 CFR 60.482-1a(f). If there are indications of liquids dripping from the pump seal, the permittee shall follow the procedure specified in 40 CFR 60.482-2a(b)(2)(i) or 40 CFR 60.482-2a(b)(2)(ii). **(40 CFR 60.482-2a(a)(2) and 40 CFR 60.482(a)(b)(2))**
   b. Monitor monthly to detect leaks by the methods specified in 40 CFR 60.485a(b), except as provided in 40 CFR 60.482-1a(c) and (f) and 40 CFR 60.482-2a(d), (e), and (f). If an instrument reading of 2,000 ppm or greater is measured, a leak is detected. **(40 CFR 60.482-2a(a)(1) and 40 CFR 60.482-2a(b)(1)(ii))**

      When a leak is detected, the permittee shall repair it as soon as practicable, but not later than 15 calendar days after it is detected, except as provided in 40 CFR 60.482-9a. A first attempt at repair shall be made no later than five calendar days after each leak is detected. **(40 CFR 60.482-2a(c))**

6. The permittee shall monitor each valve in gas/vapor service and in light liquid service monthly to detect leaks by the methods specified in 40 CFR 60.485a(b) and shall comply with the following, except as provided in 40 CFR 60.482-7a(f), (g) and (h); 40 CFR 60.482-1a(c) and (f); 40 CFR 60.483-1a and 40 CFR 60.483-2a: **(40 CFR 60.482-7a)**
   a. If an instrument reading of 500 ppm or greater is measured, a leak is detected; **(40 CFR 60.482-7a(b))**
   b. Any valve for which a leak is not detected for two successive months may be monitored for the first month of every quarter, beginning with the next quarter, until a leak is detected. If a leak is detected, the valve shall be monitored monthly until a leak is not detected for two successive months; **(40 CFR 60.482-7a(c))**
   c. When a leak is detected, it shall be repaired as soon as practicable, but no later than 15 calendar days after the leak is detected, except as provided in 40 CFR 60.482-9a. A first attempt at repair shall be made no later than five calendar days after each leak is detected. **(40 CFR 60.482-7a(d))**
   d. First attempts at repair include, but are not limited to, the following best practices where practicable: **(40 CFR 60.482-7a(e))**
      i. Tightening of bonnet bolts;
      ii. Replacement of bonnet bolts;
      iii. Tightening of packing gland nuts;
      iv. Injection of lubricant into lubricated packing.
   e. Any value that is designated, as described in 40 CFR 60.486a(e)(2), for no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background, is exempt from the monthly monitoring if the valve has no external actuating mechanism in contact with the process fluid, is operated with emissions less than 500 ppm above background as determined by the method specified in 40 CFR 60.485a(c) and is tested for compliance with the 500 ppm above background instrument reading initially upon designation, annually, and at other times requested by the AQD District Supervisor; **(40 CFR 60.482-7a(f))**
   f. Any value that is designated, as described in 40 CFR 60.486a(f)(1), as an unsafe-to-monitor valve is exempt from the monthly monitoring if the permittee demonstrates that the valve is unsafe to monitor because monitoring personnel would be exposed to an immediate danger as a consequence of performing monthly monitoring, and the permittee adheres to a written plan that requires monitoring of the valve as frequently as practicable during safe-to-monitor times; **(40 CFR 60.482-7a(g))**
   g. Any value that is designated, as described in 40 CFR 60.486a(f)(2), as a difficult-to-monitor valve is exempt from the monthly monitoring if: **(40 CFR 60.482-7a(h))**
      i. The permittee demonstrates that the valve cannot be monitored without elevating the monitoring personnel more than 2 meters above a support surface;
      ii. Has less than 3% of its total number of valves designated as difficult-to-monitor;
      iii. The permittee follows a written plan that requires monitoring of the valve at least once per calendar year.

7. The permittee shall monitor control devices used to comply with 40 CFR Part 60, Subpart VVa to ensure that they are operated and maintained in conformance with their designs. **(40 CFR 60.482-10a(e))**

8. The permittee shall inspect each closed vent system according to the procedures and schedule specified in 40 CFR 60.482-10a(f), except as follows: **(40 CFR 60.482-10a(f))**
   d. The vapor collection system or closed vent system is operated under a vacuum; **(40 CFR 60.482-10a(i))**
   e. Any parts of the closed vent system that are designated, as described in 40 CFR 60.482-10a(l)(1), as unsafe to inspect are exempt from the inspection requirements if the comply with the following: **(40 CFR 60.482-10a(j))**
      i. The permittee determines that the equipment is unsafe to inspect because inspecting personnel would be exposed to an imminent or potential danger; and
      ii. The permittee has a written plan that requires inspection of the equipment as frequently as practicable during safe-to-inspect times;
   f. Any parts of the closed vent system that are designated, as described in 40 CFR 60.482-10a(l)(2), as difficult to inspect are exempt from the inspection requirements if they comply with the following: **(40 CFR 60.482-10a(k))**

i. The permittee demonstrates that the equipment cannot be monitored without elevating the monitoring personnel more than 2 meters above a support surface;
ii. Has less than 3% of the total number of closed vent system equipment designated as difficult to inspect;
iii. The permittee follows a written plan that requires inspection of the equipment at least once every five years. A closed vent system is exempt from inspection if it is operated under a vacuum.

f. The permittee shall record the following information: **(40 CFR 60.482-10a(l))**
   d. Identification of all parts of the closed vent system that are designated as unsafe to inspect, an explanation of why the equipment is unsafe to inspect, and the plan for inspecting the equipment;
   e. Identification of all parts of the closed vent system that are designated as difficult to inspect, an explanation of why the equipment is difficult to inspect, and the plan for inspecting the equipment;
   f. For each inspection during which a leak is detected, a record of the information specified in 40 CFR 60.486a(c);
   g. For each inspection conducted in accordance with 40 CFR 60.485a(b) during which no leaks are detected, a record that the inspection was performed, the date of the inspection, and a statement that no leaks were detected;
   h. For each visual inspection conducted in accordance with 40 CFR 60.482-10a(f)(1)(ii) during which no leaks are detected, a record that the inspection was performed, the date of the inspection, and a statement that no leaks were detected.

g. The permittee shall record the following information pertaining to the design requirements for closed vent systems and control devices described in 40 CFR 60.482-10a. This information shall be kept in a readily accessible location: **(40 CFR 60.486a(d))**
   i. Detailed schematics, design specifications, and piping and instrumentation diagrams;
   j. The dates and descriptions of any changes in the design specifications;
   k. A description of the parameter or parameters monitored, as required in 40 CFR 60.482-10a(e). To ensure that control devices are operated and maintained in conformance with their design and an explanation of why that parameter (or parameters) was selected for the monitoring;
   l. Periods when the closed vent systems and control devices required in 40 CFR 60.482-2a and 40 CFR 60.482-4a are not operated as designed, including periods when a flare pilot light does not have a flame;
   m. Dates of startups and shutdowns of the closed vent systems and control devices required in 40 CFR 60.482-2a and 40 CFR 60.482-4a.

h. The permittee shall record the following information pertaining to all equipment subject to the requirements in 40 CFR 60.482-1a to 40 CFR 60.482-10a. This information shall be kept in a readily accessible location: **(40 CFR 60.486a(e))**
   n. A list of identification numbers for equipment subject to the requirements in 40 CFR Part 60 Subpart VVa;
   o. A list of identification numbers for equipment that are designated for no detectable emissions under the provisions of 40 CFR 60.482-2a(e) and 40 CFR 60.482-7a(f). The designation of this equipment shall be signed by the permittee;
   p. A list of equipment identification numbers for pressure relief devices required to comply with 40 CFR 60.482-4a;
   q. The dates of each compliance test as required in 40 CFR 60.482-2a(e), 60.482-4a, and 60.482-7a(f), the background level measured during each compliance test, and the maximum instrument reading measured at the equipment during each compliance test;
   r. A list of identification numbers for equipment in vacuum service.

i. The permittee shall record the following information pertaining to all valves subject to the requirements of 40 CFR 60.482-7a(g) and (h) and to all pumps subject to the requirements of 40 CFR 60.482-2a(g). This information shall be kept in a readily accessible location: **(40 CFR 40.486a(f))**

s. A list of identification numbers for valves and pumps that are designated as unsafe-to-monitor, an explanation for each valve or pump stating why the valve or pump is unsafe-to-monitor, and the plan for monitoring each valve or pump;

t. A list of identification numbers for valves that are designated as difficult-to-monitor, an explanation for each valve stating why the valve is difficult-to-monitor, and the schedule for monitoring each valve.

j. The permittee shall record a schedule of monitoring and the percent of valves found leaking during each monitoring period for valves complying with 40 CFR 60.483-2a. **(40 CFR 60.486a(g))**

k. The permittee shall record the design criterion required in 40 CFR 60.482-2a(d)(5) and an explanation of the design criterion and any changes to this criterion and the reasons for the changes. This information shall be kept in a readily accessible location. **(40 CFR 60.486a(h))**

l. The permittee shall record the following information for use in determining exemptions as provided in 40 CFR 60.480a(d). This information shall be kept in a readily accessible location: **(40 CFR 60.486a(i))**

u. An analysis demonstrating the design capacity of the affected facility;

v. A statement listing the feed or raw materials and products from the affected facilities and an analysis demonstrating whether these chemicals are heavy liquids or beverage alcohol; and

w. An analysis demonstrating that equipment is not in VOC service.

m. The permittee shall record information and data used to demonstrate that a piece of equipment is not in VOC service. This information shall be kept in a readily accessible location. **(40 CFR 60.486a(j))**

VII. REPORTING

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

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

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

4. The permittee shall submit reports as required to comply with the federal NSPS as specified in 40 CFR Part 60, Subparts A and VVa. Information required to be submitted to the Administrator shall be submitted to the AQD District Supervisor in an acceptable format within 30 days following the end of the semiannual period in which the data were collected. Information required to be submitted includes semiannual reports, beginning six months after the initial startup date. The initial semiannual report shall include the information listed in 40 CFR 60.487a(b) and all semiannual reports shall include the information listed in 40 CFR 60.487a(c). The permittee shall keep all records on file and make them available to the Department upon request. **(40 CFR 60.487a)**

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

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

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

IX. OTHER REQUIREMENT(S)

3. The permittee shall comply with all provisions of the federal Standards of Performance for New Stationary Sources as specified in the 40 CFR Part 60, Subparts A and VVa, as they apply to the equipment in FGNSPSVVa. **(40 CFR Part 60, Subparts A and VVa)**

4. The permittee shall comply with all provisions of the federal NSPS as specified in 40 CFR Part 60, Subparts A and Kb, Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984, as they apply. **(40 CFR Part 60, Subparts A and Kb)**

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

E. NON-APPLICABLE REQUIREMENTS

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

APPENDICES

Appendix 1. Acronyms and Abbreviations

Common Acronyms		Pollutant / Measurement Abbreviations	
AQD	Air Quality Division	acfm	Actual cubic feet per minute
BACT	Best Available Control Technology	BTU	British Thermal Unit
CAA	Clean Air Act	°C	Degrees Celsius
CAM	Compliance Assurance Monitoring	CO	Carbon Monoxide
CEM	Continuous Emission Monitoring	CO_2e	Carbon Dioxide Equivalent
CFR	Code of Federal Regulations	dscf	Dry standard cubic foot
COM	Continuous Opacity Monitoring	dscm	Dry standard cubic meter
Department/ department	Michigan Department of Environment, Great Lakes, and Energy	°F	Degrees Fahrenheit
		gr	Grains
EU	Emission Unit	HAP	Hazardous Air Pollutant
FG	Flexible Group	Hg	Mercury
GACS	Gallons of Applied Coating Solids	hr	Hour
GC	General Condition	HP	Horsepower
GHGs	Greenhouse Gases	H_2S	Hydrogen Sulfide
HVLP	High Volume Low Pressure*	kW	Kilowatt
ID	Identification	lb	Pound
IRSL	Initial Risk Screening Level	m	Meter
ITSL	Initial Threshold Screening Level	mg	Milligram
LAER	Lowest Achievable Emission Rate	mm	Millimeter
MACT	Maximum Achievable Control Technology	MM	Million
MAERS	Michigan Air Emissions Reporting System	MW	Megawatts
MAP	Malfunction Abatement Plan	NMOC	Non-methane Organic Compounds
EGLE	Michigan Department of Environment, Great Lakes, and Energy	NO_x	Oxides of Nitrogen
		ng	Nanogram
MSDS	Material Safety Data Sheet	PM	Particulate Matter
NA	Not Applicable	PM10	Particulate Matter equal to or less than 10 microns in diameter
NAAQS	National Ambient Air Quality Standards		
NESHAP	National Emission Standard for Hazardous Air Pollutants	PM2.5	Particulate Matter equal to or less than 2.5 microns in diameter
NSPS	New Source Performance Standards	pph	Pounds per hour
NSR	New Source Review	ppm	Parts per million
PS	Performance Specification	ppmv	Parts per million by volume
PSD	Prevention of Significant Deterioration	ppmw	Parts per million by weight
PTE	Permanent Total Enclosure	psia	Pounds per square inch absolute
PTI	Permit to Install	psig	Pounds per square inch gauge
RACT	Reasonable Available Control Technology	scf	Standard cubic feet
ROP	Renewable Operating Permit	sec	Seconds
SC	Special Condition	SO_2	Sulfur Dioxide
SCR	Selective Catalytic Reduction	TAC	Toxic Air Contaminant
SNCR	Selective Non-Catalytic Reduction	Temp	Temperature
SRN	State Registration Number	THC	Total Hydrocarbons
TEQ	Toxicity Equivalence Quotient	tpy	Tons per year
USEPA/EPA	United States Environmental Protection Agency	µg	Microgram
		µm	Micrometer or Micron
VE	Visible Emissions	VOC	Volatile Organic Compounds
		yr	Year

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

Appendix 2. Schedule of Compliance

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

Appendix 3. Monitoring Requirements

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

Appendix 4. Recordkeeping

Specific recordkeeping requirement formats and procedures are detailed in Part A or the appropriate source-wide, emission unit and/or flexible group special conditions. Therefore, this appendix is not applicable.

Appendix 5. Testing Procedures

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

Appendix 6. Permits to Install

The following table lists any PTIs issued or ROP revision applications received since the effective date of the previously issued ROP No. MI-ROP-N6996-2013. Those ROP revision applications that are being issued concurrently with this ROP renewal are identified by an asterisk (*). Those revision applications not listed with an asterisk were processed prior to this renewal.

Source-Wide PTI No MI-PTI-N6996-2013 is being reissued as Source-Wide PTI No. MI-PTI-N6996-2018a.

Permit to Install Number	ROP Revision Application Number	Description of Equipment or Change	Corresponding Emission Unit(s) or Flexible Group(s)
~~175-15B~~		~~Application for an increase in the denatured ethanol throughput, the ability to load out undenatured ethanol, proposed PM2.5, PM10, VOC, and acetaldehyde limits, the installation of a second wet scrubber, the correction of specific stack parameters, and the installation of a single stack for the five hammermills instead of five separate stacks.~~	~~EUFBCOOLER, EUDDGSSILO, FGCORN-DDGS, FGSCALP, FGFLOUR, FGFERM&DIST, FGDDGSDRYERS, FGETHLOAD~~

The following table lists the ROP amendments or modifications issued after the effective date of ROP No. MI-ROP-N6996-2018.

Permit to Install Number	ROP Revision Application Number - Issuance Date	Description of Equipment or Change	Corresponding Emission Unit(s) or Flexible Group(s)
39-19	202200002 / {Date of Issuance}	To incorporate PTI 39-19 into the ROP, which is to modify the existing ethanol production facility. The modifications and installations include: Increases the	EUFBCOOLER EUFERMENTER1 EUFERMENTER2 EUFERMENTER3

Permit to Install Number	ROP Revision Application Number - Issuance Date	Description of Equipment or Change	Corresponding Emission Unit(s) or Flexible Group(s)
		combined ethanol and denaturant loadout limit to 95 MMGPY; Re-routes the whole stillage tank from the wet scrubber to the RTO/TO; increased a VOC emission limit on EUFBCOOLER to 7.54 lbs/hr based on a recent stack test; and modified stack vent #25 to a vertical discharge for FGDDGSDRYERS. Additionally, there were no increases of existing emission limits with the exception of the lb/hr increase for EUFBCOOLER. The PTE calculations were included with the PTI application for the facility that showed it would continue with its synthetic minor status for PSD regulations. The PTI was not required to go through the public participation process.	EUFERMENTER4 EUFERMENTER5 EUFERMENTER6 EUFERMENTER7 EUBEERWELL EUBEERSTRIP EUBEERSTRIP2 EURECTIFIER EUSIDESTRIP EUSIEVE EUSIEVE2 EUYEAST EUEVAPORATOR EURTO EUTO&HRB EUDDGSDRYER1 EUDDGSDRYER2 EUCENTRIFUGE1 EUCENTRIFUGE2 EUCENTRIFUGE3 EUCENTRIFUGE4 EUCENTRIFUGE5 EUCENTRIFUGE6 EUTRUCKLOAD3 EUTRUCKLOAD4 EURAILLOAD2 EUNATGASTANK1 EUNATGASTANK2 EU190TANK EU200TANK1 EU200TANK2 EUSTILLAGETANK FGFERM&DIST FGDDGSDRYERS FGETHLOAD FGNSPSTANKS FGETHANOLTANKS FGNSPSVVa

Appendix 7. Emission Calculations

There are no specific emission calculations to be used for this ROP. Therefore, this appendix is not applicable.

Appendix 8. Reporting

A. Annual, Semiannual, and Deviation Certification Reporting

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

B. Other Reporting

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

STATE OF MICHIGAN
DEPARTMENT OF
ENVIRONMENT, GREAT LAKES, AND ENERGY
LANSING

GRETCHEN WHITMER
GOVERNOR

LIESL EICHLER CLARK
DIRECTOR

July 5, 2019

Mr. David Gloer, General Manager
POET Biorefining – Caro, LLC
1551 Empire Drive
Caro, Michigan 48723

Dear Mr. Gloer:

This letter is in reference to your Permit to Install (PTI) application for modifications to your existing ethanol production facility located at 1551 Empire Drive, Caro, Michigan (State Registration Number N6996). This application, identified as No. 39-19, has been evaluated and approved by the Air Quality Division (AQD), pursuant to the delegation of authority from the Michigan Department of Environment, Great Lakes, and Energy (EGLE).

This approval is based upon and subject to compliance with all administrative rules promulgated pursuant to Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Act 451), and conditions stipulated in the enclosed supplement. Please review these conditions thoroughly so that you may take the actions necessary to ensure compliance with all of these conditions.

The equipment covered by this permit is also subject to the requirements of the Renewable Operating Permit Program. Submittal of the M-001 and C-001 forms may be required prior to commencing operation. Additional information is included in the M-001 form instructions. The forms and instructions are available on the Internet, or they can be obtained by contacting the Saginaw Bay District Office at 989-894-6200. The AQD permit Web page is located at https://www.michigan.gov/air, click the "Permits" tab, and click the link at the first bullet entitled "Air Quality Division Permits."

A change that is subject to Rule 215 subrules (1), (2), or (3) of Act 451 requires the submittal of the forms to the appropriate AQD District Office. If a change is made pursuant to Rule 216, please submit the required forms to the Cadillac District Office at the address provided in the M-001 form instructions. Also, you must notify the Cadillac District Office, in writing, within 30 days after completion of the installation, construction, reconstruction, relocation, or modification of the process or process equipment covered by this PTI.

To help us improve the service we provide our customers, we encourage you to complete a *Permit to Install Customer Service Survey* on the following Web page:

https://www.surveymonkey.com/s/aqdptics

Please contact me if you have any questions regarding this permit.

Sincerely,

David S. Thompson, Environmental Engineer
General Manufacturing/Chemical Process Unit
Permit Section, Air Quality Division
517-284-6787
Thompsond22@michigan.gov

Enclosures
cc/enc: Mr. Chris Hare, DEQ

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

May 20, 2019

PERMIT TO INSTALL
39-19

ISSUED TO
POET Biorefining – Caro, LLC

LOCATED AT
1551 Empire Drive
Caro, Michigan

IN THE COUNTY OF
Tuscola

STATE REGISTRATION NUMBER
N6996

The Air Quality Division has approved this Permit to Install, pursuant to the delegation of authority from the Michigan Department of Environment, Great Lakes, and Energy. This permit is hereby issued in accordance with and subject to Section 5505(1) of Article II, Chapter I, Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. Pursuant to Air Pollution Control Rule 336.1201(1), this permit constitutes the permittee's authority to install the identified emission unit(s) in accordance with all administrative rules of the Department and the attached conditions. Operation of the emission unit(s) identified in this Permit to Install is allowed pursuant to Rule 336.1201(6).

DATE OF RECEIPT OF ALL INFORMATION REQUIRED BY RULE 203: **May 3, 2019**	
DATE PERMIT TO INSTALL APPROVED: **May 20, 2019**	SIGNATURE:
DATE PERMIT VOIDED:	SIGNATURE:
DATE PERMIT REVOKED:	SIGNATURE:

PERMIT TO INSTALL

Table of Contents

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/EGLE/department	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
EUFBCOOLER	Fluidized Bed Cooler w/fabric filter collector	11/4/2002, Date of PTI	NA
EUFERMENTER1	Fermenter #1	11/4/2002	FGFERM&DIST, FGNSPSVVa
EUFERMENTER2	Fermenter #2	11/4/2002	FGFERM&DIST, FGNSPSVVa
EUFERMENTER3	Fermenter #3	11/4/2002	FGFERM&DIST, FGNSPSVVa
EUFERMENTER4	Fermenter #4	11/4/2002	FGFERM&DIST, FGNSPSVVa
EUFERMENTER5	Fermenter #5	10/20/2005	FGFERM&DIST, FGNSPSVVa
EUFERMENTER6	Fermenter #6	10/20/2005	FGFERM&DIST, FGNSPSVVa
EUFERMENTER7	Fermenter #7	4/1/2016	FGFERM&DIST, FGNSPSVVa
EUFERMENTER8	Fermenter #8	TBD	FGFERM&DIST, FGNSPSVVa
EUBEERWELL	Beer well	11/4/2002	FGFERM&DIST, FGNSPSVVa
EUBEERSTRIP	Beer stripper	11/4/2002	FGFERM&DIST, FGNSPSVVa
EUBEERSTRIP2	Beer stripper #2	4/1/2016	FGFERM&DIST, FGNSPSVVa
EURECTIFIER	Rectifier	11/4/2002	FGFERM&DIST, FGNSPSVVa
EUSIDESTRIP	Side stripper	11/4/2002	FGFERM&DIST, FGNSPSVVa
EUSIEVE	Molecular sieve	11/4/2002	FGFERM&DIST, FGNSPSVVa
EUSIEVE2	Molecular sieve #2	4/1/16	FGFERM&DIST, FGNSPSVVa
EUYEAST	Yeast tank	11/4/2002	FGFERM&DIST
EUEVAPORATOR	Evaporator	11/4/2002	FGFERM&DIST
EURTO	Regenerative Thermal Oxidizer	10/20/2005	FGDDGSDRYERS
EUTO&HRB	Thermal oxidizer and heat recovery boiler	10/20/2005	FGDDGSDRYERS
EUDDGSDRYER1	DDGS dryer	11/4/2002	FGDDGSDRYERS
EUDDGSDRYER2	DDGS dryer	11/4/2002	FGDDGSDRYERS
EUCENTRIFUGE1	Centrifuge #1	11/4/2002	FGDDGSDRYERS
EUCENTRIFUGE2	Centrifuge #2	11/4/2002	FGDDGSDRYERS
EUCENTRIFUGE3	Centrifuge #3	11/4/2002	FGDDGSDRYERS
EUCENTRIFUGE4	Centrifuge #4	11/4/2002	FGDDGSDRYERS
EUCENTRIFUGE5	Centrifuge #5	10/1/2005	FGDDGSDRYERS
EUCENTRIFUGE6	Centrifuge #6	4/1/2016	FGDDGSDRYERS

Emission Unit ID	Emission Unit Description (Including Process Equipment & Control Device(s))	Installation Date / Modification Date	Flexible Group ID
EUTRUCKLOAD3	Truck load spout #3 (for ethanol, including E85)	11/4/2002 5/22/2009	FGETHLOAD, FGNSPSVVa
EUTRUCKLOAD4	Truck load spout #4 (for ethanol, including E85)	11/4/2002 5/22/2009	FGETHLOAD, FGNSPSVVa
EURAILLOAD2	Rail load spout #2 (for ethanol, including E85)	11/4/2002 5/22/2009	FGETHLOAD, FGNSPSVVa
EUNATGASTANK1	Storage tank T-802 for denaturant (natural gasoline)	3/12/2008	FGNSPSTANKS
EUNATGASTANK2	Storage tank T-805 for denaturant (natural gasoline)	3/12/2008	FGNSPSTANKS
EU190TANK	Storage tank T-801 for 190 proof ethanol	11/4/2002	FGETHANOLTANKS
EU200TANK1	Storage tank T-803 for 200 proof ethanol	3/12/2008	FGETHANOLTANKS
EU200TANK2	Storage tank T-804 for 200 proof ethanol	3/12/2008	FGETHANOLTANKS
EUSTILLAGETANK	Whole Stillage Tank	4/1/2016	FGDDGSDRYERS

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.

EUFBCOOLER
EMISSION UNIT CONDITIONS

DESCRIPTION

Fluidized Bed Cooler w/fabric filter collector

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT

Fabric filter collector (CE008)

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Monitoring / Testing Method	Underlying Applicable Requirements
1. PM	0.0060 lbs per 1000 lbs of gas[a]	Hourly	EUFBCOOLER	SC V.1, VI.2	R 336.1331
2. PM10	0.65 lb/hr	Hourly	EUFBCOOLER	SC V.1, VI.2	40 CFR 52.21(c) & (d)
3. PM2.5	0.65 lb/hr	Hourly	EUFBCOOLER	SC V.1, VI.2	40 CFR 52.21(c) & (d)
4. VOC	7.54 lb/hr	Hourly	EUFBCOOLER	SC V.1, VI.1	R 336.1225, R 336.1702(a)

[a]Calculated on a dry gas basis

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall not operate EUFBCOOLER unless the fabric filter collector (CE008) is installed, maintained, and operated in a satisfactory manner. **(R 336.1331, R 336.1910, 40 CFR 52.21(c) & (d))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

V. TESTING/SAMPLING

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

1. Upon request of the AQD District Supervisor, the permittee shall verify PM, PM10, PM2.5, and VOC emission rates from EUFBCOOLER by testing at the owner's expense, in accordance with Department requirements. Testing shall be performed using an approved EPA Method listed in Reference Test Method Table #1. 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 336.1225, R 336.1331, R 336.1702, R 336.2001, R 336.2003, R 336.2004, 40 CFR 52.21(c) & (d))**

Reference Test Method Table #1

Pollutant	Test Method Reference
PM	40 CFR Part 60, Appendix A; Part 10 of the Michigan Air Pollution Control Rules
PM10/PM2.5	40 CFR Part 51, Appendix M
VOCs	40 CFR Part 60, Appendix A

VI. MONITORING/RECORDKEEPING

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

1. The permittee shall keep production records on a monthly basis and other records necessary to demonstrate compliance with the VOC emission rate limit. The VOC emission rate shall be calculated based upon monthly records prorated to an hourly rate. **(R 336.1225, R 336.1702(a))**

2. The permittee shall monitor and record the pressure drop and/or a visible emission check of the fabric filter collector (CE008) on a daily basis, during days of operation, and will inspect the fabric filter collector (CE008) on an annual basis to confirm satisfactory operation. For the purpose of this condition, a visible emission check does not have to be in accordance with Method 9. If a check reveals any visible emissions from the vent (excluding uncombined water vapor), the permittee shall perform any maintenance required to eliminate visible emissions. The permittee shall keep records of the results of the visible emission check and of any maintenance performed after visible emissions are observed. **(R 336.1331, 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. SV007	37	35	R 336.1225, 40 CFR 52.21(c) & (d)

IX. OTHER REQUIREMENT(S)

NA

Footnotes:

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

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
FGFERM&DIST	Fermentation and Distillation processes that exhaust to one of two packed-bed wet scrubbers (CE004 or CE014). If the scrubbers are down for maintenance the exhaust can be rerouted to the RTO (CE012). This flexible group is also subject to the requirements of 40 CFR Part 60, Subpart VVa.	EUFERMENTER1, EUFERMENTER2, EUFERMENTER3, EUFERMENTER4, EUFERMENTER5, EUFERMENTER6, EUFERMENTER7, EUFERMENTER8, EUBEERWELL, EUBEERSTRIP, EUBEERSTRIP2, EURECTIFIER, EUSIDESTRIP, EUSIEVE, EUSIEVE2, EUYEAST, EUEVAPORATOR, EURTO
FGDDGSDRYERS	Dried Distiller's Grains with Solubles (DDGS) Dryers and Centrifugation with the following air pollution control equipment: • Multiclone dust collector (CE006 & CE007) • Thermal Oxidizer & Heat Recovery Boiler (TO&HRB) (CE010) • Regenerative Thermal Oxidizer (RTO) (CE012)	EUDDGSDRYER1, EUDDGSDRYER2, EUTO&HRB, EURTO, EUCENTRIFUGE1, EUCENTRIFUGE2, EUCENTRIFUGE3, EUCENTRIFUGE4, EUCENTRIFUGE5, EUCENTRIFUGE6, EUSTILLAGETANK
FGETHLOAD	Ethanol truck and rail load out. FGETHLOAD is subject to the requirements of 40 CFR Part 60, Subpart VVa.	EUTRUCKLOAD3, EUTRUCKLOAD4, EURAILLOAD2

Flexible Group ID	Flexible Group Description	Associated Emission Unit IDs
FGNSPSVVa	All pumps, valves and pressure relief devices in light liquid and heavy liquid service; all valves and pressure relief devices in gas/vapor service; each open-ended valve or line and all associated closed vent systems and control devices. FGNSPSVVa is subject to the requirements of Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry for Which Construction, Reconstruction, or Modification Commenced After November 7, 2006 of 40 CFR Part 60, Subpart VVa.	EUFERMENTER1, EUFERMENTER2, EUFERMENTER3, EUFERMENTER4, EUFERMENTER5, EUFERMENTER6, EUFERMENTER7, EUFERMENTER8, EUBEERWELL, EUBEERSTRIP, EUBEERSTRIP2, EURECTIFIER, EUSIDESTRIP, EUSIEVE, EUSIEVE2, EUTRUCKLOAD3, EUTRUCKLOAD4, EURAILLOAD2, EUNATGASTANK1, EUNATGASTANK2, EU190TANK, EU200TANK1, EU200TANK2

FGFERM&DIST
FLEXIBLE GROUP CONDITIONS

DESCRIPTION

Fermentation and Distillation processes that exhaust to one of two packed-bed wet scrubbers (CE004 or CE014). If the scrubbers are down for maintenance the exhaust can be rerouted to the RTO (CE012). This flexible group is also subject to the requirements of 40 CFR Part 60, Subpart VVa.

Emission Unit: EUFERMENTER1, EUFERMENTER2, EUFERMENTER3, EUFERMENTER4, EUFERMENTER5, EUFERMENTER6, EUFERMENTER7, EUFERMENTER8, EUBEERWELL, EUBEERSTRIP, EUBEERSTRIP2, EURECTIFIER, EUSIDESTRIP, EUSIEVE, EUSIEVE2, EUYEAST, EUEVAPORATOR, EURTO

POLLUTION CONTROL EQUIPMENT

Packed-bed wet scrubbers (CE004 or CE014); regenerative thermal oxidizer (RTO) (CE012) for Scrubber Bypass Episode.

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Monitoring / Testing Method	Underlying Applicable Requirements
1. VOC	19.66 lb/hr**	Hourly	FGFERM&DIST	SC IV.1, SC IV.2, SC V.1, SC VI.1, SC VI.2, SC VI.3, SC VI.4	R 336.1225, R 336.1702(a)
2. VOC	30.74 lb/hr***	Hourly	FGFERM&DIST	SC V.2, SC VI.5	R 336.1225, R 336.1702(a)
3. Acetaldehyde (CAS No. 75-07-0)	1.50 lb/hr[1]**	Hourly	FGFERM&DIST	SC IV.1, SC IV.2, SC V.1	R 336.1225
**Emission limit will apply when venting through one of the scrubbers (CE004 or CE014). ***Emission Limit will apply when venting through the RTO (CE012).					

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall maintain a minimum overall VOC control efficiency of 97.0 percent across the scrubbers (CE004 and CE014). **(R 336.1225, R 336.1702(a))**

2. The permittee shall not operate the scrubber (CE004 or CE014) at a reduced water flow rate unless a revised malfunction abatement plan (MAP) has been developed and implemented for FGFERM&DIST. The revised plan shall be updated as necessary to reflect changes in equipment, to implement corrective actions and to address malfunctions. The MAP shall be made available to the AQD upon request. **(R 336.1910, R 336.1912)**

3. Scrubber Bypass Episode: the permittee may operate equipment in FGFERM&DIST without the associated scrubber and chiller installed, maintained, and operated in a satisfactory manner if, in the event that both associated scrubbers (CE004 and CE014) are unavailable due to maintenance or other operational reason, the equipment in FGFERM&DIST is vented to the RTO (CE012). The RTO must be installed, maintained and operated in a satisfactory manner according to the MAP. The permittee shall not operate FGFERM&DIST while bypassing the scrubbers for more than 100 hours per 12-month rolling time period. **(R 336.1225, R 336.1702(a), R 336.1910)**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall not operate any equipment in FGFERM&DIST unless the chiller associated with the scrubber in operation (CE004 or CE014) is installed, maintained, and operated in a satisfactory manner, except allowed by SC III.3. Satisfactory operation of the chiller includes maintaining the exhaust temperature of the scrubber in the range identified in the MAP as constituting satisfactory operation. **(R 336.1225, R 336.1702(a), R 336.1901, R 336.1910)**

2. The permittee shall not operate any equipment in FGFERM&DIST unless one of the scrubbers (CE004 or CE014) is installed, maintained, and operated in a satisfactory manner, except as allowed by SC III.3. Satisfactory operation of the scrubber includes maintaining the scrubber liquid flow rate and pressure drop in the range identified in the MAP as constituting satisfactory operation. An excursion of the scrubber liquid flow rate and pressure drop limit is the exceedance of the operational parameter limit or acceptable range defined in the MAP. Upon detecting an excursion of the liquid flow rate and pressure drop limit, the permittee shall restore operation of the scrubber to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing emissions. **(R 336.1225, R 336.1702(a), R 336.1901, R 336.1910)**

3. The permittee shall equip and maintain each scrubber (CE004 and CE014) with a liquid flow rate indicator capable of accurately indicating the scrubber liquid flow rate over the entire range of flow rates that constitutes satisfactory operation, as described in the MAP. This includes, but is not limited to, maintaining necessary parts for routine repairs of the monitoring equipment, and maintaining the device according to manufacturer's specifications (e.g., equipment calibration, etc.).[2] **(R 336.1225, R 336.1702(a), R 336.1910)**

4. The permittee shall equip and maintain each scrubber (CE004 and CE014) with a pressure drop measuring device. This includes, but is not limited to, maintaining necessary parts for routine repairs of the monitoring equipment, and maintaining the device according to manufacturer's specifications (e.g., equipment calibration, etc.). **(R 336.1225, R 336.1702(a), R 336.1910)**

5. The permittee shall equip and maintain each scrubber (CE004 and CE014) with a temperature indicator that is capable of accurately indicating the exhaust temperature over the entire range of temperatures that constitutes satisfactory operation as described in the MAP. **(R 336.1225, R 336.1702(a), R 336.1910)**

V. TESTING/SAMPLING

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

1. On or before six months of the ROP expiration date, the permittee shall verify VOC and Acetaldehyde emission rates from FGFERM&DIST by testing at the owner's expense, in accordance with Department requirements. Testing shall be performed using an approved EPA Method listed in Reference Test Method Table #6. 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 336.1225, R 336.1702(a), R 336.1902, R 336.2001, R 336.2003, R 336.2004, 40 CFR 52.21(c) & (d))**

Reference Test Method Table #6

Pollutant	Test Method Reference
VOCs	40 CFR Part 60, Appendix A
Acetaldehyde	40 CFR Part 63, Appendix A

2. Upon request of the AQD District Supervisor, the permittee shall verify VOC emission rates from FGFERM&DIST during the Scrubber Bypass Episode, as described in SC III.3, by testing at the owner's expense in accordance with Department requirements. Testing shall be performed using an approved EPA Method listed in 40 CFR Part 60, Appendix A. An alternate method, or a modification to the approved EPA

Method, may be specified in an AQD approved Test Protocol. No less than 30 days prior to testing, the permittee shall submit a complete test plan to the AQD Technical Programs Unit and District Office. The AQD must approve the final plan prior to testing, including any modifications to the method in the test protocol that are proposed after initial submittal. 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 336.1225, R 336.1702(a), R 336.1902, R 336.2001, R 336.2003, R336.2004, 40 CFR 52.21(c) & (d))**

VI. MONITORING/RECORDKEEPING

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

1. The permittee shall complete all required calculations in a format acceptable to the AQD District Supervisor by the 15th day of the calendar month, for the previous calendar month, unless otherwise specified in any monitoring/recordkeeping special condition. **(R 336.1225, R 336.1702(a))**

2. The permittee shall monitor the scrubber liquid flow rate and exhaust temperature of the operational scrubber (CE004 or CE014) on a continuous basis during operation of FGFERM&DIST. **(R 336.1225, R 336.1702(a), R 336.1901, R 336.1910)**

3. The permittee shall record the scrubber liquid flow rate, exhaust temperature and pressure drop of the operational scrubber (CE004 or CE014) on a daily basis. The data point recorded shall be the average of all data collected during the operating day. **(R 336.1225, R 336.1702(a), R 336.1901, R 336.1910)**

4. The permittee shall keep production records on a monthly basis and other records necessary to demonstrate compliance with the VOC emission rate limit listed in SC I.1. The VOC emission rate shall be calculated based upon monthly records, prorated to an hourly rate. The permittee shall keep these records on file for a period of at least five years and make them available to the Department upon request. **(R 336.1225, R 336.1702(a))**

5. The permittee shall keep, in a satisfactory manner, records of the number of scrubber bypass episodes per calendar month and 12-month rolling time period as determined at the end of each calendar month. The permittee shall also record the duration, in hours, of each scrubber bypass episode and the reason the scrubber bypass episode occurred. The permittee shall keep all records on file at the facility and make them available to the Department upon request. **(R 336.1225, R 336.1702(a))**

VII. REPORTING

1. Within 30 days after completion of the installation, construction, reconstruction, relocation, or modification authorized by this Permit to Install, the permittee or the authorized agent pursuant to Rule 204, shall notify the AQD District Supervisor, in writing, of the completion of the activity. Completion of the installation, construction, reconstruction, relocation, or modification is considered to occur not later than commencement of trial operation of EUFERMENTER8. **(R 336.1201(7)(a))**

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. SV004	24[1]	83[1]	R 336.1225
2. SV024*	44[1]	100[1]	R 336.1225
3. SV029	24[1]	61[1]	R 336.1225
*During a bypass episode only			

IX. OTHER REQUIREMENT(S)

1. The permittee shall comply with all provisions of the federal NSPS Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry for Which Construction, Reconstruction, or Modification Commenced After November 7, 2006, as specified in 40 CFR Part 60, Subparts A and VVa, as they apply. **(40 CFR Part 60, Subparts A and VVa)**

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

FGDDGSDRYERS
FLEXIBLE GROUP CONDITIONS

DESCRIPTION

Dried Distiller's Grains with Solubles (DDGS) Dryers and Centrifugation with the following air pollution control equipment:

- Multiclone dust collector (CE006 & CE007)
- Thermal Oxidizer & Heat Recovery Boiler (TO&HRB) (CE010)
- Regenerative Thermal Oxidizer (RTO) (CE012)

Emission Unit: EUDDGSDRYER1, EUDDGSDRYER2, EUTO&HRB, EURTO, EUCENTRIFUGE1, EUCENTRIFUGE2, EUCENTRIFUGE3, EUCENTRIFUGE4, EUCENTRIFUGE5, EUCENTRIFUGE6, EUSTILLAGETANK

POLLUTION CONTROL EQUIPMENT

Multiclone dust collector (CE006 & CE007), Thermal Oxidizer & Heat Recovery Boiler (TO&HRB) (CE010), Regenerative Thermal Oxidizer (RTO) (CE012).

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Monitoring / Testing Method	Underlying Applicable Requirements
1. PM	4.00 lb/hr	Hourly	EUTO&HRB	SC V.2, VI.4, 5	R 336.1331
2. PM10	4.00 lb/hr	Hourly	EUTO&HRB	SC V.1, VI.4, 5	40 CFR 52.21(c) & (d)
3. PM2.5	4.00 lb/hr	Hourly	EUTO&HRB	SC V.1, VI.4, 5	40 CFR 52.21(c) & (d)
4. PM	6.00 lb/hr	Hourly	EURTO	SC V.2, VI.4, 5	R 336.1331
5. PM10	6.00 lb/hr	Hourly	EURTO	SC V.1, VI.4, 5	40 CFR 52.21(c) & (d)
6. PM2.5	6.00 lb/hr	Hourly	EURTO	SC V.1, VI.4, 5	40 CFR 52.21(c) & (d)
7. VOC	9.00 lb/hr combined**	Hourly	FGDDGSDRYERS	SC V.1, VI.1, 2, 3, 6	R 336.1225, R 336.1702(a), R 336.1901
8. VOC	6.13 lb/hr combined***	Hourly	EUCENTRIFUGE1 to 6 and EUSTILLAGETANK	SC V.3, VI.1, 2, 3, 7	R 336.1225, R 336.1702(a), R 336.1901
9. NOx	0.10 lb/MMBtu	Hourly	FGDDGSDRYERS	SC V.1	40 CFR 52.21(c) & (d)

**Combined refers to TO&HRB stack and RTO stack.
***Combined refers to stack 025 when producing wet cake and TO&HRB and RTO are not operating.

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall only use sweet natural gas as fuel in EUDDGSDRYER1 and EUDDGSDRYER2. **(40 CFR 52.21(c) & (d))**

2. The permittee shall only use sweet natural gas as supplemental fuel in the thermal oxidizer EUTO&HRB (CE010) and in the regenerative thermal oxidizer EURTO (CE012). **(40 CFR 52.21(c) & (d))**

3. The permittee shall comply with all provisions of the federal Standards of Performance for New Stationary Sources as specified in 40 CFR Part 60, Subparts A and Dc, as they apply to the equipment in FGDDGSDRYERS. **(40 CFR Part 60, Subparts A & Dc)**

4. The permittee shall only exhaust emissions from EUCENTRIFUGE1 to 6 and EUSTILLAGETANK to stack SV025 when wet cake is produced. Otherwise, the permittee shall not operate EUCENTRIFUGE1 to 6 and EUSTILLAGETANK unless EUTO&HRB (CE010) or EURTO (CE012) are installed, maintained and operated in a satisfactory manner according to the MAP. **(R 336.1225, R 336.1702(a), R 336.1901)**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall not operate either dryer in FGDDGSDRYERS unless the associated multiclone (CE006 or CE007) is installed, maintained, and operated in a satisfactory manner. Satisfactory operation of each multiclone includes maintaining it according to the MAP. **(R 336.1331, R 336.1910, 40 CFR 52.21(c) & (d))**

2. The permittee shall not feed materials to either dryer in FGDDGSDRYERS unless either the thermal oxidizer EUTO&HRB (CE010) or the regenerative thermal oxidizer EURTO (CE012) is installed, maintained, and operated in a satisfactory manner and overall operation complies with a scenario in SC IV.2(c). Satisfactory operation includes taking the actions listed below: **(R 336.1225, R 336.1331, R 336.1702(a), R 336.1901, R 336.1910, 40 CFR 52.21(c) & (d))**
   a. Satisfactory operation of the thermal oxidizer (CE010) includes maintaining it according to the MAP, attaining a minimum VOC destruction efficiency of 95.0 percent by weight, and maintaining a minimum temperature consistent with satisfactory operation, as described in the MAP;
   b. Satisfactory operation of the regenerative thermal oxidizer (CE012) includes maintaining it according to the MAP, attaining a minimum VOC destruction efficiency of 95.0 percent by weight, and maintaining a minimum temperature consistent with satisfactory operation, as described in the MAP;
   c. Acceptable operating scenarios for each dryer and oxidizer in FGDDGSDRYERS are the following:
      i. If both oxidizers are operating, the permittee may operate one or both dryers;
      ii. If the thermal oxidizer (CE010) is the only oxidizer operating, the permittee may operate one or both dryers;
      iii. If the regenerative thermal oxidizer (CE012) is the only oxidizer operating, the permittee shall not operate more than one dryer.

V. TESTING/SAMPLING

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

1. On or before six months of the ROP expiration date, the permittee shall verify PM, PM10, PM2.5, VOC, and NOx emission rates from EUTO&HRB (CE010) and EURTO (CE012) by testing at the owner's expense, in accordance with Department requirements. Testing shall be performed using an approved EPA Method listed in Reference Test Method Table #7. 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 336.1331, R 336.1702, R 336.1902, R 336.2001, R 336.2003, R 336.2004, 40 CFR 52.21(c) & (d))**

Reference Test Method Table #7

Pollutant	Test Method Reference
PM	40 CFR Part 60, Appendix A; Part 10 of the Michigan Air Pollution Control Rules
PM10/PM2.5	40 CFR Part 51, Appendix M
NOx	40 CFR Part 60, Appendix A
VOCs	40 CFR Part 60, Appendix A

2. Upon request of the AQD District Supervisor, the permittee shall verify PM emission rates from EUTO&HRB (CE010) and EURTO (CE012) by testing at the owner's expense in accordance with Department requirements. Testing shall be performed using an approved EPA Method listed in 40 CFR Part 60, Appendix A or Part 10 of the Michigan Air Pollution Control Rules. 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 336.1331, R 336.1902, R 336.2001, R 336.2003, R 336.2004, 40 CFR 52.21(c) & (d))**

3. Upon request of the AQD District Supervisor, the permittee shall verify VOC emission rates from EUCENTRIFUGE1 to 6 and EUSTILLAGETANK by testing at the owner's expense in accordance with Department requirements. Testing shall be performed using an approved EPA Method listed in 40 CFR Part 60, Appendix A. An alternate method, or a modification to the approved EPA Method, may be specified in an AQD approved Test Protocol. No less than 30 days prior to testing, the permittee shall submit a complete test plan to the AQD Technical Programs Unit and District Office. The AQD must approve the final plan prior to testing, including any modifications to the method in the test protocol that are proposed after initial submittal. 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 336.1225, R 336.1702, R 336.1902, R 336.2001, R 336.2003, R 336.2004)**

VI. MONITORING/RECORDKEEPING

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

1. The permittee shall install, calibrate, maintain, and operate in a satisfactory manner a device to monitor and record on a continuous basis the minimum temperature to which exhaust gases from the dryers are exposed in the thermal oxidizer EUTO&HRB (CE010). **(R 336.1225, R 336.1702(a), R 336.1901, R 336.1910)**

2. The permittee shall install, calibrate, maintain, and operate in a satisfactory manner a device to monitor and record on a continuous basis the minimum temperature to which exhaust gases from the dryers are exposed in the regenerative thermal oxidizer EURTO (CE012). **(R 336.1225, R 336.1702(a), R 336.1901, R 336.1910)**

3. The permittee shall keep, in a satisfactory manner, continuous records of the minimum temperature to which exhaust gases from the dryers are exposed in the thermal oxidizer EUTO&HRB (CE010) and the regenerative thermal oxidizer EURTO (CE012). **(R 336.1225, R 336.1702(a), R 336.1901, R 336.1910)**

4. The permittee shall monitor the multiclone dust collector (CE006 & CE007) pressure drop on a continuous basis during operation of FGDDGSDRYERS. **(R 336.1331, 40 CFR 52.21(c) & (d))**

5. The permittee shall record the multiclone dust collector (CE006 & CE007) pressure drop on a daily basis. The data point recorded shall be the average of all data collected during the operating day. **(40 CFR 52.21(c) & (d))**

6. The permittee shall keep monthly production records, monthly records of the ethanol content of distillation bottoms, and other records necessary to demonstrate compliance with the VOC emission rate limit listed in SC I.7 from FGDDGSDRYERS. The emission rate shall be calculated based upon monthly records, prorated to an hourly rate. The permittee shall keep these records on file for a period of at least five years and make them available to the Department upon request. **(R 336.1225, R 336.1702(a), R 336.1901, R 336.1910)**

7. The permittee shall keep monthly wet cake production records and other records necessary to demonstrate compliance with the VOC emission rate limit listed in SC I.8 when EUCENTRIFUGE1 to 6 and EUSTILLAGETANK are not being vented to EUTO&HRB (CE010) or EURTO (CE012). The emission rate shall be calculated based upon monthly records, prorated to an hourly rate based on actual hours operated manufacturing wet cake when EUCENTRIFUGE1 to 6 and EUSTILLAGETANK are not being vented to EUTOHRB (CE010) or EURTO (CE012). The permittee shall keep these records on file for a period of at least five years and make them available to the Department upon request. **(R 336.1225, R 336.1702(a), R 336.1901, R 336.1910)**

8. The permittee shall keep, in a satisfactory manner, records of the natural gas consumed by EUTO&HRB on a daily basis. The permittee shall keep these records on file for a period of at least five years and make them available to the Department upon request. **(R 336.1331, 40 CFR Part 60, Subparts A and Dc)**

9. The permittee shall continuously monitor the temperature of the thermal oxidizer EUTO&HRB (CE010) and the regenerative thermal oxidizer EURTO (CE012). Continuous shall be defined as sampling at least every 15 minutes. **(R 336.1225, R 336.1331, R 336.1702(a), R 336.1901, 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. SV006	80	125	R 336.1225, 40 CFR 52.21(c) & (d)
2. SV024	44	100	R 336.1225, 40 CFR 52.21(c) & (d)
3. SV025[1]	6	35	R 336.1225

IX. OTHER REQUIREMENT(S)

NA

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

FGETHLOAD
FLEXIBLE GROUP CONDITIONS

DESCRIPTION

Ethanol truck and rail load out. FGETHLOAD is subject to the requirements of 40 CFR Part 60, Subpart VVa.

Emission Unit: EUTRUCKLOAD3, EUTRUCKLOAD4, EURAILLOAD2

POLLUTION CONTROL EQUIPMENT

Thermal oxidizer EUTO&HRB (CE010) for truck load out.

I. EMISSION LIMIT(S)

NA

II. MATERIAL LIMIT(S)

1. The FGETHLOAD throughput shall not exceed the following:
   a. 5,000,000 gallons per 12-month rolling time period of natural gasoline, hereinafter "denaturant";
   b. 95,000,000 gallons per 12-month rolling time period of total ethanol and denaturant, combined;
   c. A total of 5,000,000 gallons per 12-month rolling time period of total ethanol and denatured ethanol, combined under all of the following conditions combined:
      i. While the displaced vapor contents from loading trucks through EUTRUCKLOAD3 and EUTRUCKLOAD4 are not being controlled by the thermal oxidizer (CE010);
      ii. While transferring through EURAILLOAD2 to receiving railcars that last transported denaturant.

   Each annual throughput limit above shall be based on a rolling 12-month time period as determined at the end of each calendar month. **(R 336.1225, R 336.1227(2), R 336.1702(a))**

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall not load trucks through EUTRUCKLOAD3 (SV014) while the vapor recovery system fan is not operating.[1] **(R 336.1225, R 336.1227(2))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall not transfer material through EURAILLOAD2 unless the receiving railcar has been certified as dedicated to transporting ethanol, including denatured ethanol, except as allowed by SC II.1(c)(ii).[1] **(R 336.1225, R 336.1227(2))**

2. Except as allowed by SC II.1(c)(i), the permittee shall not load trucks through EUTRUCKLOAD3 and EUTRUCKLOAD4 unless the thermal oxidizer (CE010) is installed, maintained, and operated in a satisfactory manner. Satisfactory operation of the thermal oxidizer (CE010) is specified in FGDDGSDRYERS SC IV.2(a). **(R 336.1225, R 336.1702(a), R 336.1901, R 336.1910)**

V. TESTING/SAMPLING

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

NA

VI. MONITORING/RECORDKEEPING

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

1. The permittee shall keep, in a satisfactory manner, the following records for FGETHLOAD for each calendar month and for the rolling 12-month time period ending each calendar month:
   a. Throughput of denaturant, ethanol, and denatured ethanol for FGETHLOAD;[1] **(R 336.1225, R 336.1227(2))**
   b. Throughput of total ethanol and denatured ethanol for EUTRUCKLOAD3 and EUTRUCKLOAD4 combined while displaced vapor contents of the trucks being loaded are exhausted through SV014 or SV015;[1] **(R 336.1225, R 336.1227(2))**
   c. Throughput of total ethanol and denatured ethanol for EURAILLOAD2 to receiving railcars that last transported denaturant;[1] **(R 336.1225, R 336.1227(2))**
   d. Total of throughputs recorded for SC VI.1.b and SC VI.1.c;[1] **(R 336.1225, R 336.1227(2))**
   e. Railcars receiving material through EURAILLOAD2 each month and which railcars have been certified as dedicated to transporting ethanol, including denatured ethanol.[1] **(R 336.1225, R 336.1227(2))**

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. SV006	80	125	R 336.1225
2. SV014	12	10	R 336.1225
3. SV015	12	10	R 336.1225
4. SV016	4	25	R 336.1225

IX. OTHER REQUIREMENT(S)

1. The permittee shall comply with all provisions of the federal NSPS Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry for Which Construction, Reconstruction, or Modification Commenced After November 7, 2006, as specified in 40 CFR Part 60, Subparts A and VVa, as they apply. **(40 CFR Part 60, Subparts A and VVa)**

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

FGNSPSVVa
FLEXIBLE GROUP CONDITIONS

DESCRIPTION

All pumps, valves and pressure relief devices in light liquid and heavy liquid service; all valves and pressure relief devices in gas/vapor service; each open-ended valve or line and all associated closed vent systems and control devices. FGNSPSVVa is subject to the requirements of Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry for Which Construction, Reconstruction, or Modification Commenced After November 7, 2006 of 40 CFR Part 60, Subpart VVa.

Emission Unit: EUFERMENTER1, EUFERMENTER2, EUFERMENTER3, EUFERMENTER4, EUFERMENTER5, EUFERMENTER6, EUFERMENTER7, EUFERMENTER8, EUBEERWELL, EUBEERSTRIP, EUBEERSTRIP2, EURECTIFIER, EUSIDESTRIP, EUSIEVE, EUSIEVE2, EUTRUCKLOAD3, EUTRUCKLOAD4, EURAILLOAD2, EUNATGASTANK1, EUNATGASTANK2, EU190TANK, EU200TANK1, EU200TANK2

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

NA

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall operate each pressure relief device in gas/vapor service with no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background, as determined by the methods specified in 40 CFR 60.485a(c), except during pressure releases and as provided in 40 CFR 60.482-4a(c) and (d). After each pressure release, the permittee shall return the pressure relief device to a condition of no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background, as soon as practicable, but no later than five calendar days after the pressure release, except as provided in 40 CFR 60.482-9a. No later than five calendar days after the pressure release, the permittee shall monitor the pressure relief device to confirm the conditions of no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background. **(40 CFR 60.482-4a(a) and (b))**

2. The permittee shall design and operate enclosed combustion devices used to comply with 40 CFR Part 60, Subpart VVa to reduce the VOC emissions vented to them with an efficiency of 95 percent or greater, or to an exit concentration of 20 ppmv, on a dry basis, corrected to 3 percent oxygen, whichever is less stringent or to provide a minimum residence time of 0.75 seconds at a minimum temperature of 816 C. **(40 CFR 60.482-10a(c))**

3. The permittee shall, if evidence of a potential leak is found by visual, audible, olfactory, or any other detection method at pumps and valves in heavy liquid service, pressure relief devices in light liquid or heavy liquid service, and connectors follow either one of the following procedures: **(40 CFR 60.482-8a(a))**
   a. Monitor the equipment within 5 days by the method specified in 40 CFR 60.485a(b). If an instrument reading of 10,000 ppm or greater is measured, a leak is detected. **(40 CFR 60.482-8a(a)(1))**

i. When a leak is detected, the permittee shall repair it as soon as practicable, but not later than 15 calendar days after it is detected, except as provided in 40 CFR 60.482-9a. The first attempt at the repair shall be made no later than five calendar days after each leak is detected. First attempts at repair include, but are not limited to, the best practices described in 40 CFR 60.482-7a(e). **(40 CFR 60.482-8a(b) through (d))**

b. Eliminate the visual, audible, olfactory, or other indication of a potential leak. **(40 CFR 60.482-8a(a)(2))**

4. The permittee may delay repair of equipment for which leaks have been detected if: **(40 CFR 60.482-9a)**
   a. Repair within 15 days is technically infeasible without a process unit shutdown. Repair of this equipment shall occur before the end of the next process unit shutdown. **(40 CFR 60.482-9a(a))**
   b. The equipment is isolated from the process and does not remain in VOC service. **(40 CFR 60.482-9a(b))**
   c. The permittee demonstrates that emissions of purged material resulting from immediate repair are greater than the fugitive emissions likely to result from delay of repair and when repair procedures are affected, the purged material is collected and destroyed or recovered in a control device complying with 40 CFR 60.482-10a. **(40 CFR 60.482-9a(c))**
   d. For pumps, if repair requires the use of a dual mechanical seal system that includes a barrier fluid system and repair is completed as soon as practicable, but not later than six months after the leak was detected. **(40 CFR 60.482-9a(d))**

   Delay of repair beyond a process unit shutdown will be allowed for a valve, if valve assembly replacement is necessary during the process unit shutdown, valve assembly supplies have been depleted, and valve assembly supplies had been sufficiently stocked before the supplies were depleted. Delay of repair beyond the next process unit shutdown will not be allowed unless the next process unit shutdown occurs sooner than six months after the first process unit shutdown. **(40 CFR 60.482-9a(e))**

5. The permittee shall repair leaks of a closed vent system, as indicated by an instrument reading greater than 500 ppmv above background or by visual inspections, as soon as practicable except as provided below. A first attempt at repair shall be made no later than five calendar days after the leak is detected. Repair shall be completed no later than 15 calendar days after the leak is detected. **(40 CFR 60.482-10a(g))**
   a. Delay of repair of a closed vent system for which leaks have been detected is allowed if the repair is technically infeasible without a process unit shutdown or if the permittee determines that emissions resulting from immediate repair would be greater than the fugitive emissions likely to result from delay of repair. Repair of such equipment shall be complete by the end of the next process unit shutdown. **(40 CFR 60.482-10a(h))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall equip each open-ended valve or line with a cap, blind flange, plug or a second valve, except as provided in 40 CFR 60.482-1a(c); 40 CFR 60.482-6a(d) or (e), which shall seal the open end at all times except during operations requiring process fluid flow through the open-ended valve or line. In addition, the permittee shall ensure that: **(40 CFR 60.482-6a)**
   a. Each open-ended valve or line equipped with a second valve shall be operated in a manner such that the valve on the process fluid end is closed before the second valve is closed; **(40 CFR 60.482-6a(b))**
   b. When a double block-and-bleed system is being used, the bleed valve or line may remain open during operations that require venting the line between the block valves but shall comply with 40 CFR 60.482-6a(a) at all other times. **(40 CFR 60.482-6a(c))**

2. The permittee shall operate closed vent systems and control devices used to comply with 40 CFR Part 60, Subpart VVa at all times when emissions may be vented to them. **(40 CFR 60.482-10a(m))**

3. The permittee shall, when each leak is detected as specified in 40 CFR 60.482-2a, 60.482-7a, 60.482-8a, 60.482-10a do the following:
   a. Attach a weatherproof and readily visible identification, marked with the equipment identification number, to the leaking equipment. The identification on a valve may be removed after it has been monitored for two successive months as specified in 40 CFR 60.482-7a(c) and no leak has been detected during those two months. The identification on equipment except on a valve, may be removed after it has been repaired. **(40 CFR 60.486a(b))**
   b. Record the following information in a log that shall be kept for 5 years in a readily accessible location: **(40 CFR 60.486a(c))**
      i. The instrument and operator identification numbers and the equipment identification number;
      ii. The date the leak was detected and the dates of each attempt to repair the leak;
      iii. Repair methods applied in each attempt to repair the leak;
      iv. "Above 10,000" if the maximum instrument reading measured by the methods specified in 40 CFR 60.485a(a) after each repair attempt is equal to or greater than 10,000 ppm;
      v. "Repair delayed" and the reason for the delay if a leak is not repaired within 15 calendar days after discovery of the leak;
      vi. The signature of the permittee (or designate) whose decision it was that repair could not be affected without a process shutdown;
      vii. The expected date of successful repair of the leak if a leak is not repaired within 15 days;
      viii. Dates of process unit shutdowns that occur while the equipment is unrepaired;
      ix. The date of successful repair of the leak.

V. TESTING/SAMPLING

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

1. The permittee shall demonstrate compliance with the requirements of 40 CFR Part 60, Subparts A and VVa within 180 days of initial startup. All required testing shall be at the owner's expense. The permittee shall notify the AQD District Supervisor in writing within 15 days of the date of commencement of trial operation in accordance with 40 CFR 60.7(a)(3). Performance testing procedures shall be in accordance with the applicable federal Reference Methods, 40 CFR Part 60, Appendix A. 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. Compliance with 40 CFR 60.482-1a through 40 CFR 60.482-10a will be determined by review of records and reports, review of performance test results, and inspection using the methods and procedures specified in 40 CFR 60.485a. Equipment that is in vacuum service is excluded from the requirements of 40 CFR 60.482-2a to 40 CFR 60.482-10a if it is identified as required in 40 CFR 60.486a(e)(5). **(R 336.1225, R 336.1702(b), 40 CFR Part 60, Subparts A and VVa, 40 CFR 60.482-1a, 40 CFR 60.485a)**

VI. MONITORING/RECORDKEEPING

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

1. The permittee shall monitor each pump in light liquid service as follows:
   a. Check, by visual inspection, each calendar week for indications of liquids dripping from the pump seal, except as provided in 40 CFR 60.482-1a(f). If there are indications of liquids dripping from the pump seal, the permittee shall follow the procedure specified in 40 CFR 60.482-2a(b)(2)(i) or 40 CFR 60.482-2a(b)(2)(ii). **(40 CFR 60.482-2a(a)(2) and 40 CFR 60.482(a)(b)(2))**
   b. Monitor monthly to detect leaks by the methods specified in 40 CFR 60.485a(b), except as provided in 40 CFR 60.482-1a(c) and (f) and 40 CFR 60.482-2a(d), (e), and (f). If an instrument reading of 2,000 ppm or greater is measured, a leak is detected. **(40 CFR 60.482-2a(a)(1) and 40 CFR 60.482-2a(b)(1)(ii))**

   When a leak is detected, the permittee shall repair it as soon as practicable, but not later than 15 calendar days after it is detected, except as provided in 40 CFR 60.482-9a. A first attempt at repair shall be made no later than five calendar days after each leak is detected. **(40 CFR 60.482-2a(c))**

2. The permittee shall monitor each valve in gas/vapor service and in light liquid service monthly to detect leaks by the methods specified in 40 CFR 60.485a(b) and shall comply with the following, except as provided in 40 CFR 60.482-7a(f), (g) and (h); 40 CFR 60.482-1a(c) and (f); 40 CFR 60.483-1a and 40 CFR 60.483-2a: **(40 CFR 60.482-7a)**
   a. If an instrument reading of 500 ppm or greater is measured, a leak is detected; **(40 CFR 60.482-7a(b))**
   b. Any valve for which a leak is not detected for two successive months may be monitored for the first month of every quarter, beginning with the next quarter, until a leak is detected. If a leak is detected, the valve shall be monitored monthly until a leak is not detected for two successive months; **(40 CFR 60.482-7a(c))**
   c. When a leak is detected, it shall be repaired as soon as practicable, but no later than 15 calendar days after the leak is detected, except as provided in 40 CFR 60.482-9a. A first attempt at repair shall be made no later than five calendar days after each leak is detected. **(40 CFR 60.482-7a(d))**
   d. First attempts at repair include, but are not limited to, the following best practices where practicable: **(40 CFR 60.482-7a(e))**
      i. Tightening of bonnet bolts;
      ii. Replacement of bonnet bolts;
      iii. Tightening of packing gland nuts;
      iv. Injection of lubricant into lubricated packing.
   e. Any value that is designated, as described in 40 CFR 60.486a(e)(2), for no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background, is exempt from the monthly monitoring if the valve has no external actuating mechanism in contact with the process fluid, is operated with emissions less than 500 ppm above background as determined by the method specified in 40 CFR 60.485a(c) and is tested for compliance with the 500 ppm above background instrument reading initially upon designation, annually, and at other times requested by the AQD District Supervisor; **(40 CFR 60.482-7a(f))**
   f. Any value that is designated, as described in 40 CFR 60.486a(f)(1), as an unsafe-to-monitor valve is exempt from the monthly monitoring if the permittee demonstrates that the valve is unsafe to monitor because monitoring personnel would be exposed to an immediate danger as a consequence of performing monthly monitoring, and the permittee adheres to a written plan that requires monitoring of the valve as frequently as practicable during safe-to-monitor times; **(40 CFR 60.482-7a(g))**
   g. Any value that is designated, as described in 40 CFR 60.486a(f)(2), as a difficult-to-monitor valve is exempt from the monthly monitoring if: **(40 CFR 60.482-7a(h))**
      i. The permittee demonstrates that the valve cannot be monitored without elevating the monitoring personnel more than 2 meters above a support surface;
      ii. Has less than 3% of its total number of valves designated as difficult-to-monitor;
      iii. The permittee follows a written plan that requires monitoring of the valve at least once per calendar year.

3. The permittee shall monitor control devices used to comply with 40 CFR Part 60, Subpart VVa to ensure that they are operated and maintained in conformance with their designs. **(40 CFR 60.482-10a(e))**

4. The permittee shall inspect each closed vent system according to the procedures and schedule specified in 40 CFR 60.482-10a(f), except as follows: **(40 CFR 60.482-10a(f))**
   a. The vapor collection system or closed vent system is operated under a vacuum; **(40 CFR 60.482-10a(i))**
   b. Any parts of the closed vent system that are designated, as described in 40 CFR 60.482-10a(l)(1), as unsafe to inspect are exempt from the inspection requirements if the comply with the following: **(40 CFR 60.482-10a(j))**
      i. The permittee determines that the equipment is unsafe to inspect because inspecting personnel would be exposed to an imminent or potential danger; and
      ii. The permittee has a written plan that requires inspection of the equipment as frequently as practicable during safe-to-inspect times;
   c. Any parts of the closed vent system that are designated, as described in 40 CFR 60.482-10a(l)(2), as difficult to inspect are exempt from the inspection requirements if they comply with the following: **(40 CFR 60.482-10a(k))**

i. The permittee demonstrates that the equipment cannot be monitored without elevating the monitoring personnel more than 2 meters above a support surface;
ii. Has less than 3% of the total number of closed vent system equipment designated as difficult to inspect;
iii. The permittee follows a written plan that requires inspection of the equipment at least once every five years. A closed vent system is exempt from inspection if it is operated under a vacuum.

5. The permittee shall record the following information: **(40 CFR 60.482-10a(l))**
   a. Identification of all parts of the closed vent system that are designated as unsafe to inspect, an explanation of why the equipment is unsafe to inspect, and the plan for inspecting the equipment;
   b. Identification of all parts of the closed vent system that are designated as difficult to inspect, an explanation of why the equipment is difficult to inspect, and the plan for inspecting the equipment;
   c. For each inspection during which a leak is detected, a record of the information specified in 40 CFR 60.486a(c);
   d. For each inspection conducted in accordance with 40 CFR 60.485a(b) during which no leaks are detected, a record that the inspection was performed, the date of the inspection, and a statement that no leaks were detected;
   e. For each visual inspection conducted in accordance with 40 CFR 60.482-10a(f)(1)(ii) during which no leaks are detected, a record that the inspection was performed, the date of the inspection, and a statement that no leaks were detected.

6. The permittee shall record the following information pertaining to the design requirements for closed vent systems and control devices described in 40 CFR 60.482-10a. This information shall be kept in a readily accessible location: **(40 CFR 60.486a(d))**
   a. Detailed schematics, design specifications, and piping and instrumentation diagrams;
   b. The dates and descriptions of any changes in the design specifications;
   c. A description of the parameter or parameters monitored, as required in 40 CFR 60.482-10a(e). To ensure that control devices are operated and maintained in conformance with their design and an explanation of why that parameter (or parameters) was selected for the monitoring;
   d. Periods when the closed vent systems and control devices required in 40 CFR 60.482-2a and 40 CFR 60.482-4a are not operated as designed, including periods when a flare pilot light does not have a flame;
   e. Dates of startups and shutdowns of the closed vent systems and control devices required in 40 CFR 60.482-2a and 40 CFR 60.482-4a.

7. The permittee shall record the following information pertaining to all equipment subject to the requirements in 40 CFR 60.482-1a to 40 CFR 60.482-10a. This information shall be kept in a readily accessible location: **(40 CFR 60.486a(e))**
   a. A list of identification numbers for equipment subject to the requirements in 40 CFR Part 60 Subpart VVa;
   b. A list of identification numbers for equipment that are designated for no detectable emissions under the provisions of 40 CFR 60.482-2a(e) and 40 CFR 60.482-7a(f). The designation of this equipment shall be signed by the permittee;
   c. A list of equipment identification numbers for pressure relief devices required to comply with 40 CFR 60.482-4a;
   d. The dates of each compliance test as required in 40 CFR 60.482-2a(e), 60.482-4a, and 60.482-7a(f), the background level measured during each compliance test, and the maximum instrument reading measured at the equipment during each compliance test;
   e. A list of identification numbers for equipment in vacuum service.

8. The permittee shall record the following information pertaining to all valves subject to the requirements of 40 CFR 60.482-7a(g) and (h) and to all pumps subject to the requirements of 40 CFR 60.482-2a(g). This information shall be kept in a readily accessible location: **(40 CFR 40.486a(f))**
   a. A list of identification numbers for valves and pumps that are designated as unsafe-to-monitor, an explanation for each valve or pump stating why the valve or pump is unsafe-to-monitor, and the plan for monitoring each valve or pump;

b. A list of identification numbers for valves that are designated as difficult-to-monitor, an explanation for each valve stating why the valve is difficult-to-monitor, and the schedule for monitoring each valve.

9. The permittee shall record a schedule of monitoring and the percent of valves found leaking during each monitoring period for valves complying with 40 CFR 60.483-2a. **(40 CFR 60.486a(g))**

10. The permittee shall record the design criterion required in 40 CFR 60.482-2a(d)(5) and an explanation of the design criterion and any changes to this criterion and the reasons for the changes. This information shall be kept in a readily accessible location. **(40 CFR 60.486a(h))**

11. The permittee shall record the following information for use in determining exemptions as provided in 40 CFR 60.480a(d). This information shall be kept in a readily accessible location: **(40 CFR 60.486a(i))**
    a. An analysis demonstrating the design capacity of the affected facility;
    b. A statement listing the feed or raw materials and products from the affected facilities and an analysis demonstrating whether these chemicals are heavy liquids or beverage alcohol; and
    c. An analysis demonstrating that equipment is not in VOC service.

12. The permittee shall record information and data used to demonstrate that a piece of equipment is not in VOC service. This information shall be kept in a readily accessible location. **(40 CFR 60.486a(j))**

VII. REPORTING

1. The permittee shall submit reports as required to comply with the federal NSPS as specified in 40 CFR Part 60, Subparts A and VVa. Information required to be submitted to the Administrator shall be submitted to the AQD District Supervisor in an acceptable format within 30 days following the end of the semiannual period in which the data were collected. Information required to be submitted includes semiannual reports, beginning six months after the initial startup date. The initial semiannual report shall include the information listed in 40 CFR 60.487a(b) and all semiannual reports shall include the information listed in 40 CFR 60.487a(c). The permittee shall keep all records on file and make them available to the Department upon request. **(40 CFR 60.487a)**

VIII. STACK/VENT RESTRICTION(S)

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

NA

IX. OTHER REQUIREMENT(S)

1. The permittee shall comply with all provisions of the federal Standards of Performance for New Stationary Sources as specified in the 40 CFR Part 60, Subparts A and VVa, as they apply to the equipment in FGNSPSVVa. **(40 CFR Part 60, Subparts A and VVa)**

2. The permittee shall comply with all provisions of the federal NSPS as specified in 40 CFR Part 60, Subparts A and Kb, Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984, as they apply. **(40 CFR Part 60, Subparts A and Kb)**

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

CARO

Compliance Assurance Monitoring (CAM) Plan

CAM Applicable Units:

- **FG FERM&DIST for VOC**
- **FG DDGSDRYERS for VOC**

March, 2018

CAM Plan-FG FERM&DIST: Wet Scrubber

I. BACKGROUND

A. Emission Unit

Description: Fermentation and distillation processes. This flexible group is also subject to the requirements of 40 CFR Part 60, Subpart VVa.

Identification: EUFERMENTER1, EUFERMENTER2, EUFERMENTER3, EUFERMENTER4, EUFERMENTER5, EUFERMENTER6, EUFERMENTER7, EUBEERWELL, EUBEERSTRIP, EUBEERSTRIP2, EURECTIFIER, EUSIDESTRIP, EUSIEVE, EUSIEVE2, EUYEAST, EUEVAPORATOR, EUSTILLAGETANK, EURTO

Facility: POET Biorefining Caro LLC
1551 Empire Drive
Caro, MI 48723

B. Applicable Regulation, Emissions limit, Monitoring Requirements

Permit No.: MI-ROP-N6996-2013, PTI 175-15B

Emission Limits:

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. VOC	19.66 lb/hr**	Hourly	FGFERM&DIST	SC IV.1, SC V.1, SC VI.1-3	**R 336.1225 R 336.1702(a)**
2. VOC	30.74 lb/hr***	Hourly	FGFERM&DIST	SC V.2, SC VI.5	**R 336.1225 R 336.1702(a)**
3. Acetaldehyde	1.50 lb/hr[1]	Hourly	FGFERM&DIST	SC IV.1, SC V.1	**R 336.1225**
**Emission Limit shall apply when fermenters are venting through the scrubber. ***Emission Limit shall apply when fermenters are venting through the RTO.					

Monitoring Requirements:

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

1. The permittee shall monitor the scrubber liquid flow rate and exhaust temperature of the operational scrubber on a continuous basis during operation of FGFERM&DIST. **(R 336.1225, R 336.1702(a), R 336.1901, R 336.1910)**

2. The permittee shall record the scrubber liquid flow rate, exhaust temperature, and pressure drop of the operational scrubber on a daily basis. The data point recorded shall be the average

of all data collected during the operating day. **(R 336.1225, R 336.1702(a), R 336.1901, R 336.1910)**

3. The permittee shall keep, in a satisfactory manner, records of the number of scrubber bypass episodes per calendar month and 12-month rolling time period as determined at the end of each calendar month. The permittee shall also record the duration, in hours, of each scrubber bypass episode and the reason the scrubber bypass episode occurred. The permittee shall keep all records on file at the facility and make them available to the Department upon request. **(R 336.1225, R 336.1702(a))**

C. <u>POLLUTION CONTROL EQUIPMENT</u>: Packed-bed wet scrubbers (CE004 or CE014), RTO for Scrubber Bypass Episode

II. MONITORING AND PERFORMANCE

	Liquid Flow Rate	**Exhaust Temperature**	**Bisulfite addition**	**Differential Pressure**	**Bypass**
A. Indicator	FT316-1 and/or FT940-1	TT316-1	FT318-1	PDT316-1/PDT316-2	XV316-11 when open
B. Indicator Range and Performance	The indicator range is established as a decrease in the 3-hour average flow rate below that specified in the malfunction abatement plan (MAP), as follows: • 30GPM with mash online, and for at least 36-hours with mash flow off. After 36 hours with mash off – a 15GPM average is acceptable	The indicator range is established as a decrease in the 3-hour average temperature below that specified in the malfunction abatement plan (MAP), as follows: • Less than 65°F • The Chiller may be started/stopped based on scrubber exhaust temperature	The indicator range is established as a decrease in the GPD below that specified in the malfunction abatement plan (MAP), as follows: • 20GPD rate for at least 36hr of mash flow off. After 36 hours of mash flow off—bisulfite can be shut off.	The indicator range is established as a decrease in the 3-hour average temperature below that specified in the malfunction abatement plan (MAP), as follows: • Less than 15 inches of water	The indicator range is established as a time the valve is opened. As specified in our permit: • Record the duration in hours of each episode and the reason.

III. JUSTIFICATION

A. Background

1. The fermentation and distillation system is equipped with a packed bed wet scrubber for the control of volatile organic compounds

B. Rationale for Selection of Performance Indicator and Range

1. Low water flow may indicate insufficient volume of scrubbant to effectively absorb the volatile organic compounds in the exhaust gasses. The minimum flow rate was established during compliance testing.
2. Exhaust temperature and Bisulfite addition is used to keep the volatile organic compounds in the water to limit the amount in the stack to atmosphere as established during compliance testing.
3. High pressure drop may indicate plugging or fouling of the packed bad which may affect the ability of the scrubber to absorb the volatile organic compounds.
4. Monitor duration of bypass and reason as established in our permit.

CAM Plan-FGDDGSDRYERS: TO&HRB and RTO

I. Background

A. Emission Unit

Description: Dried Distiller's Grains with Solubles (DDGS) dryers and centrifugation.

Identification: EUDDGSDRYER1, EUDDGSDRYER2, EUTO&HRB, EURTO, EUCENTRIFUGE1, EUCENTRIFUGE2, EUCENTRIFUGE3, EUCENTRIFUGE4, EUCENTRIFUGE5, EUCENTRIFUGE6

Facility: POET Biorefining Caro LLC
1551 Empire Drive
Caro, MI 48723

B. Applicable Regulation, Emissions limit, Monitoring Requirements

Permit No.: MI-ROP-N6996-2013, PTI 175-15B

Emission limits:

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. VOC	9.0 lb/hr combined**	Hourly	FGDDGSDRYERS	SC V.1, VI.1-3, VI.6	**R 336.1225, R 336.1702(a), R 336.1901**
2. VOC	6.13 lb/hr combined***	Hourly	EUCENTRIFUGE1 to 6	SC V.3, VI.1-3, VI.7	**R 336.1225, R 336.1702(a), R 336.1901**
3. NOx	0.10 lb/MMBtu	Hourly	FGDDGSDRYERS	SC V.1	**40 CFR 52.21(c)&(d)**

**Combined refers to TO&HRB stack and RTO stack.
***Combined refers to stack 025 when producing wet cake and TO&HRB and RTO are not operating.

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

1. The permittee shall install, calibrate, maintain, and operate in a satisfactory manner a device to monitor and record on a continuous basis the minimum temperature to which exhaust gases from the dryers are exposed in the thermal oxidizer (CE010). **(R 336.1225, R 336.1702(a), R 336.1901, R 336.1910)**

2. The permittee shall install, calibrate, maintain, and operate in a satisfactory manner a device to monitor and record on a continuous basis the minimum temperature to which exhaust gases from the dryers are exposed in the regenerative thermal oxidizer (CE012). **(R 336.1225, R 336.1702(a), R 336.1901, R 336.1910)**

3. The permittee shall keep, in a satisfactory manner, continuous records of the minimum temperature to which exhaust gases from the dryers are exposed in the thermal oxidizer (CE010) and the regenerative thermal oxidizer (CE012). **(R 336.1225, R 336.1702(a), R 336.1901, R 336.1910)**

4. The permittee shall keep monthly production records, monthly records of the ethanol content of distillation bottoms, and other records necessary to demonstrate compliance with the VOC emission limit listed in SC I.7 from FGDDGSDRYERS. The emission rate shall be calculated based upon monthly records, prorated to an hourly rate. The permittee shall keep these records on file for a period of at least five years and make them available to the Department upon request. **(R 336.1225, R 336.1702(a), R 336.1901, R 336.1910)**

5. The permittee shall keep monthly wet cake production records and other records necessary to demonstrate compliance with the VOC emission limit listed in SC I.8 when EUCENTRIFUGE 1 to 6 are not being vented to EURTO or EUTOHRB. The emission rate shall be calculated based upon monthly records, prorated to an hourly rate based on actual hours operated manufacturing wet cake when EUCENTRIFUGE 1 to 6 are not being vented to EURTO or EUTOHRB. The permittee shall keep these records on file for a period of at least five years and make them available to the Department upon request. **(R 336.1225, R 336.1702(a), R 336.1901, R 336.1910)**

6. The permittee shall keep, in a satisfactory manner, records of the natural gas consumed by EUTO&HRB on a daily basis. The permittee shall keep these records on file for a period of at least five years and make them available to the Department upon request. **(R 336.1331, 40 CFR Part 60 Subparts A and Dc)**

7. The permittee shall continuously monitor the temperature of the TO and RTO. Continuous shall be defined as sampling at least every 15 minutes. **(R 336.1225, R 336.1331, R 336.1702(a), R 336.1901, R 336.1910, 40 CFR 52.21(c) and (d))**

POLLUTION CONTROL EQUIPMENT: Thermal Oxidizer & Heat Recovery Boiler (TO&HRB) (CE010), Regenerative Thermal Oxidizer (RTO) (CE012).

II. MONITORING AND PERFORMANCE

	TO Temperature	RTO Temperature	Exhaust – Inlet RTO temperature	Exhaust – Inlet TO temperature	Beerstripper Ethanol Bottoms
A. Indicator	TT-850-4-calc2	DH20-TT675-4	DH20-TT675-2 minus DH20-TT675-5	DH12-R2-TT703-2	Car.l.easb1-10 Car.l.easb2-10
B. Indicator Range and Performance	The indicator range is established as a decrease in the 3-hour average temperature below that specified in the malfunction abatement plan (MAP), as follows: 1. Chamber 3 hr average temperature >800F with dryers up, NOT fed. 2. Safely increase temperature for 45 min from 800-1500F. 3. Chamber 3hr average temperature >1500F with dryers feed beyond the 45 min	The indicator range is established as a decrease in the 3-hour average temperature below that specified in the malfunction abatement plan (MAP), as follows: 1.Combustion chamber has a 3 hr average of at least 1650F	The indicator range is as specified in the malfunction abatement plan (MAP),: 1.Exhaust temperature is at least 50F higher than inlet temperature	The indicator range is as specified in the malfunction abatement plan (MAP): 1. Exhaust temperature is at least 50F higher than inlet temperature	The indicator range is as specified in the malfunction abatement plan (MAP): 1. less than 0.1%

IV. JUSTIFICATION

A. Background

This facility has two dryers that have an RTO and TO attached to the exhaust for destruction purposes.

B. Rationale for Selection of Performance Indicator and Range

1. Temperature Monitoring is the most logical performance indicator for both EUTO&HRB and EURTO because the destruction efficiency of the control device is a function of its temperature. Proper operation of an RTO and TO can be evaluated based on retention time of the gas stream within the chamber and the operating temperatures. The minimum operating temperature is as established during compliance testing.
2. The Exhaust temperature monitoring vs the inlet temperature is to determine that the unit was on and the inlet gasses were exposed to the unit before leaving the stack.
3. Monitoring beer stripper bottom content allows an estimate VOC and HAP emission when the dryers are off and we are making WetCake though the centrifuge 1-6.

Caro

Malfunction Abatement Plan

Revised 9/1/2020

All equipment used for control of air emissions will be operated and maintained to the extent reasonably possible to prevent, detect and correct any malfunctions, or failures, that could result in emissions exceeding any applicable emission limitations. POET Biorefining-Caro is responsible for preparing and maintaining a preventative maintenance program for control equipment. Preventative maintenance schedules have been established for each piece of control equipment based on manufacturer's recommendations, permit requirements, testing, and facility or organizational operating experience. All POET Biorefining-Caro inspections, maintenance, and repairs will be completed by qualified operators, mechanics, contractors, or consultants.

MAP Emission Control Equipment List

CAR Tag Number	Control Equipment Tag Number	Description	P&ID	Page
F-829	CE001	Corn Leg Baghouse	PID-801	2
F-840	CE002	Scalper Baghouse	PID-100	3
T-316	CE004	Wet Scrubber	PID-316	4
CYVM-615	CE006	Dryer-A Cyclone System	PID-611	6
CYVM-645	CE007	Dryer-B Cyclone System	PID-621	7
F-682	CE008	Fluid Bed Baghouse	PID-630	8
F-849/F-620	CE009	DDG Silo Baghouse/ Flat Storage	PID-806	9
T.O.-701	CE010	Thermal Oxidizer (TO)	PID-680	10
K-675	CE012	Regenerative Thermal Oxidizer (RTO)	PID-681	12
F-110	NA	Hammer-mill-1 Baghouse	PID-101	13
F-111	NA	Hammer-mill-2 Baghouse	PID-101	14
F-112	NA	Hammer-mill-3 Baghouse	PID-101	15
F-113	NA	Hammer-mill-4 Baghouse	PID-101	16
F-114	NA	Hammer-mill-5 Baghouse	PID-102	17
T-801	NA	Low Proof Floating Roof	PID-850	18
T-802	NA	Denaturant Tank Floating Roof	PID-851	19
T-803	NA	Storage Tank Floating Roof	PID-852	20
T-804	NA	Storage Tank Floating Roof	PID-852	21
T-805	NA	Denaturant Tank Floating Roof	PID-851	22

F-829 Corn Leg Baghouse

Purpose

This unit contains particulate emissions coming from the Corn Elevator system. If the baghouse is not operating then corn receiving and DDG Load-out is not permitted. If this emission unit is not working or maintained properly, operating this piece of equipment is a VIOLATION of our air permit.

Frequency of Monitoring and Preventative Maintenance Measures

Continuous

- During days of operation, PDT829-1 is monitoring pressure drop across F-829.
- Monitoring that the blower is running.

Daily

- During days of operation, observe the baghouse stack for **any** visible fugitive emissions.

Annual

- Check the filter bags for signs of excessive wear or damage.
- Drain condensation from air reservoir and check the compressed air dryer and filter for proper operation.
- Check for evidence of moisture or dust buildup inside the filter housing.

Normal Operating Conditions

- No Visible Emissions
- 3-hour average dP is 0.3 to 6.0 in of H_2O (PDT829-1/PDI829-1)

Corrective Actions

- If visible emissions are observed, IMMEDIATELY stop flow into and internally inspect
- If the 3-hour average dP is outside the normal operating conditions:
  - Note that new bags, or recently blown-out bags, may show dP values < 0.3" h2o for a few days until filter cake is established on bag/s.
  - Verify PDT against local PDI to determine whether readings are accurate.
    - If pressure readings are not accurate then repair/ replace pressure instrument and perform monthly local PDI readings as back-up verification.
    - If pressure readings are accurate:
      - Verify the condition/operation of the blower belts
      - Check amps on the motor
      - Verify that the air purge is active and hopper is dumping
      - When practicable, safely shut down operations related to this baghouse, and inspect/ repair. Until shutdown, verify no visible emissions at least once per shift.

Critical Replacement Parts

- Replacement filter bags, Replacement PDT dP gauges

Recordkeeping

- Daily, weekly, and annual records of Normal Operating Conditions will be tracked through PI, or operator round/ logs, and will be maintained by the Area Supervisor for 5-years. Incidental Maintenance and/or deviations occurring will be tracked using this method.
- All other records, as well as those corrective actions requiring a mechanic will be recorded and logged using Maintenance tracking software and kept for 5-years.
- Corrective actions requiring engineering will be tracked through the MOC process.

F-840 Scalper Baghouse

Purpose

This unit contains particulate emissions coming from the scalper and the corn surge bin. If this emission unit is not working or maintained properly, operating this piece of equipment is a VIOLATION of our air permit.

Frequency of Monitoring and Preventative Maintenance Measures

Continuous

- During days of operation, PDT840-1 is monitoring pressure drop across F-840.
- Monitoring that the blower is running.

Daily

- During days of operation, observe the baghouse stack for **any** visible fugitive emissions.

Annual

- Check the filter bags for signs of excessive wear or damage.
- Drain condensation from air reservoir and check the compressed air dryer and filter for proper operation.
- Check for evidence of moisture or dust buildup inside the filter housing.

Normal Operating Conditions

- No Visible Emissions
- 3-hour average dP is 0.3 to 6.0 "H_2O (PDT840-1/PDI840-1)

Corrective Actions

- If visible emissions are observed then stop flow into and internally inspect
- If the 3-hour average dP is outside the normal range
  - Note that new bags, or recently blown-out bags, may show dP values < 0.3" h2o for a few days until filter cake is established on bag/s.
  - Verify PDT against local PDI to determine whether readings are accurate.
    - If pressure readings are not accurate then repair/ replace pressure instrument and perform monthly local PDI readings as back-up verification.
    - If pressure readings are accurate:
      - Verify the condition/operation of the blower belts
      - Check amps on the motor
      - Verify that the air purge is active and hopper is dumping
      - When practicable, safely shut down operations related to this baghouse, and inspect/ repair. Until shutdown, verify no visible emissions at least once per shift.

Critical Replacement Parts

- Replacement filter bags, Replacement dP gauges

Recordkeeping

- Daily, weekly, and annual records of Normal Operating Conditions will be tracked through PI, or operator round/ logs, and will be maintained by the Area Supervisor for 5-years. Incidental Maintenance and/or deviations occurring will be tracked using this method.
- All other records, as well as those corrective actions requiring a mechanic will be recorded and logged using Maintenance tracking software and kept for 5-years.
- Corrective actions requiring engineering will be tracked through the MOC process.

T-316 Wet Scrubber

Purpose

This packed bed scrubber minimizes ethanol losses and reduces VOC emissions. If this emission unit is not working or maintained properly, operating this piece of equipment is a VIOLATION of our air permit.

Frequency of Monitoring and Preventative Maintenance Measures

Continuous

- Monitor and maintain inlet flow-rate of scrubber water during normal operations and for 36-hours minimum following a shut down.
- Monitor scrubber exhaust temperature
- Monitor dP across scrubber PDT316-1/PDT316-2

Annually

- Internal visual inspection of the scrubber's packing and overall condition

Normal Operating Conditions (Based on Compliance Testing and engineering calculations)

- 3 hr water flow rate (FT316-1 and/or FT940-1) averages 30-GPM with mash flow online, and for at least 36-hours with mash flow off. After 36-hours of mash flow OFF—a 15-GPM average rate is acceptable.
- Maintain a minimum flow rate of 20 GPD rate of sodium bisulfite (SBS) to the scrubber, and for at least 36-hours with mash flow off. After 36-hours of mash flow OFF—SBS can be shut-off.
- Combined 3-hour average dP is less than 15 in of H_2O (PDT316-1 + PDT316-2)
- Scrubber temperature (TT316-1) 3-hour average less than 65°F. The chiller may be started/ stopped based on scrubber exhaust temperature.
- After the youngest fermenter is 72 hours old and slurry is off (extended shutdowns) the POET CAR Scrubber Emissions Estimator will be used to determine if the VOC emissions are below the current threshold limit of 19.66 lbs/hr. If the emissions are below, the water to the scrubber can be turned off.

Corrective Actions

- If 3 hr water flow averages less than expected flow rate
  - Verify all water valves are in their correct positions toward scrubber
  - Verify that the flow transmitter is working correctly
- If the 3 hr average dP is outside the normal range
  - If average pressure readings are not accurate then repair/ replace pressure instrument
  - If average pressure readings are accurate then shut down and CIP scrubber to clean internals.
- If 3hr average scrubber temp is higher than normal temperature
  - Verify temperature gauge is working properly
  - Verify H-316 is being utilized with optimum recirculation flow
  - Verify H-317 is not being bypassed
  - Verify water chiller is online
  - If possible, reduce set-point on chiller unit to bring water temp down
- If average high ambient (summer) temperatures are the cause of deviation
  - Try to reduce cooling tower temperature
  - Increase cooling water flow-rate to the plant
  - Check the cooling tower blow down temperature, and bypass T-930 going to the slurry tank
  - Increase fresh water flow up to 65-gpm
  - Optimize Total Water Recovery flow-rate from T-930

Critical Replacement Parts

- Replacement dP transmitters/ gauges, Flow Transmitter for water, Temperature Transmitter assembly for exhaust

Recordkeeping

- Daily and annual records of Normal Operating Conditions will be tracked through PI, or operator round/ logs, and will be maintained by the Area Supervisor for 5-years. Incidental Maintenance and/or deviations occurring will be tracked using this method.
- All other records, as well as those corrective actions requiring a mechanic will be recorded and logged using Maintenance tracking software and kept for 5-years.
- Corrective actions requiring engineering will be tracked through the MOC process.

CYVM-615 Dryer-A Cyclone System

Purpose

This unit recovers DDG product and reduces particulate emissions coming from Dryer-A. Proper operation is most important during TO/ RTO upsets when the dryer switches to "bypass" state. During normal operations the TO and RTO will incinerate residual particulates emitted from the cyclone system.

Frequency of Monitoring and Preventative Maintenance Measures

Continuous

- Monitor the level of material in cyclone hoppers to prevent re-entrainment of particulate into the air stream. This is monitored by a Temperature Transmitter (TT615X-1) that shuts down the unit if tripped.
- Monitor the internal pressure of the dryer hotbox (PT610-1).
- Verify the pressure drop (dP) on the cyclones (PT61XA-1-CAL or PT61XB-1-CAL).

Semi-Annual

- Remove DDG buildup on the interior of the multi-cyclone.

Normal Operating Conditions

- Internal dryer hotbox pressure between -0.5 and -2.0 in of H_2O
- Pressure drop across the cyclone below 10" H_2O.

Corrective Actions

- If TT615X-1 activates, bypass dryer-A and begin troubleshooting
  - Verify that TT615X-1 is working properly
    - If reading correct shutdown, cool dryer and inspect Cyclone/s for solids
- If the hotbox pressure is outside the normal range
    - Check bleed-off and fresh air dampers for correct operation or leaks
    - Verify the hotbox PT610-1 is reading correctly
    - Shutdown, cool, open hotbox and remove solid build-up
- If pressure drop across the cyclone is outside acceptable range
    - Verify pressure gauges are working properly.
    - If pressures are reading correctly shutdown, cool, open cyclone and remove build-up.

Critical Replacement Parts

- Temperature Transmitter (TT615X-1), Pressure transmitters (PT610-1) and (PT615A/B-1)

Recordkeeping

- Continuous and semi-annual records of Normal Operating Conditions will be tracked through PI, or operator round/ logs, and will be maintained by the Area Supervisor for 5-years. Incidental Maintenance and/or deviations occurring will be tracked using this method.
- All other records, as well as those corrective actions requiring a mechanic will be recorded and logged using Maintenance tracking software and kept for 5-years.
- Corrective actions requiring engineering will be tracked through the MOC process.

CYVM-645 Dryer-B Cyclone System

Purpose

This unit recovers DDG product and reduces particulate emissions coming from Dryer-B. Proper operation is most important during TO/ RTO upsets when the dryer switches to "bypass" state. During normal operations the TO and RTO will incinerate residual particulates emitted from the cyclone system. If this emission unit is not working or maintained properly, operating this piece of equipment is a VIOLATION of our air permit.

Frequency of Monitoring and Preventative Maintenance Measures

Continuous

- Monitor the level of material in cyclone hoppers to prevent re-entrainment of particulates into the air stream. This is monitored by a Temperature Transmitter (TT645X-1) that shuts down the unit if tripped.
- Monitor the internal pressure of the dryer hotbox (PT630-1).
- Verify the pressure drop (dP) on the cyclones (PT64XA-1-CAL or PT64XB-1-CAL).

Semi-Annual

- Remove DDG buildup on the interior of the multi-cyclone

Normal Operating Conditions

- Internal dryer hotbox pressure between -0.5 and -2.0 in of H_2O
- Pressure drop across the cyclone below 10" H_2O

Corrective Actions

- If TT645X-1 activates, bypass dryer-B and begin troubleshooting
  - Verify that TT645X-1 is working properly
    - If reading correct shutdown, cool dryer and inspect Cyclone/s for solids
- If the hotbox pressure is outside the normal range
  - Check bleed-off and fresh air dampers for correct operation or leaks
  - Verify the hotbox PT630-1 is reading correctly
  - Shutdown, cool, open hotbox and remove solid build-up
- If collector dP is outside acceptable range
  - Verify pressure gauges are working properly.
  - If pressures are reading correctly shutdown, cool, open cyclone and remove build-up.

Critical Replacement Parts

- Temperature Transmitter (TT645X-1), Pressure transmitters (PT610-1) and (PT615A/B-1)

Recordkeeping

- Continuous and semi-annual records of Normal Operating Conditions will be tracked through PI, or operator round/ logs, and will be maintained by the Area Supervisor for 5-years. Incidental Maintenance and/or deviations occurring will be tracked using this method.
- All other records, as well as those corrective actions requiring a mechanic will be recorded and logged using Maintenance tracking software and kept for 5-years.
- Corrective actions requiring engineering will be tracked through the MOC process.

F-682 Fluid Bed Baghouse

Purpose

This unit recovers DDG product and reduces particulate emissions coming from the fluid bed. If this emission unit is not working or maintained properly, operating this piece of equipment is a VIOLATION of our air permit.

Frequency of Monitoring and Preventative Maintenance Measures

Continuous

- During days of operation, PDT682-1 is monitoring pressure drop across F-682.
- Monitoring that the blower is running.

Daily

- During days of operation, observe the baghouse stack for **any** visible fugitive emissions.

Annually

- Check the filter bags for signs of excessive wear or damage.
- Drain condensation from air reservoir and check the compressed air dryer and filter for proper operation.
- Check for evidence of moisture or dust buildup inside the filter housing.

Normal Operating Conditions

- No Visible Emissions
- 3-hour average dP is 0.3 to 6.0 in of H_2O (PDT682-1/PDI682-1)

Corrective Actions

- If visible emissions are observed then stop flow into the fluid bed baghouse and internally inspect
- If the 3-hour average dP is outside the normal range
  - Note that new bags, or recently blown-out bags, may show dP values < 0.3" h2o for a few days until filter cake is established on bag/s.
  - Verify PDT against local PDI to determine whether readings are accurate.
    - If pressure readings are not accurate then repair/ replace pressure instrument and perform monthly local PDI readings as back-up verification.
    - If pressure readings are accurate:
      - Verify the condition/operation of the blower belts
      - Check amps on the motor
      - Verify that the air purge is active and hopper is dumping
      - When practicable, safely shut down operations related to this baghouse, and inspect/ repair. Until shutdown, verify no visible emissions at least once per shift.

Critical Replacement Parts

- Replacement filter bags, Replacement dP gauges

Recordkeeping

- Daily, weekly, and annual records of Normal Operating Conditions will be tracked through PI, or operator round/ logs, and will be maintained by the Area Supervisor for 5-years. Incidental Maintenance and/or deviations occurring are tracked by this method.
- All other records, as well as those corrective actions requiring a mechanic will be recorded and logged using Maintenance tracking software and kept for 5-years.
- Corrective actions requiring engineering will be tracked through the MOC process.

F-849/F-620 DDG Silo Baghouse/ Flat Storage

Purpose

This unit recovers DDG product and reduces particulate emissions coming from the DDG Silo. If this emission unit is not working or maintained properly, operating this piece of equipment is a VIOLATION of our air permit.

Frequency of Monitoring and Preventative Maintenance Measures

Continuous

- During days of operation, PDT849-1/PDT620-1 is monitoring pressure drop.
- Monitoring that the blower is running.

Daily

- During days of operation, observe the baghouse stack for **any** visible fugitive emissions.

Annually

- Check the filter bags for signs of excessive wear or damage.
- Drain condensation from air reservoir and check the compressed air dryer and filter for proper operation.
- Check for evidence of moisture or dust buildup inside the filter housing.

Normal Operating Conditions

- No Visible Emissions
- 3-hour average dP is 0.3 to 6.0 in of H_2O (PDT849-1/PDI849-1 or PDT620-1/PDI620-1)

Corrective Actions

- If visible emissions are observed then stop flow into the DDG Silo baghouse and internally inspect
- If the 3-hour average dP is outside the normal range
  - Note that new bags, or recently blown-out bags, may show dP values < 0.3" h2o for a few days until filter cake is established on bag/s.
  - Verify PDT against local PDI to determine whether readings are accurate.
    - If pressure readings are not accurate then repair/ replace pressure instrument and perform monthly local PDI readings as back-up verification.
    - If pressure readings are accurate:
      - Verify the condition/operation of the blower belts
      - Check amps on the motor
      - Verify that the air purge is active and hopper is dumping
      - When practicable, safely shut down operations related to this baghouse, and inspect/ repair. Until shutdown, verify no visible emissions at least once per shift.

Critical Replacement Parts

- Replacement filter bags, Replacement dP gauges

Recordkeeping

- Daily, monthly, and annual records of Normal Operating Conditions will be tracked through PI, or operator round/ logs, and will be maintained by the Area Supervisor for 5-years. Incidental Maintenance and/or deviations occurring are tracked by this method.
- Monthly records of dP readings will be kept in the Scale Building or with EHS files.
- All other records, as well as those corrective actions requiring a mechanic will be recorded and logged using Maintenance tracking software and kept for 5-years.
- Corrective actions requiring engineering will be tracked through the MOC process.

T.O.- 701 Thermal Oxidizer (TO)

Purpose

This unit reduces particulate and VOC emissions from dryers. If this emission unit is not working or maintained properly, operating this piece of equipment is a VIOLATION of our air permit.

Frequency of Monitoring and Preventative Maintenance Measures

Continuous

- Monitor the TO chamber temperature (TT-850-4)

Daily

- Check combustion chamber for leaks that may cause air infiltration
- Monitor actual Air/ Fuel ratio to target (RA704-1-CAL)
- Verify Beer Stripper bottoms ethanol% is acceptable
- Check the combustion chamber for hot-spots
- Observe flame zone for irregularities; including stability, centering, and flame length

Semi/ Annual

- Remove the gas gun assembly and clean the gas orifices
- Verify Chamber temperature transmitter (DH12-T4) is reading correctly
- Inspect refractory within the TO and throat cone for badly cracked or broken refractory

Normal Operating Conditions

- Chamber 3-hr average temperature > 800°F (TT850-4-CAL2) with dryer/s up, NOT fed
- 45-minute timer to safely increase chamber temp from 800°F to 1500°F once dryers are fed
- Chamber 3-hr average temperature > 1468°F (TT850-4-CAL2) with dryer/s fed beyond 45-minutes
- Beer Stripper Ethanol Bottoms average less than 1%
- Combustion Air/ Fuel ratio greater than 5.0 (RA704-1-CAL) during steady state

Corrective Actions

- If 3-hr average temp is not > 1468°F but is > 800°F then shut-off dryer feeds
- If 3-hr average temp is not >800°F shut down dryers
- If 3-hr average Chamber temperature approaches 1468°F (TT850-4-CAL2)
  - If possible, adjust larger percent of flow to RTO, and/ or increase TO set-point Temperature
  - Begin Slip-streaming to reduce load on TO
  - Verify the fresh air and bypass dampers are closed and there are no air leaks on system
  - Verify temperature is accurate through PLC or alternative thermo-readings
  - Consider adjusting centrifugation to further reduce moisture to the dryers
  - Verify inlet duct pressure, fan speed, gas and air flow have not changed
- If Air/ Fuel ratio is less than 5.0
  - Verify Combustion air damper is controlling properly
  - Verify Gas valve is controlling properly
- If Beer Stripper bottoms ethanol % is out of spec
  - Redirect to Beer Well until issues are resolved

Critical Replacement Parts

- Natural gas flow valve, Combustion Air and Fresh Air Damper actuator, Burner Sight Glass, (2) 24" Inconel Thermocouple, UV Scanner and amplifier, Flame Safe Guard Controller, (2) Burner

Ignition Rod

Recordkeeping

- Three-hour average temperatures will be tracked through PI, or operator round/ logsthat will be maintained by the Area Supervisor for 5-years. Incidental Maintenance and/or deviations occurring are tracked using this method.
- All other records, as well as those corrective actions requiring a mechanic will be recorded and logged using Maintenance tracking software and kept for 5-years.
- Corrective actions requiring engineering will be tracked through the MOC process.

K-675 Regenerative Thermal Oxidizer (RTO)

Purpose

This unit reduces particulate and VOC emissions coming from dryers. If this emission unit is not working or maintained properly, operating this piece of equipment is a VIOLATION of our air permit.

Frequency of Monitoring and Preventative Maintenance Measures

Continuous

- Monitor the RTO combustion chamber temperature (DH20-TT675-4)
- Monitor that the inlet and outlet dampers are cycling properly when unit is fed

Daily

- Visually inspect combustion chamber for visible leaks
- Check the combustion chamber for external hot-spots
- Verify Beer Stripper bottoms ethanol% is acceptable
- Verify exhaust temperature is greater than inlet temperature

Annual

- Internal inspection of the RTO including brick and insulation

Normal Operating Conditions

- Combustion chamber has a 3-hour temperature of at least 1643°F (TT675-4-CAL2)
- Exhaust temperature (DH20-TT675-5) is at least 50°F greater than inlet temperature
  - (DH20-TT675-2)
- Beer Stripper Ethanol Bottoms less than 1%

Corrective Actions

- If 3-hr average temp is not > 1643°F, place the RTO into Standby
- If 3-hr average combustion chamber temperature approaches 1650°F (TT675-4-CAL2)
  - Reduce inlet duct pressure set-point (SP), increase RTO temperature SP while maintaining a minimum acceptable temperature on the TO
  - Verify amps on the process fan are 50-75% of full load amps
  - Consider adjusting centrifugation to further reduce moisture to the dryers
  - Verify inlet duct pressure, gas flow, and air flow have not shifted
- If Beer Stripper bottoms ethanol % is out of spec
  - Redirect to Beer Well until issues are resolved

Critical Replacement Parts

- Spark electrode, Inlet diverter, exhaust diverter actuator, Pressure switch, Air filter element, Type J D17 Thermocouple (12" & 24"), Type "K" Thermocouple, Flame detector

Recordkeeping

- Three-hour average temperatures will be tracked through PI, or operator round/ logs that will be maintained by the Area Supervisor for 5-years. Incidental Maintenance and/or deviations occurring will be tracked using this method.
- All other records, as well as those corrective actions requiring a mechanic will be recorded and logged using Maintenance tracking software and kept for 5-years.
- Corrective actions requiring engineering will be tracked through the MOC process.

F-110 Hammermill Baghouse

Purpose

This unit recovers corn flour and reduces particulate emissions coming from the hammermill. If this emission unit is not working or maintained properly, operating this piece of equipment is a VIOLATION o our air permit.

Frequency of Monitoring and Preventative Maintenance Measures

Continuous

- During days of operation, PDT110-1 is monitoring pressure drop across F-110.
- Monitoring that the blower is running.

Daily

- During days of operation, observe the baghouse stack for **any** visible fugitive emissions.

Annually

- Check the filter bags for signs of excessive wear or damage.
- Check for evidence of moisture or dust buildup inside the filter housing.

Normal Operating Conditions

- No Visible Emissions
- 3-hour average dP is 0.3 to 6.0 in of H_2O (PDT110-1/PDI110-1)

Corrective Actions

- If visible emissions are observed then shut down the unit and internally inspect
- If the 3-hour average dP is outside the normal range
    - Note that new bags, or recently blown-out bags, may show dP values < 0.3" h2o for a few days until filter cake is established on bag/s.
    - Verify PDT against local PDI to determine whether readings are accurate.
        - If pressure readings are not accurate then repair/ replace pressure instrument and perform weekly local PDI readings as back-up verification.
        - If pressure readings are accurate:
            - Verify the condition/operation of the blower belts
            - Check amps on the motor
            - Verify that the air purge is active and hopper is dumping
            - When practicable, safely shut down operations related to this baghouse, and inspect/ repair. Until shutdown, verify no visible emissions at least once per shift.

Critical Replacement Parts

- Replacement filter bags, Replacement dP gauges

Recordkeeping

- Daily, weekly, and annual records of Normal Operating Conditions will be tracked through PI, or operator round/ logs, and will be maintained bythe Area Supervisor for 5-years. Incidental Maintenance and/or deviations occurring will be tracked using this method.
- All other records, as well as those corrective actions requiring a mechanic will be recorded and logged using Maintenance tracking software and kept for 5-years.
- Corrective actions requiring engineering will be tracked through the MOC process.

F-111 Hammermill Baghouse

Purpose

This unit recovers corn flour and reduces particulate emissions coming from the hammermill. If this emission unit is not working or maintained properly, operating this piece of equipment is a VIOLATION o our air permit.

Frequency of Monitoring and Preventative Maintenance Measures

Continuous

- During days of operation, PDT111-1 is monitoring pressure drop across F-111.
- Monitoring that the blower is running.

Daily

- During days of operation, observe the baghouse stack for **any** visible fugitive emissions.

Annually

- Check the filter bags for signs of excessive wear or damage.
- Check for evidence of moisture or dust buildup inside the filter housing.

Normal Operating Conditions

- No Visible Emissions
- 3-hour average dP is 0.3 to 6.0 in of H_2O (PDT111-1/PDI111-1)

Corrective Actions

- If visible emissions are observed then shut down the unit and internally inspect
- If the 3-hour average dP is outside the normal range
    - Note that new bags, or recently blown-out bags, may show dP values < 0.3" h2o for a few days until filter cake is established on bag/s.
    - Verify PDT against local PDI to determine whether readings are accurate.
        - If pressure readings are not accurate then repair/ replace pressure instrument and perform weekly local PDI readings as back-up verification.
        - If pressure readings are accurate:
            - Verify the condition/operation of the blower belts
            - Check amps on the motor
            - Verify that the air purge is active and hopper is dumping
            - When practicable, safely shut down operations related to this baghouse, and inspect/ repair. Until shutdown, verify no visible emissions at least once per shift.

Critical Replacement Parts

- Replacement filter bags, Replacement dP gauges

Recordkeeping

- Daily, weekly, and annual records of Normal Operating Conditions will be tracked through PI, or operator round/ logs, and will be maintained bythe Area Supervisor for 5-years. Incidental Maintenance and/or deviations occurring will be tracked using this method.
- All other records, as well as those corrective actions requiring a mechanic will be recorded and logged using Maintenance tracking software and kept for 5-years.
- Corrective actions requiring engineering will be tracked through the MOC process.

F-112 Hammermill Baghouse

Purpose

This unit recovers corn flour and reduces particulate emissions coming from the hammermill. If this emission unit is not working or maintained properly, operating this piece of equipment is a VIOLATION o our air permit.

Frequency of Monitoring and Preventative Maintenance Measures

Continuous

- During days of operation, PDT112-1 is monitoring pressure drop across F-112.
- Monitoring that the blower is running.

Daily

- During days of operation, observe the baghouse stack for **any** visible fugitive emissions.

Annually

- Check the filter bags for signs of excessive wear or damage.
- Check for evidence of moisture or dust buildup inside the filter housing.

Normal Operating Conditions

- No Visible Emissions
- 3-hour average dP is 0.3 to 6.0 in of H_2O (PDT112-1/PDI112-1)

Corrective Actions

- If visible emissions are observed then shut down the unit and internally inspect
- If the 3-hour average dP is outside the normal range
    - Note that new bags, or recently blown-out bags, may show dP values < 0.3" h2o for a few days until filter cake is established on bag/s.
    - Verify PDT against local PDI to determine whether readings are accurate.
        - If pressure readings are not accurate then repair/ replace pressure instrument and perform weekly local PDI readings as back-up verification.
        - If pressure readings are accurate:
            - Verify the condition/operation of the blower belts
            - Check amps on the motor
            - Verify that the air purge is active and hopper is dumping
            - When practicable, safely shut down operations related to this baghouse, and inspect/ repair. Until shutdown, verify no visible emissions at least once per shift.

Critical Replacement Parts

- Replacement filter bags, Replacement dP gauges

Recordkeeping

- Daily, weekly, and annual records of Normal Operating Conditions will be tracked through PI, or operator round/ logs, and will be maintained bythe Area Supervisor for 5-years. Incidental Maintenance and/or deviations occurring will be tracked using this method.
- All other records, as well as those corrective actions requiring a mechanic will be recorded and logged using Maintenance tracking software and kept for 5-years.
- Corrective actions requiring engineering will be tracked through the MOC process.

F-113 Hammermill Baghouse

Purpose

This unit recovers corn flour and reduces particulate emissions coming from the hammermill. If this emission unit is not working or maintained properly, operating this piece of equipment is a VIOLATION o our air permit.

Frequency of Monitoring and Preventative Maintenance Measures

Continuous

- During days of operation, PDT113-1 is monitoring pressure drop across F-113.
- Monitoring that the blower is running.

Daily

- During days of operation, observe the baghouse stack for **any** visible fugitive emissions.

Annually

- Check the filter bags for signs of excessive wear or damage.
- Check for evidence of moisture or dust buildup inside the filter housing.

Normal Operating Conditions

- No Visible Emissions
- 3-hour average dP is 0.3 to 6.0 in of H_2O (PDT113-1/PDI113-1)

Corrective Actions

- If visible emissions are observed then shut down the unit and internally inspect
- If the 3-hour average dP is outside the normal range
    - Note that new bags, or recently blown-out bags, may show dP values < 0.3" h2o for a few days until filter cake is established on bag/s.
    - Verify PDT against local PDI to determine whether readings are accurate.
        - If pressure readings are not accurate then repair/ replace pressure instrument and perform weekly local PDI readings as back-up verification.
        - If pressure readings are accurate:
            - Verify the condition/operation of the blower belts
            - Check amps on the motor
            - Verify that the air purge is active and hopper is dumping
            - When practicable, safely shut down operations related to this baghouse, and inspect/ repair. Until shutdown, verify no visible emissions at least once per shift.

Critical Replacement Parts

- Replacement filter bags, Replacement dP gauges

Recordkeeping

- Daily, weekly, and annual records of Normal Operating Conditions will be tracked through PI, or operator round/ logs, and will be maintained bythe Area Supervisor for 5-years. Incidental Maintenance and/or deviations occurring will be tracked using this method.
- All other records, as well as those corrective actions requiring a mechanic will be recorded and logged using Maintenance tracking software and kept for 5-years.
- Corrective actions requiring engineering will be tracked through the MOC process.

F-114 Hammermill Baghouse

Purpose

This unit recovers corn flour and reduces particulate emissions coming from the hammermill. If this emission unit is not working or maintained properly, operating this piece of equipment is a VIOLATION o our air permit.

Frequency of Monitoring and Preventative Maintenance Measures Continuous

- During days of operation, PDT113-1 is monitoring pressure drop across F-113.
- Monitoring that the blower is running.

Daily

- During days of operation, observe the baghouse stack for **any** visible fugitive emissions.

Annually

- Check the filter bags for signs of excessive wear or damage.
- Check for evidence of moisture or dust buildup inside the filter housing.

Normal Operating Conditions

- No Visible Emissions
- 3-hour average dP is 0.3 to 6.0 in of H2O (PDT113-1/PDI113-1)

Corrective Actions

- If visible emissions are observed then shut down the unit and internally inspect
- If the 3-hour average dP is outside the normal range
    - Note that new bags, or recently blown-out bags, may show dP values < 0.3" h2o for a few days until filter cake is established on bag/s.
    - Verify PDT against local PDI to determine whether readings are accurate.
        - If pressure readings are not accurate then repair/ replace pressure instrument and perform weekly local PDI readings as back-up verification.
        - If pressure readings are accurate:
            - Verify the condition/operation of the blower belts
            - Check amps on the motor
            - Verify that the air purge is active and hopper is dumping
            - When practicable, safely shut down operations related to this baghouse, and inspect/ repair. Until shutdown, verify no visible emissions at least once per shift.

Critical Replacement Parts

- Replacement filter bags, Replacement dP gauges

Recordkeeping

- Daily, weekly, and annual records of Normal Operating Conditions will be tracked through PI, or operator round/ logs, and will be maintained by the Area Supervisor for 5-years. Incidental Maintenance and/or deviations occurring will be tracked using this method.
- All other records, as well as those corrective actions requiring a mechanic will be recorded and logged using Maintenance tracking software and kept for 5-years.
- Corrective actions requiring engineering will be tracked through the MOC process.

T-801 Low Proof Tank and Floating Roof

Purpose

This storage tank holds low-proof ethanol awaiting conversion into 200-proof. The floating roof reduces VOCs. If this emission unit is not working or maintained properly, operating this piece of equipment is a VIOLATION of our air permit.

Frequency of Monitoring and Preventative Maintenance Measures

Continuous

- Monitor level to verify floating roof is within its proper floating range.

Monthly

- Perform visual inspection of floating roof to verify seals are working properly.

Annual

- Internal visual inspection of floating roof from a top hatch looking for scale build-up on the sides, cable condition, or legs protruding above the cover.

10- Year

- Internally inspect the tank and floating roof looking at flooring & wall thickness, pontoons, lower legs, and pontoons following API and NSPS guidelines.

Normal Operating Conditions

- Level range is between 25,067-gallons (13.9%) and 180,486-gallons (100%)

Corrective Actions

- If level is out of range
  - Stop all transfers into tank
  - Verify the level transmitter is reading accurately
  - Verify by stick test that the floating roof is working correctly
- If floating roof gets stuck above liquid level
  - Conduct an internal visual inspection of floating roof from a top hatch looking for scale build-up on the sides, cable condition, or legs protruding above the cover
  - Verify vacuum break on tank is working properly
- If floating roof becomes submerged
  - Stop all transfers into the tank
  - Empty contents of tank to "land" the roof. Follow recommendations provided in vendor's operating manual.
  - Drain any residual liquid lying on the floating roof into the tank
  - Empty and prep tank for underside inspection of floating roof

Critical Replacement Parts

- Vacuum Break

Recordkeeping

- Daily, monthly, and annual records of Normal Operating Conditions will be tracked through PI, or operator round/ logs, and will be maintained by the Area Supervisor for 5-years. Incidental Maintenance and/or deviations occurring will be tracked using this method.
- All other records, as well as those corrective actions requiring a mechanic will be recorded and logged using Maintenance tracking software and kept for 5-years.
- Corrective actions requiring engineering will be tracked through the MOC process.

T-802 Denaturant Tank Floating Roof

Purpose

This unit reduces VOC emissions coming from T-802. If this emission unit is not working or maintained properly, operating this piece of equipment is a VIOLATION of our air permit.

Frequency of Monitoring and Preventative Maintenance Measures

Continuous

- Monitor level to verify floating roof is within its proper floating range.

Monthly

- Perform visual inspection of floating roof to verify seals are working properly.

Annual

- Internal visual inspection of floating roof from a top hatch looking for scale build-up on the sides, cable condition, or legs protruding above the cover.

10-Year

- Internally inspect the tank and floating roof looking at flooring & wall thickness, pontoons, lower legs, and pontoons following API and NSPS guidelines.

Normal Operating Conditions

- Level range is between 25,067-gallons (13.9%) and 180,486-gallons (100%)

Corrective Actions

- If level is out of range
  - Stop all transfers into tank
  - Verify the level transmitter is reading accurately
  - Verify by stick test that the floating roof is working correctly
- If floating roof gets stuck above liquid level
  - Conduct an internal visual inspection of floating roof from a top hatch looking for scale build-up on the sides, cable condition, or legs protruding above the cover
  - Verify vacuum break on tank is working properly
- If floating roof becomes submerged
  - Stop all transfers into the tank
  - Empty contents of tank to "land" the roof. Follow recommendations provided in vendor's operating manual.
  - Drain any residual liquid lying on the floating roof into the tank
  - Empty and prep tank for underside inspection of floating roof

Critical Replacement Parts

- Vacuum Break

Recordkeeping

- Daily, monthly, and annual records of Normal Operating Conditions will be tracked through PI, or operator round/ logs, and will be maintained by the Area Supervisor for 5-years. Incidental Maintenance and/or deviations occurring will be tracked using this method.
- All other records, as well as those corrective actions requiring a mechanic will be recorded and logged using Maintenance tracking software and kept for 5-years.
- Corrective actions requiring engineering will be tracked through the MOC process.

T-803 Storage Tank and Floating Roof

Purpose

This storage tank holds 200-proof undenatured ethanol product. The floating roof reduces VOCs. If this emission unit is not working or maintained properly, operating this piece of equipment is a VIOLATION of our air permit.

Frequency of Monitoring and Preventative Maintenance Measures

Continuous

- Monitor level to verify floating roof is within its proper floating range.

Monthly

- Perform visual inspection of floating roof to verify seals are working properly.

Annual

- Internal visual inspection of floating roof from a top hatch looking for scale build-up on the sides, cable condition, or legs protruding above the cover.

10- Year

- Internally inspect the tank and floating roof looking at flooring & wall thickness, pontoons, lower legs, and pontoons following API and NSPS guidelines.

Normal Operating Conditions

- Level range is between 86,365-gallons (8.9%) and 972,931-gallons (100%)

Corrective Actions

- If level is out of range
  - Stop all transfers into tank
  - Verify the level transmitter is reading accurately
  - Verify by stick test that the floating roof is working correctly
- If floating roof gets stuck above liquid level
  - Conduct an internal visual inspection of floating roof from a top hatch looking for scale build-up on the sides, cable condition, or legs protruding above the cover
  - Verify vacuum break on tank is working properly
- If floating roof becomes submerged
  - Stop all transfers into the tank
  - Empty contents of tank to "land" the roof. Follow recommendations provided in vendor's operating manual.
  - Drain any residual liquid lying on the floating roof into the tank
  - Empty and prep tank for underside inspection of floating roof

Critical Replacement Parts

- Vacuum Break

Recordkeeping

- Daily, monthly, and annual records of Normal Operating Conditions will be tracked through PI, or operator round/ logs, and will be maintained by the Area Supervisor for 5-years. Incidental Maintenance and/or deviations occurring will be tracked using this method.
- All other records, as well as those corrective actions requiring a mechanic will be recorded and logged using Maintenance tracking software and kept for 5-years.
- Corrective actions requiring engineering will be tracked through the MOC process.

T-804 Storage Tank and Floating Roof

Purpose

This storage tank holds 200-proof undenatured ethanol product. The floating roof reduces VOCs. If this emission unit is not working or maintained properly, operating this piece of equipment is a VIOLATION of our air permit.

Frequency of Monitoring and Preventative Maintenance Measures

Continuous

- Monitor level to verify floating roof is within its proper floating range.

Monthly

- Perform visual inspection of floating roof to verify seals are working properly.

Annual

- Internal visual inspection of floating roof from a top hatch looking for scale build-up on the sides, cable condition, or legs protruding above the cover.

10-Year

- Internally inspect the tank and floating roof looking at flooring & wall thickness, pontoons, lower legs, and pontoons following API and NSPS guidelines.

Normal Operating Conditions

- Level range is between 86,365-gallons (8.9%) and 972,931-gallons (100%)

Corrective Actions

- If level is out of range
  - Stop all transfers into tank
  - Verify the level transmitter is reading accurately
  - Verify by stick test that the floating roof is working correctly
- If floating roof gets stuck above liquid level
  - Conduct an internal visual inspection of floating roof from a top hatch looking for scale build-up on the sides, cable condition, or legs protruding above the cover
  - Verify vacuum break on tank is working properly
- If floating roof becomes submerged
  - Stop all transfers into the tank
  - Empty contents of tank to "land" the roof. Follow recommendations provided in vendor's operating manual.
  - Drain any residual liquid lying on the floating roof into the tank
  - Empty and prep tank for underside inspection of floating roof

Critical Replacement Parts

- Vacuum Break

Recordkeeping

- Daily, monthly, and annual records of Normal Operating Conditions will be tracked through PI, or operator round/ logs, and will be maintained by the Area Supervisor for 5-years. Incidental Maintenance and/or deviations occurring will be tracked using this method.
- All other records, as well as those corrective actions requiring a mechanic will be recorded and logged using Maintenance tracking software and kept for 5-years.
- Corrective actions requiring engineering will be tracked through the MOC process.

T-805 Denaturant Tank Floating Roof

Purpose

This unit reduces VOC emissions coming from T-805. If this emission unit is not working or maintained properly, operating this piece of equipment is a VIOLATION of our air permit.

Frequency of Monitoring and Preventative Maintenance Measures

Continuous

- Monitor level to verify floating roof is within its proper floating range.

Monthly

- Perform visual inspection of floating roof to verify seals are working properly.

Annual

- Internal visual inspection of floating roof from a top hatch looking for scale build-up on the sides, cable condition, or legs protruding above the cover.

10-Year

- Internally inspect the tank and floating roof looking at flooring & wall thickness, pontoons, lower legs, and pontoons following API and NSPS guidelines.

Normal Operating Conditions

- Level range is between 12,950-gallons (22.0%) and 59,051-gallons (100%)

Corrective Actions

- If level is out of range
  - Stop all transfers into tank
  - Verify the level transmitter is reading accurately
  - Verify by stick test that the floating roof is working correctly
- If floating roof gets stuck above liquid level
  - Conduct an internal visual inspection of floating roof from a top hatch looking for scale build-up on the sides, cable condition, or legs protruding above the cover
  - Verify vacuum break on tank is working properly
- If floating roof becomes submerged
  - Stop all transfers into the tank
  - Empty contents of tank to "land" the roof. Follow recommendations provided in vendor's operating manual.
  - Drain any residual liquid lying on the floating roof into the tank
  - Empty and prep tank for underside inspection of floating roof

Critical Replacement Parts

- Vacuum Break

Recordkeeping

- Daily, monthly, and annual records of Normal Operating Conditions will be tracked through PI, or operator round/ logs, and will be maintained by the Area Supervisor for 5-years. Incidental Maintenance and/or deviations occurring will be tracked using this method.
- All other records, as well as those corrective actions requiring a mechanic will be recorded and logged using Maintenance tracking software and kept for 5-years.
- Corrective actions requiring engineering will be tracked through the MOC process.

POET Biorefining - Caro
Caro, Michigan
Facility Parameters

Receiving	Current	Proposed	Difference				
Annual Grain Receiving	31,835,206	33,707,866	1,872,659	bu/yr			
Annual Grain Receiving	891,386	943,820	52,434	ton/yr			
Grain Density:	56	56	-	lb/bushel			
Gallons Ethanol Produced per Bushel of Corn:	2.67	2.67	-	gal/bu			

Production (Based on on Worst Case Emissions)	Current	Proposed	Difference			
Total Gallons Anhydrous Ethanol Produced per Year:	85,000,000	90,000,000	5,000,000	gallons/yr	REQUESTED PERMIT LIMT	6%

Loadout Operation [5] *:*						
Total Gallons loaded out (Ethanol and Denaturant, combined)	89,250,000	95,000,000	5,750,000	gallons/year	REQUESTED PERMIT LIMT	
Maximum Denaturant Throughput[1]:	5,000,000	5,000,000	-	gallons/year	REQUESTED PERMIT LIMT	

DDGS Production	Current	Proposed	Difference	
Hourly DDGS Production:	29.00	29.00	-	ton/hour
Annual DDGS Produced:	254,040	254,040	-	ton/year
Percent Grain Throughput that becomes DDGS	28.5%	26.9%		

Other Production Data	Current	Proposed	Difference	
Pounds of Grain Oil Produced per Bushel of Grain	1.0	1.0	-	lb/bushel
Annual Corn Oil Production	15,918	16,854	936	tons/year
Modified Wetcake Production		60		tons/hr
Modified Wetcake Production		525,600		tons/year
Regular Wetcake Production		60		tons/hr
Regular Wetcake Production		100,000		tons/year
Number of Hammermills		5		

Truck Data	Current	Proposed	Difference		Average Weight of Truck (tons)	Quantity Transported per Truck		Maximum Number of Trucks Hourly	Maximum Daily Number of Trucks Daily	Paved miles traveled per truck
DDGS Haul Out	5,645	5,645	-	truck/yr	27.5	45	tons	8	50	0.75
Ethanol Haul Out	10,366	11,585	1,220	truck/yr	27.5	8,200	gallons	5	72	1.16
Denaturant Delivery	610	610	-	truck/yr	27.5	8,200	gallons	5	5	1.11
Grain Delivery	19,809	20,974	1,165	truck/yr	27.5	45	tons	30	270	0.75
Corn Oil Haul Out	692	733	41	truck/yr	27.5	23	tons	2	6	1.11
Wetcake Haul Out	2500	11680	9,180	truck/yr	NA	45	tons	4	50	0.75
Syrup Haul Out	600	600	-	truck/yr	NA	8,200	gallons	1	2	1.11
Chemical delivery	365	365	-	truck/yr	27.5	8200	gallons	1	2	1.11

Cooling Tower Data

Drift Loss	0.005%	
Total Dissolved Solids	1500	milligrams/liter

[1]Assume denaturant is 5% of denatured alcohol product. Denaturant is typically between 1.8 and 2.2%.

POET Biorefining - Caro
Caro, Michigan
List of Emission Sources

Emission Point/ Stack Vent	Emission Unit	Control Equipment ID	Description	Current Capacity	Units
SV001	EUCORNPIT		Grain dump pit and auger	500	ton/hr
				943820	ton/yr
	EUDDGSPIT			160	ton/hr
	EUTRUCKLOAD1			160	
	EURAILLOAD1			160	
	EUDDGSELEV			160	
	EUDDGCONV		DDGS Transfer and Loadout	254,040	ton/yr
	EUCORNELEV1		Grain Elevator	840	ton/hr
	EUCORNBIN1-7		Grain Bins	840	ton/hr
SV002	EUCORNELEV2		Corn Elevator	840	ton/hr
	EUSCALPER		Scalper	110	ton/hr
SV035	EUHAMMERMILL1		Hammermill 1	22	ton/hr
	EUHAMMERMILL2		Hammermill 2	22	ton/hr
	EUHAMMERMILL3		Hammermill 3	22	ton/hr
	EUHAMMERMILL4		Hammermill 4	22	ton/hr
	EUHAMMERMILL5		Hammermill 5	22	ton/hr
	EUFLOURELEV		Flour Elevator	110	ton/hr
	EUFLOURCONV		Flour Conveyor	110	ton/hr
SV004, SV029			One (1) slurry tank	346	ton/hr (mash)
	EUFERMENTER1		Fermenter #1		
	EUFERMENTER2		Fermenter #2		
	EUFERMENTER3		Fermenter #3		
	EUFERMENTER4		Fermenter #4		
	EUFERMENTER5		Fermenter #5		
	EUFERMENTER6		Fermenter #6		
	EUFERMENTER7		Fermenter #7		
	EUYEAST		Yeast Propagation Tank		
	EUBEERWELL		Beer Well		
	EUBEERSTRIP		Beer Stripper	60,240	gal/hr (beerfeed rate)
	EUBEERSTRIP2		Beer Stripper 2		
	EURECTIFIER		Rectifier Column		
	EUSIDESTRIP		Side Stripper		
	EUSIEVE		Molecular Sieve		
	EUSIEVE2		Molecular Sieve 2		
	EUEVAPORATOR		Evaporators		
SV024, SV006	EUCENTRIFUGE1-6		One (1) Set of Five (6) Centrifuges	1,015	gallon/minute
	EUSTILLAGETANK		Whole Stillage Tank	20,000	gallons
	EUDDGSDRYER1		DDGS Dryer #1	29	ton/hr
				60	MMBTU/hr

Emission Point/ Stack Vent	Emission Unit	Control Equipment ID	Description	Current Capacity	Units
	EUDDGSDRYER2			29	ton/hr
			DDGS Dryer #2	33	MMBTU/hr
SV024	EURTO		RTO	18	MMBTU/hr
SV006	EUTO&HRB		TOHRB	99.9	MMBTU/hr
SV024			RTO - Scrubber Bypass	60,240	gal/hr
SV025			Centrifuge - RTO Bypass	250	ton/hr
SV007	EUFBCOOLER		DDG Fluid Bed Cooler	29	ton/hr
SV008	EUDDGSSILO		DDGS Storage Silo #1	29	ton/hr
SV008			DDGS Silo Bypass	29	ton/hr
SV006, SV014	EUTRUCKLOAD3		Ethanol Truck Loading Rack 1	95	MMGPY
SV006, SV015	EUTRUCKLOAD4		Ethanol Truck Loading Rack 2		
SV006, SV016	EURAILLOAD2		Ethanol Rail Loading Rack		
SV023	EUBOILER		Boiler	99.9	MMBTU/hr
SV017	EUGENSET			1340	HP
			Diesel Generator	1000	kW
	EU190TANK		190 Proof Ethanol Storage Tank	175,000	gallons
	EUNATGASTANK1		Denaturant Storage Tank	60,000	gallons
	EU200TANK1		200 Proof Storage Tank	973,000	gallons
	EU200TANK2		200 Proof Storage Tank	973,000	gallons
	EUNATGASTANK2		Denaturant Storage Tank	175,000	gallons
	EUINHIBITANK		Corrosion Inhibitor Tank	1,000	gallons
	EUSYRUPTANK (Insignificant)			61,000	gallons

Fugitive Source			Description		
FS001			Grain Receiving Fugitives	500	ton/hr
FS001			DDGS Loadout Fugitives	160	ton/hr
FS001			DDGS Flat Storage	29	ton/hr
FS003			Equipment Leaks	NA	NA
FS004			Cooling Towers	27,900	GPM
FS002			Paved Roads	NA	NA
FS005			Tank Farm Equipment Fugitives	NA	NA
FS006			Wet Cake Production	60	ton/hr
				525600	ton/yr

	Control Equ
Pollutants	**Description**
TSP/PM10/PM2.5	
TSP/PM10/PM2.5	Fabric Filter
TSP/PM10/PM2.5	
TSP/PM10/PM2.5	
TSP/PM10/PM2.5	Fabric Filter
TSP/PM10/PM2.5	Fabric Filter
TSP/PM10/PM2.5	Fabric Filter
TSP/PM10/PM2.5	Fabric Filter
TSP/PM10/PM2.5	Fabric Filter
TSP/PM10/PM2.5	
TSP/PM10/PM2.5	Fabric Filter
VOC, HAPs	Wet Scrubber, RTO
VOC, HAPs	Wet Scrubber, RTO
VOC, HAPs	RTO - No control during bypass
VOC, HAPs	
TSP, PM10, PM2.5, NOx, SOx, VOC, HAPs	Multiclone, RTO, TORHB

Pollutants	Description
TSP, PM10, PM2.5, NOx, SOx, VOC, HAPs	Multiclone, RTO, TORHB
TSP, PM10, PM2.5, NOx, SOx, VOC, HAPs	
TSP, PM10, PM2.5, NOx, SOx, VOC, HAPs	Low NOx Burner
VOC, HAPs	RTO Bypass
TSP, PM10, PM2.5, VOC, HAPs	Fabric Filter
TSP/PM10/PM2.5	Fabric Filter
TSP/PM10/PM2.5	Fabric Filter
VOC, HAPs	TOHRB
VOC, HAPs	
VOC, HAPs	
TSP, PM10, PM2.5, NOx, SOx, VOC, HAPs	
TSP, PM10, PM2.5, NOx, SOx, VOC, HAPs	None
VOC, HAPs	Internal Floating Roof
VOC, HAPs	Internal Floating Roof
VOC, HAPs	Internal Floating Roof
VOC, HAPs	Internal Floating Roof
VOC, HAPs	Internal Floating Roof
VOC	
VOC, HAPs	

Pollutants	Control Equipment
TSP/PM10/PM2.5	None
TSP/PM10/PM2.5	None
TSP/PM10/PM2.5	None
VOC, HAPs	Leak Detection and Repair Program
TSP/PM10/PM2.5	High Efficiency Mist Eliminators
TSP/PM10/PM2.5	None
VOC, HAPs	Leak Detection and Repair Program
VOC, HAPs	None

POET Biorefining - Caro
Caro, Michigan
Potential Emission Summary - Proposed

Controlled Emissions		TSP		PM10		PM2.5		NOx		SOx		VOC		CO		Acetaldehyde		Total HAP	
Emission Point/Stack Vent	Description	lb/hr	Lim tpy	lb/hr	Lim tpy	lb/hr	ton/yr	lb/hr	Lim tpy	lb/hr	Lim tpy	lb/hr	Lim tpy	lb/hr	Lim tpy	lb/hr	Lim tpy	lb/hr	Lim tpy
SV001	Grain dump pit and auger	0.56	2.47	0.56	2.47	0.36	1.58												
SV002	Scalper	0.06	0.26	0.06	0.26	0.04	0.17												
SV035	Hammermill 1	1.08	4.73	1.08	4.73	0.93	4.05												
SV004	Scrubber											19.65	86.06			1.50	6.56	1.63	7.12
SV029	Scrubber 2																		
SV006	TOHRB	4.00	17.52	4.00	17.52	4.00	17.52	21.09	92.37	0.12	0.54	9.00	39.42	17.72	77.59	0.26	1.13	0.83	3.62
SV024	RTO	6.00	26.28	6.00	26.28	6.00	26.28	Included in SV006											
SV024	Scubber Bypass - RTO Stack											30.74	1.54	24.00	1.20	0.67	0.03	1.03	0.05
SV025	Centrifuge - RTO Bypass											6.13	1.53			0.25	0.06	0.27	0.07
SV007	DDG Fluid Bed Cooler	0.65	2.86	0.65	2.86	0.65	2.86					7.54	33.02			0.21	0.90	0.24	1.05
SV008	DDGS Storage Silo #1	0.15	0.65	0.15	0.65	0.07	0.29												
SV008	DDGS Silo Bypass	Included in SV008																	
SV014, SV015, SV01	Ethanol Truck Loading Rack 1											319.95	11.11			0.15	0.00	19.92	0.46
SV017	Diesel Generator	0.94	0.23	0.94	0.23	0.94	0.23	32.16	8.04	0.54	0.13	0.94	0.24	7.37	1.84	0.00	0.00	0.01	0.00
SV023	Boiler	0.74	3.26	0.05	0.22	0.04	0.18	9.79	42.90	0.06	0.26	0.54	2.36	6.99	30.63			0.18	0.81
EU190TANK	190 Proof Ethanol Storage Tank											0.09	0.37			0.00	0.00	0.00	0
EUNATGASTANK1	Denaturant Storage Tank											0.40	1.77			0.00	0.00	0.03	0.145
EU200TANK1	200 Proof Storage Tank											0.05	0.21			0.00	0.00	0.00	0.000
EU200TANK2	200 Proof Storage Tank											0.05	0.21			0.00	0.00	0.00	0.000
EUNATGASTANK2	Denaturant Storage Tank											0.44	1.92			0.00	0.00	0.036	0.157
EUINHIBITANK	Corrosion Inhibitor Tank											0.00	0.00						
FS001	Grain Receiving Fugitives	0.96	1.12	0.96	1.12	0.06	0.07												
FS001	DDGS Loadout Fugitives	0.21	0.17	0.05	0.04	0.05	0.04												
Total (Title V and PSD Applicable) Pote		**15.36**	**59.55**	**14.50**	**56.38**	**13.13**	**53.29**	**63.04**	**143.31**	**0.72**	**0.93**	**395.51**	**179.76**	**56.08**	**111.27**				

Controlled Emissions - Fugitive Sources Not Included in Title V or PSD applicability Included for HAP major threshold		TSP		PM10		PM2.5		NOx		SOx		VOC		CO		Highest HAP Acetaldehyde		Total HAP	
Fugitive Source	Description	lb/hr	Lim tpy	lb/hr	Lim tpy	lb/hr	ton/yr	lb/hr	Lim tpy	lb/hr	Lim tpy	lb/hr	Lim tpy	lb/hr	Lim tpy	lb/hr	Lim tpy	lb/hr	Lim tpy
FS002	Paved Roads	4.82	2.84	0.96	0.57	0.24	0.14												
FS001	DDGS Flat Storage	0.02	0.08	0.00	0.02	0.00	0.02												
FS003	Equipment Leaks											0.91	3.98			0.0002	0.0008	0.0002	0.0010
FS004	Cooling Towers	1.05	4.59	0.73	3.21	0.44	1.93												
FS005	Tank Farm Equipment Fugitives											1.29	5.65			0.0002	0.0010	0.1014	0.0414
FS006	Wet Cake Production											0.25	1.09			0.00	0.01	0.01	0.05
	Total	5.9	7.5	1.7	3.8	0.7	2.1		0.0		0.0	2.4	10.7		0.0				

Facility Wide Potential Emissions	67.06	60.18	55.37	143.31	0.93	190.47	111.27	**8.70**	**13.58**

If uncontrolled lb/hr is not calculated, don't need to include it.

Uncontrolled Emissions		TSP		PM10		PM2.5		NOx		SOx		VOC		CO		Acetaldehyde		HAPs	
Emission Point	Description	lb/hr	Unc tpy	lb/hr	Unc tpy	lb/hr	Unc tpy	lb/hr	Unc tpy	lb/hr	Unc tpy	lb/hr	Unc tpy	lb/hr	Unc tpy	lb/hr	Unc tpy	lb/hr	Unc tpy
SV001	Grain dump pit and auger	56.28	246.51	56.28	246.51	36.18	158.47												
SV002	Scalper	6.00	26.28	6.00	26.28	3.86	16.89												
SV035	Hammermill 1	108.00	473.04	108.00	473.04	92.57	405.46												
SV004	Scrubber											654.97	2868.77			2.99	13.11	3.25	14.24
SV029	Scrubber 2																		
SV006	TOHRB	40.00	175.20	40.00	175.20	40.00	175.20	21.09	92.37	0.12	0.54	450.00	1971.00	177.16	775.94	12.85	56.30	30.24	132.46
SV024	RTO	60.00	262.80	60.00	262.80	60.00	262.80												
SV024	Scubber Bypass - RTO Stack	60.00		60.00		60.00						1087.00	54.35			20.50	1.03	20.76	1.04

SV025	Centrifuge - RTO Bypass											2.94	12.88			0.25	1.09	0.27	1.18
SV007	DDG Fluid Bed Cooler	65.28	285.93	65.28	285.93	65.28	285.93					7.54	33.02			0.21	0.90	0.24	1.05
SV008	DDGS Storage Silo #1	14.74	64.57	14.74	64.57	6.63	29.06												
SV008	DDGS Silo Bypass																		
SV014, SV015, SV01	Ethanol Truck Loading Rack 1											0.09	0.37			0.000	0.000	0.000	0.000
SV017	Diesel Generator	0.94	4.11	0.94	4.11	0.94	4.11	32.16	140.86	0.54	2.35	0.94	4.14	7.37	32.28	0.00	0.00	0.01	0.06
SV023	Boiler	0.74	3.26	0.05	0.22	0.04	0.18	9.79	42.90	0.06	0.26	0.54	2.36	6.99	30.63			0.18	0.81
EU190TANK	190 Proof Ethanol Storage Tank											0.09	0.37			0.00	0.00	0.00	0.00
EUNATGASTANK1	Denaturant Storage Tank											0.40	1.77			0.00	0.00	0.03	0.14
EU200TANK1	200 Proof Storage Tank											0.05	0.21			0.00	0.00	0.00	0.00
EU200TANK2	200 Proof Storage Tank	-	-	-	-	-	-					0.05	0.21			0.00	0.00	0.00	0.00
EUNATGASTANK2	Denaturant Storage Tank	-	-	-	-	-	-					0.44	1.92			0.00	0.00	0.04	0.16
EUINHIBITANK	Corrosion Inhibitor Tank											0.00	0.00			0.00	0.00	0.00	0.00
FS001	Grain Receiving Fugitives	0.96	1.12	0.96	1.12	0.06	0.07												
FS001	DDGS Loadout Fugitives	0.21	0.17	0.05	0.04	0.05	0.04												
	Total Point Sources		1542		1539		1338		276		3		4949		839		72		151

Uncontrolled Emissions - Fugitive Sources		**TSP**		**PM10**		**PM2.5**		**NOx**		**SOx**		**VOC**		**CO**		**Acetaldehyde**		**HAPs**	
Fugitive Source	**Description**	**lb/hr**	**Unc tpy**	**lb/hr**	**Unc tpy**	**lb/hr**	**Unc tpy**	**lb/hr**	**Unc tpy**	**lb/hr**	**Unc tpy**	**lb/hr**	**Unc tpy**	**lb/hr**	**Unc tpy**	**lb/hr**	**Unc tpy**	**lb/hr**	**Unc tpy**
FS002	Paved Roads	4.82	2.84	0.96	0.57	0.24	0.14												
FS003	Equipment Leaks											9.23	40.44			0.002	0.008	0.002	0.011
FS004	Cooling Towers	1.05	4.59	0.73	3.21	0.44	1.93												
FS005	Tank Farm Equipment Fugitives											15.13	66.28			0.003	0.020	0.10	0.45
FS006	Wet Cake Production											0.25	1.09			0.00	0.01	0.01	0.05
	Fugitive Sources Total		**-**		**-**		**-**		**0**		**0**		**107.8**		**0**		**0.04**		**0.51**

POET Biorefining - Caro
Caro, Michigan
Potential HAP Emission Summary - Proposed

		Facility Wide Total			SV023			Scrubbers			SV024/SV006		
		HAP			Boiler			Scrubbers 1 & 2			RTO/TO		
HAP Name	CAS #	**lb/hr**	**Unc tpy**	**Lim tpy**	**lb/hr**	**Unc tpy**	**Lim tpy**	**lb/hr**	**Unc tpy**	**Lim tpy**	**lb/hr**	**Unc tpy**	**Lim tpy**
Acetaldehyde	75-07-0	3.03	62.35	8.70	-	-	-	1.4966	2.9932	6.5551	0.2571	56.2992	1.1260
Acrolein	107-02-8	0.48	39.03	1.26	-	-	-	0.0941	0.1883	0.4123	0.1767	38.7057	0.7741
Arsenic	7440-38-2	0.00	0.00	0.00	-	-	-	-	-	-	-	-	-
Benzene	71-43-2	4.10	0.19	0.15	0.0002	0.0009	0.0009	-	-	-	-	-	-
Berylium	7440-41-7	0.00	0.00	0.00	0.0000	0.0000	0.0000	-	-	-	-	-	-
Cadmium	7440-43-7	0.00	0.00	0.00	0.0001	0.0005	0.0005	-	-	-	-	-	-
Carbon Disulfide	75-15-0	0.00	0.00	0.00	-	-	-	-	-	-	-	-	-
Chromium	7440-47-3	0.00	0.00	0.00	0.0001	0.0006	0.0006	-	-	-	-	-	-
Cobalt	7440-48-4	0.00	0.00	0.00	0.0000	0.0000	0.0000	-	-	-	-	-	-
Cumene	98-82-8	0.00	0.01	0.00	-	-	-	-	-	-	-	-	-
Ethylbenzene	100-41-4	0.44	0.01	0.01	-	-	-	-	-	-	-	-	-
Formaldehyde	50-00-0	0.21	17.66	0.53	0.0073	0.0322	0.0322	0.0118	0.0235	0.0515	0.0800	17.5200	0.3504
Hexane	110-54-3	7.69	1.92	2.14	0.1763	0.7722	0.7722	-	-	-	-	-	-
Lead	NA	0.00	0.00	0.00	0.0000	0.0002	0.0002	-	-	-	-	-	-
Manganese	7439-96-5	0.00	0.00	0.00	0.0000	0.0002	0.0002	-	-	-	-	-	-
Mercury	7439-97-6	0.00	0.00	0.00	0.0000	0.0001	0.0001	-	-	-	-	-	-
Methanol	67-56-1	0.24	20.09	0.58	-	-	-	0.0235	0.0471	0.1031	0.0910	19.9393	0.3988
Naphthalene	91-20-3	0.00	0.01	0.00	0.0001	0.0003	0.0003	-	-	-	-	-	-
Nickel	7440-02-0	0.00	0.00	0.00	0.0002	0.0009	0.0009	-	-	-	-	-	-
Propionaldehyde	123-38-6	0.00	0.00	0.00	-	-	-	-	-	-	-	-	-
Selenium	7782-49-2	0.00	0.00	0.00	0.0000	0.0000	0.0000	-	-	-	-	-	-
Toluene	108-88-3	5.78	0.19	0.15	0.0003	0.0015	0.0015	-	-	-	-	-	-
Xylenes	1330-20-7	2.22	0.07	0.06	-	-	-	-	-	-	-	-	-
Total HAP				**13.58**	**0.18**	**0.81**	**0.81**	1.6260	3.2520	7.1219	**0.60**	**132.46**	**2.65**

POET Biorefining - Caro
Caro, Michigan
Potential HAP Emission Summary

		SV024/SV006 - Combustion HAP			SV024			SV025			SV007			SV014, SV015, SV016		
		RTO/TO			Scubber Bypass - RTO Stack			Centrifuge - RTO Bypass			DDG Fluid Bed Cooler			Ethanol Truck Loading Rack 1		
HAP Name	CAS #	**lb/hr**	**Unc tpy**	**Lim tpy**	**lb/hr**	**Unc tpy**	**Lim tpy**	**lb/hr**	**Unc tpy**	**Lim tpy**	**lb/hr**	**Unc tpy**	**Lim tpy**	**lb/hr**	**Unc tpy**	**Lim tpy**
Acetaldehyde	75-07-0	-	-	-	0.6671	1.0250	0.0334	0.2482	1.0870	0.0620	0.2057	0.9010	0.9010	0.1481	0.0034	0.0034
Acrolein	107-02-8	-	-	-	0.1805	0.0094	0.0090	0.0129	0.0564	0.0032	0.0144	0.0629	0.0629	-	-	-
Arsenic	7440-38-2	0.0000	0.0000	0.0002	-	-	-	-	-	-	-	-	-	-	-	-
Benzene	71-43-2	0.0002	0.0004	0.0011	-	-	-	-	-	-	-	-	-	4.0827	0.0945	0.0945
Berylium	7440-41-7	0.0000	0.0000	0.0000	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium	7440-43-7	0.0002	0.0002	0.0010	-	-	-	-	-	-	-	-	-	-	-	-
Carbon Disulfide	75-15-0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	7440-47-3	0.0003	0.0003	0.0013	-	-	-	-	-	-	-	-	-	-	-	-
Cobalt	7440-48-4	0.0000	0.0000	0.0001	-	-	-	-	-	-	-	-	-	-	-	-
Cumene	98-82-8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ethylbenzene	100-41-4	-	-	-	-	-	-	-	-	-	-	-	-	0.4441	0.0103	0.0103
Formaldehyde	50-00-0	0.0088	0.0155	0.0386	0.0893	0.0012	0.0045	0.0031	0.0134	0.0008	0.0057	0.0251	0.0251	-	-	-
Hexane	110-54-3	0.2113	0.3722	0.9257	-	-	-	-	-	-	-	-	-	7.2357	0.1675	0.1675
Lead	NA	0.0001	0.0001	0.0005	-	-	-	-	-	-	-	-	-	-	-	-
Manganese	7439-96-5	0.0001	0.0001	0.0003	-	-	-	-	-	-	-	-	-	-	-	-
Mercury	7439-97-6	0.0001	0.0001	0.0002	-	-	-	-	-	-	-	-	-	-	-	-
Methanol	67-56-1	-	-	-	0.0920	0.0024	0.0046	0.0061	0.0268	0.0015	0.0144	0.0629	0.0629	0.0111	0.0003	0.0003
Naphthalene	91-20-3	0.0001	0.0001	0.0003	-	-	-	-	-	-	-	-	-	-	-	-
Nickel	7440-02-0	0.0004	0.0004	0.0019	-	-	-	-	-	-	-	-	-	-	-	-
Propionaldehyde	123-38-6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium	7782-49-2	0.0000	0.0000	0.0000	-	-	-	-	-	-	-	-	-	-	-	-
Toluene	108-88-3	0.0004	0.0007	0.0017	-	-	-	-	-	-	-	-	-	5.7758	0.1337	0.1337
Xylenes	1330-20-7	-	-	-	-	-	-	-	-	-	-	-	-	2.2207	0.0514	0.0514
	Total HAP	**0.22**	**0.39**	**0.97**	**1.03**	**1.04**	**0.05**	**0.27**	**1.18**	**0.07**	**0.24**	**1.05**	**1.05**	**19.92**	**0.46**	**0.46**

POET Biorefining - Caro
Caro, Michigan
Potential HAP Emission Summary

		EU190TANK			EUNATGASTANK1			EU200TANK1			EU200TANK2			EUSYRUPTANK		
		190 Proof Ethanol Storage Tank			Denaturant Storage Tank			200 Proof Storage Tank			200 Proof Storage Tank			Syrup Tank		
HAP Name	CAS #	**lb/hr**	**Unc tpy**	**Lim tpy**	**lb/hr**	**Unc tpy**	**Lim tpy**	**lb/hr**	**Unc tpy**	**Lim tpy**	**lb/hr**	**Unc tpy**	**Lim tpy**	**lb/hr**	**Unc tpy**	**Lim tpy**
Acetaldehyde	75-07-0	0.0000	0.0001	0.0001	0.0001	0.0004	0.0004	0.000009	0.000042	0.000042	0.000009	0.000042	0.000042	0.000033	0.000146	0.000146
Acrolein	107-02-8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Arsenic	7440-38-2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzene	71-43-2	-	-	-	0.0053	0.0231	0.0231	-	-	-	-	-	-	-	-	-
Berylium	7440-41-7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium	7440-43-7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbon Disulfide	75-15-0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	7440-47-3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cobalt	7440-48-4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cumene	98-82-8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ethylbenzene	100-41-4	-	-	-	0.0001	0.0004	0.0004	-	-	-	-	-	-	-	-	-
Formaldehyde	50-00-0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.000001	0.000006	0.000006	0.000001	0.000006	0.000006	-	-	-
Hexane	110-54-3	-	-	-	0.0263	0.1154	0.1154	-	-	-	-	-	-	-	-	-
Lead	NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Manganese	7439-96-5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mercury	7439-97-6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Methanol	67-56-1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.000001	0.000004	0.000004	0.000001	0.000004	0.000004	-	-	-
Naphthalene	91-20-3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nickel	7440-02-0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Propionaldehyde	123-38-6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium	7782-49-2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Toluene	108-88-3	-	-	-	0.0008	0.0037	0.0037	-	-	-	-	-	-	-	-	-
Xylenes	1330-20-7	-	-	-	0.0004	0.0016	0.0016	-	-	-	-	-	-	-	-	-
Total HAP		**0.00**	**0.00**	**0.00**	**0.03**	**0.14**	**0.14**	**0.00001**	**0.00005**	**0.00005**	**0.00001**	**0.00005**	**0.00005**	**0.00003**	**0.00015**	**0.00015**

POET Biorefining - Caro
Caro, Michigan
Potential HAP Emission Summary

		EUNATGASTANK2			SV017			FS003			FS005			FS006		
		Denaturant Storage Tank			Diesel Generator			Equipment Leaks			Tank Farm Equipment Fugitives			Wet Cake Production		
HAP Name	CAS #	**lb/hr**	**Unc tpy**	**Lim tpy**	**lb/hr**	**Unc tpy**	**Lim tpy**	**lb/hr**	**Unc tpy**	**Lim tpy**	**lb/hr**	**Unc tpy**	**Lim tpy**	**lb/hr**	**Unc tpy**	**Lim tpy**
Acetaldehyde	75-07-0	-	-	-	0.0002	0.0010	0.0001	0.0002	0.0081	0.0008	0.0002	0.0199	0.0010	0.0030	0.0131	0.0131
Acrolein	107-02-8	-	-	-	0.0001	0.0003	0.0000	0.0000	0.0006	0.0001	0.0000	0.0014	0.0001	0.0006	0.0026	0.0026
Arsenic	7440-38-2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzene	71-43-2	0.0057	0.0252	0.0252	0.0073	0.0319	0.0018	-	-	-	0.0004	0.0181	0.0017	-	-	-
Berylium	7440-41-7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium	7440-43-7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbon Disulfide	75-15-0	-	-	-	-	-	-	-	-	-	0.0000	0.0001	0.0000	-	-	-
Chromium	7440-47-3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cobalt	7440-48-4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cumene	98-82-8	-	-	-	-	-	-	-	-	-	0.0002	0.0073	0.0007	-	-	-
Ethylbenzene	100-41-4	0.0001	0.0004	0.0004	-	-	-	-	-	-	0.0000	0.0004	0.0000	-	-	-
Formaldehyde	50-00-0	-	-	-	0.0007	0.0032	0.0002	0.0000	0.0011	0.0001	0.0000	0.0028	0.0002	0.0060	0.0263	0.0263
Hexane	110-54-3	0.0286	0.1254	0.1254	-	-	-	-	-	-	0.0077	0.3626	0.0339	-	-	-
Lead	NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Manganese	7439-96-5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mercury	7439-97-6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Methanol	67-56-1	-	-	-	-	-	-	0.0000	0.0009	0.0001	0.0000	0.0021	0.0001	0.0012	0.0053	0.0053
Naphthalene	91-20-3	-	-	-	0.0012	0.0053	0.0003	-	-	-	-	-	-	-	-	-
Nickel	7440-02-0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Propionaldehyde	123-38-6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium	7782-49-2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Toluene	108-88-3	0.0009	0.0040	0.0040	0.0026	0.0115	0.0007	-	-	-	0.0008	0.0363	0.0034	-	-	-
Xylenes	1330-20-7	0.0004	0.0017	0.0017	0.0018	0.0079	0.0005	-	-	-	0.0001	0.0036	0.0003	-	-	-
Total HAP		**0.04**	**0.16**	**0.16**	**0.01**	**0.06**	**0.00**	**0.00**	**0.01**	**0.00105**	**0.01**	**0.45**	**0.0414**	**0.01**	**0.05**	**0.05**

POET Biorefining - Caro
Caro, Michigan
FS002 Paved Roads

All trucks are assumed to have an empty weight of 15 tons and a full wieght of 40 tons. Actual ethanol and denaturant trucks have a capacity of 8,000 gallons and DDGS trucks have a capacity of 25 tons.

Assume for the potential to emit calculations that 100% of the ethanol and DDGS are trucked off-site. Also assume that 100% of the denaturant ang grain is recieved by truck. Actual operations will result in some of the ethanol and DDGS being shipped off-site by rail.

Equation from AP-42 Chapter 13.2.1.3

Equation (2):
$E_{xt}=[k(sL)^{0.91}x(W)^{1.02}](1-P/4N)$

Description	Variable	Value
Value used for PM	k	0.011
Value used for PM10	k	0.0022
Value used for PM2.5	k	0.00054
Surface material silt content (g/m^2)	sL	0.40
Maximum Instantaneous Control Efficiency	No Control	0%
Road Cleaning Frequency	N/A	N/A
Mean vehicle weight (tons)[1]	W	30.00
Precipitation Frequency	P	120
Number of days in averaging period	N	365
Constant		0.91
Constant		1.02

DDGS Haul Out by Truck	100%
Ethanol Haul Out by Truck	100%
Denaturant Delivery by Truck	100%
Grain Delivery by Truck	100%
Corn Oil Haul Out by Truck	100%
Grain Delivery by Truck	100%

Vehicle Type[3]	Average Weight of Truck (tons)[1]	Quantity Transported per Truck		Maximum Number of Trucks (Trucks/yr)	Limited Number of Trucks (Trucks/yr)	Maximum Number of Trucks (Trucks/hr)[2]	Maximum Daily Number of Trucks (Trucks/day)	Paved Miles Traveled per Truck	Limited VMT/yr	Limited VMT/hr
DDGS Haul Out	27.5	45	tons	5,645	5,645	8	50	0.75	4,234	6
Ethanol Haul Out	27.5	8200	gallons	11,585	11,585	5	72	1.16	13,439	6
Denaturant Delivery	27.5	8200	gallons	610	610	5	5	1.11	677	-
Grain Delivery	27.5	45	tons	20,974	20,974	30	270	0.75	15,730	23
Corn Oil Haul Out	27.5	23	tons	733	733	2	6	1.11	813	2
Modified Wetcake Haul Out	NA	45	tons	11,680	11,680	4	50	0.75	8,760	3
Syrup Haul Out	NA	8200	gallons	-	-	1	2	1.11	-	-
Chemical delivery	27.5	8200	tons	365	365	1	2	1.11	405	1
Total	**27.50**			51,592		48	403		**44,059**	**34**

Paved Haul Road Emissions	$E_{(lb/VMT)}$	(TPY)	Maximum lb/hour	Maximum lb/day
Emissions PM	0.140		4.82	46.20
Annual PM Emissions	0.129	2.84		
Emissions PM10	0.028		0.96	9.24
Annual PM10 Emissions	0.026	0.57		
Emissions PM2.5	0.007		0.24	2.27
Annual PM2.5 Emissions	0.006	0.14		

Notes:
[1] Mean vehicle weight (W) accounts for the vehicles weight (load or no load depending on the vehicle)
Assumed all maximum loads are 40 tons total (15 tons truck weight + 25 tons load weight), which is conservative.
[2]Denaturant Delivery and Ethanol Haul Out can not occur simultaneously.
[3]The majority of DDGS go out via rail, so assuming all DDGS are loaded out by truck to calculate fugitive emissions from roads is conservative. The amount of distillers grain produced as wetcake is small and is not included in fugitive road emissions due to the conservative assumption that all DDGS goes out by truck. Any wetcake produced would reduce the amount of DDGS loaded out to some degree.
Syrup loadout is not included for the same reasons that wetcake is not included.

POET Biorefining - Caro
Caro, Michigan
SV001 FGCORN-DDGS

The following calculations are for the emissions of total suspended particulate (TSP), particulate matter less than 10 micron (PM10) and particulate matter less than 2.5 micron (PM2.5) from point sources at the proposed ethanol facility. For the purposes of these calculations, TSP, PM10, and PM2.5 were assumed to be equal.

The controlled potential TSP/PM10/PM2.5 emissions were calculated by multiplying the design grain loading from the fabric filter by the design flow rate for the source and converting to a pound per hour emission rate. The equation for the calculations is:

Ec lb/hr = G gr/dscf x 1 lb / 7000 gr x Q dscfm x 60 minutes / hour

Where:
E = Emission rate of TSP/PM10/PM2.5 in lb/hr
G = Outlet Grain Loading in grain per dry standard cubic foot of air
Q = Flow Rate in dry standard cubic feet per minute

The uncontrolled potential emission were calculated by multiplying the AP-42 emission factor by the annual throughput in tons/year. The equation for the uncontrolled emission rate is:

Eu ton/yr = Ef * Q

Where:
Q = Annual Throughput

Qgrain =	943,820	tons/year
Qddgs =	254,040	tons/year
Qddgs =	160	tons/hour

Conversion Factors:

1 ton =	2000	lb
1 lb =	7000	gr
1 year =	8760	hours
1 hour =	60	minutes

Assumptions:

Maximum controlled TSP/PM10 emission rate[1] =	0.0028	gr/dscf
Maximum controlled PM2.5 emission rate[1] =	0.0018	gr/dscf
Control Efficiency[2] =	99%	
Emission Factor PM Grain Receiving[3] =	0.18	lb/ton
Emission Factor PM10 Grain Receiving[3] =	0.059	lb/ton
Emission Factor PM2.5 Grain Receiving[3] =	0.010	lb/ton
PM Emission Factor DDGS Loadout[3] =	0.0033	lb/ton
PM10 Emission Factor DDGS Loadout[3] =	0.0008	lb/ton
PM2.5 Emission Factor DDGS Loadout[3] =	0.0008	lb/ton

Given:
All point source emissions from these emission units will be controlled by a fabric filter.
Exhaust Flow Rate = 23,450 dscfm

				Permit Limits	
	Uncontrolled	Uncontrolled (based on 8760 hrs/yr)	Limited Uncontrolled[5]	Controlled[4]	Controlled[4]
	lbs/hr	Unc. TPY	TPY	lbs/hr	TPY
PM	56.28	246.51	85.36	0.56	2.47
PM10	56.28	246.51	27.94	0.56	2.47
PM2.5	36.18	158.47	4.82	0.36	1.58

[1] This is assumed loading. Stack tests have indicated that this is a conservative assumption
[2] Assumed control efficiency
[3] EF taken from AP-42 Table 9.9.1-1 for straight truck receiving. Conservatively assumed all receiving via truck. DDGS loadout factors taken from AP-42 Table 9.9.1-2 for animal feed shipping.
[4] Controlled is based on maximum flow rate
[5] Limited is based on annual throughput

POET Biorefining - Caro
Caro, Michigan
FS001 Grain Handling - Fugitive Emissions

The grain unloading operations will be located inside a dump shed and will be aspirated to a fabric filter. The shed enclosure will provide control of the TSP, PM10, and PM2.5 emissions. The loading shed and aspiration system will capture a portion of the particulate matter emitted during rail loading operations. Therefore, grain unloading will be a source of fugitive particulate emissions.

The uncontrolled potential emission will be calculated by multiplying the appropriate USEPA AP-42 emission factor by the maximum dump rate for the process and assuming that all TSP/PM10/PM2.5 is emitted.

The controlled potential emissions will be calculated by multiplying the appropriate emission factor by the maximum dump rate for the process. The emission factors were determined based on studies completed on similar grain receiving buildings.

The equation for calculating the uncontrolled potential fugitive emissions is:

Eu lb/hr = Ef lb/ton x W tons

The equation for calculating the controlled potential fugitive emissions is:

Ec lb/hr = (Ef lb/ton x W tons) x [(100-CE) / 100]

Where:
Eu = Uncontrolled Potential Emissions
Ef = AP-42 Emission Factor for Grain Receiving
W = Tons of grain received
Ce = Capture efficiency of shed and aspiration system

Given:
Given:

Maximum Hourly Truck Dump Rate =	500	ton/hour	
Maximum Hours per day =	24	hours/day	
Limited Daily Truck Dump Rate	9,700	tons/day	Based on highest daily actual throughput 2009-2016 (345,710 bu)
Maximum Annual Truck Dump Rate =	943,820	ton/year	

Uncontrolled Emission Rate			
Hopper Truck TSP Emission Factor =	0.035	lb/ton	AP-42 Table 9.9.1-1 Grain Shipping
Hopper Truck PM10 Emission Factor =	0.0078	lb/ton	AP-42 Table 9.9.1-1 Grain Shipping
Straight Truck TSP Emission Factor =	0.18	lb/ton	AP-42 Table 9.9.1-1 Grain Shipping
Straight Truck PM10 Emission Factor =	0.059	lb/ton	AP-42 Table 9.9.1-1 Grain Shipping

[1]**Controlled Emission Rate**		
Hopper Truck TSP Emission Factor =	0.000323	lb/ton
Hopper Truck PM10 Emission Factor =	0.000323	lb/ton
Hopper Truck PM2.5 Emission Factor =	0.0000189	lb/ton
Straight Truck TSP Emission Factor =	0.0024	lb/ton
Straight Truck PM10 Emission Factor =	0.0024	lb/ton
Straight Truck PM2.5 Emission Factor =	0.000145	lb/ton

Hopper Truck usage =	1%
Straight Truck usage =	99%

	Hourly Emission Rate	Daily Emission Rate	Annual Emission Rate	
	lb/hr	lb/day	ton/year	
Uncontrolled TSP	72.16	1731.94	84.26	
Uncontrolled PM10	23.64	567.33	27.60	
Uncontrolled PM2.5	4.02	96.45	4.69	PM2.5 = 17% of PM10 emission rate per AP-42 Table 9.9.1-1 Reference 40

Hourly Rate = Daily Rate / 24 hr/day

	Hourly Emission Rate	Daily Emission Rate	Annual Emission Rate
	lb/hr	lb/day	ton/year
Fugitive TSP	0.96	23.08	1.12
Fugitive PM10	0.96	23.08	1.12
Fugitive PM2.5	0.06	1.39	0.07

Hourly Rate = Daily Rate / 24 hr/day

[1] Controlled emission factors are from PM10 and PM2.5 Fugitive Emission Factors for Grain Receiving Operations. April 4, 2017 approved by Michigan DEQ on April 17, 2017.
[1] The PTE's conservatively assume that all receiving is via truck. Some grain is received via rail.

POET Biorefining - Caro
Caro, Michigan
FS001 DDG Loading - Fugitive Emissions

The loading of DDG solids into trucks, railcars, or containers will be conducted inside a shed. A portion of the loading operations will be aspirated to a fabric filter. During rail loadout, the shed and aspiration system will capture 80% of the particulate matter emitted. During truck and container loadout, the building will capture 80% of the particulate matter emitted. Therefore, DDG loading will be a source of fugitive particulate emissions.

The emissions from the loading operations into trucks and containers are higher than railcar loading. Therefore, the potential emission calculations will be based on truck and container loading for all DDG.
The uncontrolled potential emission for particulates will be calculated by multiplying the appropriate USEPA AP-42 emission factor by the maximum loading rate for the process and assuming that all TSP/PM10/PM2.5 is emitted. The controlled potential emissions for particulates will be calculated by multiplying the appropriate USEPA AP-42 emission factor by the maximum loading rate for the process, assuming that 80% of the TSP/PM10/PM2.5 is captured by the shed.

The equation for calculating the uncontrolled potential fugitive emissions is:

Eu lb/hr = Ef lb/ton x W tons

The equation for calculating the controlled potential fugitive emissions is:

Ec lb/hr = (Ef lb/ton x W tons) x [(100-Ce) / 100]

Where:

Ec = Emission rate in lb/hr
Ef = Emission factor in lb/ton loaded
W = Tons loaded per unit time
Ce = Capture efficiency of shed and aspiration system

Given:

Maximum Hourly Truck/Container Loading Rate =	160	ton/hour
Maximum Daily Loading Rate =	3840	tons/day
Maximum Annual Loading Rate =	254,040	ton/year
TSP Emission Factor DDGS Loadout [1] =	0.0033	lb/ton
PM10 Emission Factor DDGS Loadout [1] =	0.0008	lb/ton
Capture Efficiency of Rail shed and Aspiration system=	80%	
Capture Efficiency of truck/container shed	80%	
PM2.5 =	100%	of PM10
1 ton =	2000	lbs
1 year =	8760	hours

Truck Loadout Potential to Emit - PM/PM10/PM2.5

	Hourly Emission Rate	Daily Emission Rate	Annual Emission Rate
	lb/hr	lb/day	ton/year
Uncontrolled TSP	0.5	12.7	0.4
Uncontrolled PM10	0.1	3.1	0.1
Uncontrolled PM2.5	0.1	3.1	0.1

	Hourly Emission Rate	Daily Emission Rate	Annual Emission Rate
	lb/hr	lb/day	ton/year
Controlled TSP	0.11	2.53	0.08
Controlled PM10	0.03	0.61	0.02
Controlled PM2.5	0.03	0.61	0.02

Container Loadout Potential to Emit - PM/PM10/PM2.5

	Hourly Emission Rate	Daily Emission Rate	Annual Emission Rate
	lb/hr	lb/day	ton/year
Uncontrolled TSP	0.5	12.7	0.4
Uncontrolled PM10	0.1	3.1	0.1
Uncontrolled PM2.5	0.1	3.1	0.1

	Hourly Emission Rate	Daily Emission Rate	Annual Emission Rate
	lb/hr	lb/day	ton/year
Controlled TSP	0.1	2.5	0.08
Controlled PM10	0.0	0.6	0.02
Controlled PM2.5	0.0	0.6	0.02

Total DDGS Loadout Potential to Emit - PM/PM10/PM2.5

	Hourly Emission Rate	Daily Emission Rate	Annual Emission Rate
	lb/hr	lb/day	ton/year
Uncontrolled TSP	1.1	25.3	0.8
Uncontrolled PM10	0.3	6.1	0.2
Uncontrolled PM2.5	0.3	6.1	0.2

	Hourly Emission Rate	Daily Emission Rate	Annual Emission Rate
	lb/hr	lb/day	ton/year
Controlled TSP	0.21	5.07	0.17
Controlled PM10	0.05	1.23	0.04
Controlled PM2.5	0.05	1.23	0.04

[1] Emission factors taken from AP-42 Table 9.9.1-1

POET Biorefining - Caro
Caro, Michigan
FS001 DDG Flat Storage - Fugitive Emissions

Some DDGS is stored in a pile inside the building (flat storage). While DDGS is loaded into flat storage, the building will capture 80% of the particulate matter emitted. Therefore, DDG flat storage will be a source of fugitive particulate emissions.

The uncontrolled potential emission for particulates will be calculated by multiplying the appropriate USEPA AP-42 emission factor by the maximum loading rate for the process and assuming that all TSP/PM10/Pm2.5 is emitted.

The controlled potential emissions for particulates will be calculated by multiplying the appropriate USEPA AP-42 emission factor by the maximum loading rate for the process, assuming that 80% of the TSP/PM10/PM2.5 is captured by the building.

The equation for calculating the uncontrolled potential fugitive emissions is:

Eu lb/hr = Ef lb/ton x W tons

The equation for calculating the controlled potential fugitive emissions is:

Ec lb/hr = (Ef lb/ton x W tons) x [(100-Ce) / 100]

Where:

Ec = Emission rate in lb/hr
Ef = Emission factor in lb/ton loaded
W = Tons loaded per unit time
Ce = Capture efficiency of shed and aspiration system

Given:

Maximum Hourly Flat Storage Loading Rate =	29	ton/hour
Maximum Daily Loading Rate =	696	tons/day
Maximum Annual Loading Rate =	254,040	ton/year
PM Emission Factor DDGS Loadout[1] =	0.0033	lb/ton
PM10 Emission Factor DDGS Loadout[1] =	0.0008	lb/ton
Capture Efficiency of DDGS Storage building	80%	
PM2.5 =	100%	of PM10
1 ton =	2000	lbs
1 year =	8760	hours

DDGS Flat Storage Potential to Emit - PM/PM10/PM2.5

	Hourly Emission Rate	Daily Emission Rate	Annual Emission Rate
	lb/hr	lb/day	ton/year
Uncontrolled TSP	0.10	2.30	0.42
Uncontrolled PM10	0.02	0.56	0.10
Uncontrolled PM2.5	0.02	0.56	0.10

	Hourly Emission Rate	Daily Emission Rate	Annual Emission Rate
	lb/hr	lb/day	ton/year
Controlled TSP	0.02	0.5	0.08
Controlled PM10	0.00	0.1	0.02
Controlled PM2.5	0.00	0.1	0.02

[1] Emission factors taken from AP-42 Table 9.9.1-2

POET Biorefining - Caro
Caro, Michigan
SV002 - Scalper

The following calculations are for the emissions of total suspended particulate (TSP), particulate matter less than 10 micron (PM10), and particulate matter less than 2.5 micron (PM2.5) from point sources at the proposed ethanol facility. For the purposes of these calculations, TSP, PM10, and PM2.5 are assumed to be equal.

The controlled potential TSP/PM10/PM2.5 emissions were calculated by multiplying the design grain loading from the fabric filter by the design flow rate for the source and converting to a pound per hour emission rate. The equation for the calculations is:

Ec lb/hr = G gr/dscf x 1 lb / 7000 gr x Q dscfm x 60 minutes / hour

Where:
E = Emission rate of TSP/PM10 in lb/hr
G = Outlet Grain Loading in grain per dry standard cubic foot of air
Q = Flow Rate in dry standard cubic feet per minute

Where:
Qgrain = 943,820 tons/year

Conversion Factors:

1 ton =	2000	lb
1 lb =	7000	gr
1 year =	8760	hours
1 hour =	60	minutes

Assumptions:

Maximum controlled TSP/PM10 emission rate[1] =	0.0028	gr/dscf
Maximum controlled PM2.5 emission rate[1] =	0.0018	gr/dscf
Control Efficiency[2] =	99%	

Given:
Capacity = 110 ton/hr
All point source emissions from these emission units will be controlled by a fabric filter.
Exhaust Flow Rate = 2,500 dscfm

				Permit Limits	
	Uncontrolled	Uncontrolled (based on 8760 hrs/yr)	Limited Uncontrolled[4]	Controlled[3]	Controlled[3]
	lbs/hr	Unc. TPY	TPY	lbs/hr	TPY
PM	6.00	26.28	25.74	0.06	0.26
PM10	6.00	26.28	25.74	0.06	0.26
PM2.5	3.86	16.89	16.55	0.04	0.17

[1] This is assumed loading. Stack tests have indicated that this is a conservative assumption
[2] Assumed control efficiency
[3]Controlled is based on maximum flow rate
[4]Limited is based on annual throughput

POET Biorefining - Caro
Caro, Michigan
SV035 - Hammermills

The following calculations are for the emissions of total suspended particulate (TSP), particulate matter less than 10 micron (PM10), and particulate matter less than 2.5 micron (PM2.5) from point sources at the proposed ethanol facility. For the purposes of these calculations, TSP, PM10, and PM2.5 are assumed to be equal.

The controlled potential TSP/PM10/PM2.5 emissions were calculated by multiplying the design grain loading from the fabric filter by the design flow rate for the source and converting to a pound per hour emission rate. The equation for the calculations is:

Ec lb/hr = G gr/dscf x 1 lb / 7000 gr x Q dscfm x 60 minutes / hour

Where:
E = Emission rate of TSP/PM10 in lb/hr
G = Outlet Grain Loading in grain per dry standard cubic foot of air
Q = Flow Rate in dry standard cubic feet per minute

Where:
Qgrain = 943,820 tons/year

Conversion Factors:

1 ton =	2000	lb
1 lb =	7000	gr
1 year =	8760	hours
1 hour =	60	minutes

Assumptions:

Maximum controlled TSP/PM10 emission rate[1] =	0.0021	gr/dscf
Maximum controlled PM2.5 emission rate[1] =	0.0018	gr/dscf
Control Efficiency[2] =	99%	

Given:
Capacity = 110 ton/hr
All point source emissions from these emission units will be controlled by a fabric filter.
Exhaust Flow Rate = 60,000 dscfm

				Permit Limits	
	Uncontrolled	Uncontrolled (based on 8760 hrs/yr)	Limited Uncontrolled[4]	Controlled[3]	Controlled[3]
	lbs/hr	Unc. TPY	TPY	lbs/hr	TPY
PM	108.00	473.04	463.33	1.08	4.73
PM10	108.00	473.04	463.33	1.08	4.73
PM2.5	92.57	405.46	397.14	0.93	4.05

[1] This is assumed loading. Stack tests have indicated that this is a conservative assumption
[2] Assumed control efficiency
[3]Controlled is based on maximum flow rate
[4]Limited is based on annual throughput

POET Biorefining - Caro
Caro, Michigan
SV023 - Boiler

The facility will have one 100 MMBtu/hr natural gas fired steam boiler. No backup fuel is being proposed. This boiler is subject to the provisions of the United Stated Environmental Protection Agency's (USEPA's) New Source Performance Standard (NSPS), Subpart Db, Standard for Institutional, Commercial, and Industrial Steam Generating Units.

The boiler is equipped with low NOx burners.

The potential emissions for the boiler is calculated by multiplying an emission factor by the rated capacity of the boiler. AP-42 emission factors from Section 1.4 were converted to lb/MMBtu assuming a heating value of 1020 Btu/ft3 for natural gas. The emission factors are:

AP-42 Table 1.4-3 & Table 1.4-4

HAP Compound	Emission Factor lb/MMSCF
Benzene	0.0021
Formaldehyde	0.075
Hexane	1.8
Naphthalene	0.00061
Toluene	0.0034
Arsenic	0.0002
Berylium	0.000012
Cadmium	0.0011
Chromium	0.0014
Cobalt	0.000084
Lead	0.00046
Manganese	0.00038
Mercury	0.00026
Nickel	0.0021
Selenium	0.000024

Conversion Factors:	Assumed for natural gas	
1 lb/MMBtu =	1020	Btu/scf
1 ton =	2000	lb
1 year =	8760	hours

	Emission Factor lb/MMbtu	Source
TSP	0.0075	AP-42 Section 1.4 * 1020 Btu/scf
PM10	0.0005	NG_process_gas_LPG_PM_factors, USEPA, March 30, 2012 0.52 lb/MMscf * 1020 Btu/scf
PM2.5	0.0004	NG_process_gas_LPG_PM_factors, USEPA, March 30, 2012 0.43 lb/MMscf * 1020 Btu/scf
NOx	0.0980	AP-42 Section 1.4 * 1020 Btu/scf
SOx	0.0006	AP-42 Section 1.4 * 1020 Btu/scf
VOC	0.0054	AP-42 Section 1.4 * 1020 Btu/scf
CO	0.0700	Performance Test Data for Similar Unit

HAPs		Size	99.9	MMBtu/hr
HAP Name	CAS #	**lb/hr**	**Unc tpy**	**Lim tpy**
Benzene	71-43-2	0.00021	0.00090	0.00090
Berylium	7440-41-7	0.00000	0.00001	0.00001
Cadmium	7440-43-7	0.00011	0.00047	0.00047
Chromium	7440-47-3	0.00014	0.00060	0.00060
Cobalt	7440-48-4	0.00001	0.00004	0.00004
Formaldehyde	50-00-0	0.00735	0.03217	0.03217
Hexane	110-54-3	0.17629	0.77217	0.77217
Lead	NA	0.00005	0.00020	0.00020
Manganese	7439-96-5	0.00004	0.00016	0.00016
Mercury	7439-97-6	0.00003	0.00011	0.00011
Naphthalene	91-20-3	0.00006	0.00026	0.00026
Nickel	7440-02-0	0.00021	0.00090	0.00090
Selenium	7782-49-2	0.00000	0.00001	0.00001
Toluene	108-88-3	0.00033	0.00146	0.00146
	Total HAP	**0.18481**	**0.80946**	**0.80946**

	TSP		PM10		PM2.5		NOx		SOx		VOC		CO	
	lb/hr	**Lim tpy**	**lb/hr**	**Lim tpy**	**lb/hr**	**ton/yr**	**lb/hr**	**Lim tpy**	**lb/hr**	**Lim tpy**	**lb/hr**	**Lim tpy**	**lb/hr**	**Lim tpy**
Boiler 1	0.74	3.26	0.05	0.22	0.04	0.18	9.79	42.90	0.06	0.26	0.54	2.36	6.99	30.63
Uncontrolled Boiler 1	0.74	3.26	0.05	0.22	0.04	0.18	9.79	42.90	0.06	0.26	0.54	2.36	6.99	30.63

POET Biorefining - Caro
Caro, Michigan
FS004 - Cooling Tower

Particulate emissions are estimated by analyzing the mass of condensed water that is released times the total mass of dissolved solids present in the water. The estimate is based on the assumption that all of the dissolved solids that are present in the water becomes airborne particulate matter upon evaporation of the release condensed water droplets. The released water droplets are referred to as the "drift loss" of the tower. The drift loss of the tower is usually referenced as a percent of the total water circulation rate of the tower.

PM to PM10 ratio:	70%	% Drift PM	California SCAQMD CEIDARS Table
PM to PM2.5 ratio	42%	% Drift PM	California SCAQMD CEIDARS Table

Conversions:

1 gallon =	3.78541	Liters
1 gram =	1000	mg
1 hour	60	minutes
1 pound =	453.6	grams
1 ton =	2000	pounds
1 year =	8760	hours
1 day =	24	hours

Assumptions:

Drift Loss =	0.005%		
Water circulation flow =		27,900	gallons / minute
Water circulation flow =		105,613	liters / minute
Drift loss =		5.3	liters / minute
Total Dissolved Solids in cooling tower =		1500	milligrams / liter
Total Dissolved Solids in cooling tower =		1.5	grams / liter
PM-10 =	Drift loss (l/min) x TDS (g/l)	7.9	grams/minute
g/min x 60 =		475.3	grams/hr

	lbs/hr	lb/day	g/s	TPY	g/s
Fugitive PM emissions=	1.05	25.15		4.59	
Fugitive PM10 emissions=	0.73	17.60	0.09	3.21	0.0924
Fugitive PM2.5 emissions=	0.44	10.56	0.06	1.93	0.0554

POET Biorefining - Caro
Caro, Michigan
SV004 - Fermentation & Distillation - Scrubber 1

The fermenters and distillation systems are sources of VOC and HAPs. The distillation system includes the beer wells, distillation columns, rectifiers, and molecular sieves. The emissions will be controlled by the wet scrubber. The VOC and HAP emission factors as well as the control efficiencies from the scrubber are based on performance tests at similar facilities.

Scrubber VOC Control Efficiency =		97.00%	
Scrubber HAP Control Efficiency =		50.00%	
Proposed beerfeed=		1004	gpm
Yearly operation limit=		8760	hours
VOC safety factor =		1.40	
Acetaldehyde safety factor =		1.80	
HAP safety factor =		1.50	
	1 ton =	2000	lb

2015 Groton Stack Test Results

Test Results	Run 1	Run 2	Run 3	Average
	lb/hr	lb/hr	lb/hr	lb/hr
VOC	7.99	9.42	9.43	8.95
Acetaldehyde	0.46	0.57	0.56	0.53
Acrolein	0.04	0.04	0.04	0.04
Methanol	0.01	0.01	0.01	0.01
Formaldehyde	0.001	0.001	0.001	0.00

Process Rate	Run1	Run 2	Run 3	Average
	gpm	gpm	gpm	gpm
Beerfeed	640	640	640	640

Uncontrolled Potential to Emit		
	lb/hr	ton/yr
VOC	655.0	2868.8
Acetaldehyde	3.0	13.1
Acrolein	0.2	0.8
Methanol	0.05	0.2
Formaldehyde	0.02	0.1
Total HAP	3.3	14.2

Controlled Potential to Emit		
	lb/hr	ton/yr
VOC	19.65	86.06
Acetaldehyde	1.50	6.56
Acrolein	0.09	0.41
Methanol	0.02	0.10
Formaldehyde	0.012	0.05
Total HAP	1.63	7.12

POET Biorefining - Caro
Caro, Michigan
SV029 - Fermentation & Distillation - Scrubber 2

The primary scrubber must occasionally be temporarily shut down for scheduled maintenance to maintain the removal efficiency of the unit, or for other operational reasons. In these events, the fermentation, distillation and slurry may continue to be operated in normal mode and the flow to the primary scrubber will be diverted to the secondary scrubber. The secondary scrubber was designed with better or equivalent controls.

	Uncontrolled Potential to Emit		**Controlled Potential to Emit**	
	lb/hr	ton/yr	lb/hr	ton/yr
VOC	655.0	2868.8	19.6	86.1
Acetaldehyde	3.0	13.1	1.5	6.6
Acrolein	0.2	0.8	0.1	0.4
Methanol	0.0	0.2	0.0	0.1
Formaldehyde	0.0	0.1	0.0	0.1
Total HAP	3.3	14.2	1.6	7.1

POET Biorefining - Caro
Caro, Michigan
SV025 - Centrifuge to atmosphere

Whole stillage is pumped to the centrifuges where the solids (wet cake) is separated from the liquid (thin stillage). A fraction of the residual VOC and HAP contained in the whole stillage is emitted from the centrifuges during the separation process. The centrifuges are normally vented to the RTO. Therefore, the emissions are uncontrolled only during RTO downtime.

Emission data from a performance test completed on April 18, 2017 for the centrifuge stacks at the POET plant in Mitchell, SD was used to calculate the potential to emit. The maximum performance test run result for each pollutant is increased linearly to correspond with the proposed centrifuge process rate and then a safety factor is added.

POET - Mitchell Stack Test Results April 18, 2017

Test Results	Run 1	Run 2	Run 3	Average	Maximum
	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr
VOC	1.92	1.82	1.57	1.77	1.920
Formaldehyde	0.0020	0.0020	0.0020	0.002	0.002
Methanol	0.0040	0.0040	0.0040	0.004	0.004
Acetaldehyde	0.1620	0.1580	0.1230	0.148	0.162
Acrolein	0.0092	0.0105	0.0019	0.0072	0.011
Total HAP				**0.1609**	**0.1785**

Process rates associated with above stack test results

Process Rates =	Run 1	Run 2	Run 3	Average
	gpm	gpm	gpm	gpm
Centrifuges 1-4	831.68	831.43	821.48	828.2
Total				**828.20**

1,015	gallons liquid per minute through all centrifuges
60,900	gallons liquid per hour through all centrifuges
533,484,000	gallons liquid per year through all centrifuges
500	Limited RTO Bypass Condition hours per year
1.3	Safety Factor

	Uncontrolled Emission		Existing	Limited Emission Rate	
	lb/hr	tpy	lb/hr	lb/hr	tpy
Total VOC	**2.94**	**12.88**	**6.13**	**6.13**	**1.53**
Formaldehyde	0.003	0.013		0.003	0.001
Methanol	0.006	0.027		0.006	0.002
Acetaldehyde	0.248	1.087		0.248	0.062
Acrolein	0.013	0.056		0.013	0.003
Total HAP	**0.27**	**1.18**		**0.27**	**0.07**

POET Biorefining - Caro
Caro, Michigan
FS006 Wet Cake - Fugitive Emissions

Wet cake production storage and loadout is a source of VOC and HAP emissions because the wet cake contains a small quantity of ethanol and HAPs. This source is not controlled. The emission factors for this process come from emissions testing at a similar facility. The operation of the dryers and DDGS cooler represent the "worst case" emission scenario and thus are presented in the potential to emit summary on a ton per year basis. The hourly potential to emit includes the production of wet cake as wet cake may be present on site when the DDGS dryers and cooler resume operation.

Given:

Wetcake Capacity =	60	ton/hr	
Modified Wetcake Capacity =	60	ton/hr	
Annual tons of wet cake producted =		100,000	tons/year
Annual tons of modified wet cake produced=		525,600	tons/year

Wetcake Emission Factors

VOC	0.008300	lb/ton of wet cake produced
Acetaldehyde	0.000100	lb/ton of wet cake produced
Methanol	0.000040	lb/ton of wet cake produced
Formaldehyde	0.000200	lb/ton of wet cake produced
Acrolein	0.000020	lb/ton of wet cake produced

Modified Wetcake Emission Factors [1]

VOC	0.004150	lb/ton of wet cake produced
Acetaldehyde	0.000050	lb/ton of wet cake produced
Methanol	0.000020	lb/ton of wet cake produced
Formaldehyde	0.000100	lb/ton of wet cake produced
Acrolein	0.000010	lb/ton of wet cake produced

Wetcake Potential to Emit

Pollutant	lb/hr	Ton/yr
VOC	0.4980	0.4150
Acetaldehyde	0.0060	0.0050
Methanol	0.0024	0.0020
Formaldehyde	0.0120	0.0100
Acrolein	0.0012	0.0010
Total HAPS	**0.0216**	**0.0180**

Modified Wetcake Potential to Emit [2]

Pollutant	lb/hr	Ton/yr
VOC	0.2490	1.0906
Acetaldehyde	0.0030	0.0131
Methanol	0.0012	0.0053
Formaldehyde	0.0060	0.0263
Acrolein	0.0006	0.0026
Total HAPS	**0.0108**	**0.0473**

[1]When making modified wetcake, the wetcake is run through the first dryer at normal capacity and the second dryer at a much reduced capacity, and therefore a large percentage of the moisture/HAPs is removed and exhausted through the RTO/TO. Therefore, the assumed modified wetcake emission factors are half of the regular wetcake emission factors.
[2]When producing modified wetcake, the actual emissions sent to the RTO/TO will be less than when producing DDGS because the second dryer is not operating at max capacity. Therefore on annual basis, it is conservative to assume modified wetcake and DDGS is being produced 8760 hours per year.

POET Biorefining - Caro
Caro, Michigan
SV006 & SV024 - RTO & TOHRB

The exhaust from Dryer A and B are vented to a waste heat evaporator then to either a thermal oxidizer with a heat recovery boiler (TO/HRB) or a regenerative thermal oxidizer (RTO). In addition to the dryers, the centrifuges are vented to the TO/HRB and/or RTO. The TO/HRB has a 99.9 MMBtu/hr burner. The RTO has a 18 MMBtu/hr burner. Both fire natural gas only.

The TO/HRB exhausts to Stack SV 006. The RTO exhausts to stack SV 024.
The dryers have natural gas fired burners and are sources of TSP, PM10, PM2.5, NOx, SOx, CO, VOC and HAPs. The TO/HRB and the RTO control VOC HAPs, CO, and TSP emissions.
The TO/HRB and the RTO have been designed to achieve a minimum of 98.0% reduction in VOC and HAP emissions. Additionally, the TO/HRB and RTO will achieve 90% reduction in TSP and CO emissions. The TO/HRB and RTO control efficiencies are based on engineering estimates for TSP and performance tests for VOC, HAPs, and CO.

The DDGS dryers #1 and #2 have 60 and 33 MMBtu/hr natural gas fired burners respectively. The dryers do not have the capacity to combust any other fuel. The dryers are connected in series, therefore, all of the DDGS from each production line is processed by the two dryers in series.

RTO VOC Control Efficiency =	98.00%	
RTO HAP Control Efficiency =	98.00%	
RTO NOx Control Efficiency =	0.00%	
RTO CO Control Efficiency =	90.00%	
RTO PM Control Efficiency =	90.00%	
RTO SO2 Control Efficiency =	0.00%	
Proposed beerfeed=	1004	gpm
Yearly operation limit=	8760	hours
EF safety factor =	1.40	

Conversion: 2000 lbs = 1 ton

Natural Gas Combustion

Unit	Rated Capacity	
Dryers	93	MMBTU/Hr
TO	99.9	MMBTU/Hr
RTO	18	MMBTU/Hr

	Emission Factor	
Pollutant	**lb/MMBTU[1]**	**Source**
CO	0.0840	AP-42 Section 1.4
NOx	0.1000	Permit Limit
SO2	0.0006	AP-42 Section 1.4

[1]AP-42 emission factors from Section 1.4 were converted to lb/MMBtu assuming a heating value of 1000 Btu/ft3 for natural gas.

Stack Test Data[2]

Caro Stack Test - April 10, 2018 (SV024 - RTO Stack)

Test Results	Run 1	Run 2	Run 3	Average
	lb/hr	lb/hr	lb/hr	lb/hr
VOC	0.9	0.93	0.91	0.91
HAPs	0.15	0.17	0.17	0.16
Acetaldehyde	0.05	0.07	0.08	0.08
Formaldehyde	0.02	0.02	0.02	0.02
Methanol	0.03	0.03	0.02	0.03
Acrolein	0.05	0.05	0.05	0.05
PM	2.17	3.39	1.89	2.48
PM10	2.17	3.39	1.89	2.48
PM2.5	2.17	3.39	1.89	2.48
Process Rate	Run1	Run 2	Run 3	Average
	gpm	gpm	gpm	gpm
Beerfeed	874.68	874.92	874.89	875

Caro Stack Test - April 10, 2018 (SV006 - TO Stack)

Test Results	Run 1	Run 2	Run 3	Average
	lb/hr	lb/hr	lb/hr	lb/hr
VOC	0.82	0.77	0.77	0.79
HAPs	0.2	0.19	0.18	0.19
Acetaldehyde	0.09	0.08	0.07	0.08
Formaldehyde	0.02	0.02	0.02	0.02
Methanol	0.03	0.03	0.03	0.03
Acrolein	0.06	0.06	0.06	0.06
PM	0.9	1.95	0.81	1.22
PM10	0.9	1.95	0.81	1.22
PM2.5	0.9	1.95	0.81	1.22
Process Rate	Run1	Run 2	Run 3	Average
	gpm	gpm	gpm	gpm
Beerfeed	874.68	874.92	874.89	875

RTO & TO Combined

	Uncontrolled Potential to Emit		Calculated Controlled		Existing Permit Limits		Controlled Potential to Emit	
	lbs/hr	Unc. TPY	lbs/hr	TPY	lbs/hr	TPY	lbs/hr	TPY
VOC	450.00	1971.00	2.73	11.96	9	N/A	9.00	39.42
HAPs	30.24	132.46	0.59	2.58	N/A	N/A	0.60	2.65
NOx	21.09	92.37	21.09	92.37	N/A	N/A	21.09	92.37
CO	177.16	775.94	17.72	77.59	N/A	N/A	17.72	77.59
PM (SV006)	40.00	175.20	1.96	8.59	4	N/A	4.00	17.52
PM10 (SV006)	40.00	175.20	1.96	8.59	4	N/A	4.00	17.52
PM2.5 (SV006)	40.00	175.20	1.96	8.59	4	N/A	4.00	17.52
PM (SV024)	60.00	262.80	3.99	17.48	6	N/A	6.00	26.28
PM10 (SV024)	60.00	262.80	3.99	17.48	6	N/A	6.00	26.28
PM2.5 (SV024)	60.00	262.80	3.99	17.48	6	N/A	6.00	26.28
SO2	0.12	0.54	0.12	0.54	N/A	N/A	0.12	0.54
Acetaldehyde	12.85	56.30	0.26	1.13	N/A	N/A	0.26	1.13
Acrolein	8.84	38.71	0.18	0.77	N/A	N/A	0.18	0.77
Methanol	4.55	19.94	0.09	0.40	N/A	N/A	0.09	0.40
Formaldehyde	4.00	17.52	0.06	0.28	N/A	N/A	0.08	0.35

[2]Controlled potential to emit for PM, PM10. PM2.5, VOC, and HAPs was calculated by ratioing the 2013 stack test results up by the proposed production increase and applying a safety factor.
[3]No safety factor is applied to acrolein. 2016 stack test results at Caro show the inlet to the RTO & TO combined is <0.14 lb/hr.

POET Biorefining - Caro
Caro, Michigan
SV006/SV024 - RTO/TO: HAP Emissions from Natural Gas Combustion

The facility will operate two DDG driers. Each drier will be fired on natural gas. There is no back-up fuel. The drier exhaust be directed to the RTO or TO/HRSGB at all times when the driers are operated.

Dryer Rated Capacity=	93	MMBTU/hr
RTO Rated Capacity =	18	
TO Rated Capacity=	99.9	MMBTU/hr
RTO HAP Control Non-metals =	98%	
TO HAP Control Non-metals =	98%	

Conversion Factors:

1 lb/MMBtu =	1020	Btu/scf	**Emission Factors: AP-42, Section 1.4 Natural Gas Combustion, July 1998**
1 ton =	2000	lb	
1 year =	8,760	hours	

Uncontrolled Potential to Emit									
	Emission Factor [1]	Dryers		RTO		TO		Total	
HAP Pollutant	(lb/MMSCF)	lb/hr	Unc. TPY	lb/hr	Unc. TPY	lb/hr	Unc. TPY	lb/hr	Unc. TPY
Benzene	0.00210	1.91E-04	8.39E-04	3.71E-05	1.62E-04	2.06E-04	9.01E-04	4.34E-04	1.90E-03
Formaldehyde	0.07500	6.84E-03	3.00E-02	1.32E-03	5.80E-03	7.35E-03	3.22E-02	1.55E-02	6.79E-02
Hexane	1.80000	1.64E-01	7.19E-01	3.18E-02	1.39E-01	1.76E-01	7.72E-01	3.72E-01	1.63E+00
Naphthalene	0.00061	5.56E-05	2.44E-04	1.08E-05	4.71E-05	5.97E-05	2.62E-04	1.26E-04	5.52E-04
Toluene	0.00340	3.10E-04	1.36E-03	6.00E-05	2.63E-04	3.33E-04	1.46E-03	7.03E-04	3.08E-03
Arsenic	0.00020	1.82E-05	7.99E-05	3.53E-06	1.55E-05	1.96E-05	8.58E-05	4.14E-05	1.81E-04
Berylium	0.00001	1.09E-06	4.79E-06	2.12E-07	9.28E-07	1.18E-06	5.15E-06	2.48E-06	1.09E-05
Cadmium	0.00110	1.00E-04	4.39E-04	1.94E-05	8.50E-05	1.08E-04	4.72E-04	2.27E-04	9.96E-04
Chromium	0.00140	1.28E-04	5.59E-04	2.47E-05	1.08E-04	1.37E-04	6.01E-04	2.89E-04	1.27E-03
Cobalt	0.00008	7.66E-06	3.35E-05	1.48E-06	6.49E-06	8.23E-06	3.60E-05	1.74E-05	7.61E-05
Lead	0.00050	4.56E-05	2.00E-04	8.82E-06	3.86E-05	4.90E-05	2.14E-04	1.03E-04	4.53E-04
Manganese	0.00038	3.46E-05	1.52E-04	6.71E-06	2.94E-05	3.72E-05	1.63E-04	7.86E-05	3.44E-04
Mercury	0.00026	2.37E-05	1.04E-04	4.59E-06	2.01E-05	2.55E-05	1.12E-04	5.38E-05	2.35E-04
Nickel	0.00210	1.91E-04	8.39E-04	3.71E-05	1.62E-04	2.06E-04	9.01E-04	4.34E-04	1.90E-03
Selenium	0.00003	2.28E-06	9.98E-06	4.41E-07	1.93E-06	2.45E-06	1.07E-05	5.17E-06	2.26E-05
Total		0.17	0.75	0.03	0.15	0.18	0.81	0.39	1.71

1 - Emission factors are from AP-42, 5th Edition, Section 1.4, 7/98

Controlled Potential to Emit								
	Dryers		RTO		TO		Total	
HAP Pollutant	lb/hr	Limited TPY	lb/hr	Limited TPY	lb/hr	Limited TPY	lb/hr	Limited TPY
Benzene	3.83E-06	1.68E-05	3.71E-05	1.62E-04	2.06E-04	9.01E-04	2.47E-04	1.08E-03
Formaldehyde	1.37E-04	5.99E-04	1.32E-03	5.80E-03	7.35E-03	3.22E-02	8.81E-03	3.86E-02
Hexane	3.28E-03	1.44E-02	3.18E-02	1.39E-01	1.76E-01	7.72E-01	2.11E-01	9.26E-01
Naphthalene	1.11E-06	4.87E-06	1.08E-05	4.71E-05	5.97E-05	2.62E-04	7.16E-05	3.14E-04
Toluene	6.20E-06	2.72E-05	6.00E-05	2.63E-04	3.33E-04	1.46E-03	3.99E-04	1.75E-03
Arsenic	1.82E-05	7.99E-05	3.53E-06	1.55E-05	1.96E-05	8.58E-05	4.14E-05	1.81E-04
Berylium	1.09E-06	4.79E-06	2.12E-07	9.28E-07	1.18E-06	5.15E-06	2.48E-06	1.09E-05
Cadmium	1.00E-04	4.39E-04	1.94E-05	8.50E-05	1.08E-04	4.72E-04	2.27E-04	9.96E-04
Chromium	1.28E-04	5.59E-04	2.47E-05	1.08E-04	1.37E-04	6.01E-04	2.89E-04	1.27E-03
Cobalt	7.66E-06	3.35E-05	1.48E-06	6.49E-06	8.23E-06	3.60E-05	1.74E-05	7.61E-05
Lead	4.56E-05	2.00E-04	8.82E-06	3.86E-05	4.90E-05	2.14E-04	1.03E-04	4.53E-04
Manganese	3.46E-05	1.52E-04	6.71E-06	2.94E-05	3.72E-05	1.63E-04	7.86E-05	3.44E-04
Mercury	2.37E-05	1.04E-04	4.59E-06	2.01E-05	2.55E-05	1.12E-04	5.38E-05	2.35E-04
Nickel	1.91E-04	8.39E-04	3.71E-05	1.62E-04	2.06E-04	9.01E-04	4.34E-04	1.90E-03
Selenium	2.28E-06	9.98E-06	4.41E-07	1.93E-06	2.45E-06	1.07E-05	5.17E-06	2.26E-05
Total	0.00	0.02	0.03	0.15	0.18	0.81	0.22	0.973

POET Biorefining - Caro
Caro, Michigan
SV024 Scrubber Bypass-RTO Stack

The scrubbers must occasionally be temporarily shut down for unscheduled maintenance or other operational reasons. In this event, the fermentation tanks and distillation systems will continue to be operated in normal mode and the scrubber will be bypassed directly to the RTO. This operating scenario will be limited to less than 100 hours per calendar year.
Since the inlet flow rate and VOC loading to the RTO will increase in this scenario, the exhaust flow from the dryers will be re-balanced by directing a larger percentage of the dryer flow to the TO/HRB.

In this operating scenario, emissions will bypass the scrubber directly to the RTO where the VOCs, HAPs, CO, and TSP are thermally oxidized. The RTO has been designed to achieve a minimum of 98.0% reduction in VOC and 97% reduction in HAP emissions.

Scrubber Bypass Annual Operating Time			
	100	hr/yr	
Control Efficiencies RTO Stack			
	VOCs	98%	
	HAPs	98%	
	CO	90%	
Control Efficiencies Scrubber			
	VOCs	97%	
	HAPs	50%	

Emissions from Scrubber during downtime (uncontrolled) to RTO		**lb/hr**	**ton/yr**
VOC		1087.00	54.35
Acetaldehyde	75-07-0	20.50	1.03
Formaldehyde	50-00-0	0.02	0.00
Methanol	67-56-1	0.05	0.00
Acrolein	107-02-8	0.19	0.01
Total HAP		**20.76**	**1.04**

Total controlled emissions from RTO during scrubber bypass		**lb/hr**	**ton/yr**	
VOC		30.74	1.54	Permit Limit
Acetaldehyde	75-07-0	0.67	0.033	Permit Limit
Formaldehyde	50-00-0	0.089	0.004	
Methanol	67-56-1	0.092	0.005	
Acrolein	107-02-8	0.181	0.009	
Total HAP		**1.029**	**0.051**	

CO Emission Limit during Normal Operations	10	lb/hr		
Projected Increase	140%	Based on stack test results of normal		
Proposed CO Emission	**24**	**lb/hr**	**1.2**	**ton/yr**

POET Biorefining - Caro
Caro, Michigan
SV007 - Fluid Bed Cooler

The following calculations are for the emissions of total suspended particulate (TSP), particulate matter less than 10 micron (PM10), and particulate matter less than 2.5 micron (PM2.5) from point sources at the proposed ethanol facility. For the purposes of these calculations, TSP, PM10, and PM2.5 are assumed to be equal.

The controlled potential TSP/PM10/PM2.5 emissions were calculated by multiplying the design grain loading from the fabric filter by the design flow rate for the source and converting to a pound per hour emission rate. The equation for the calculations is:

Ec lb/hr = G gr/dscf x 1 lb / 7000 gr x Q dscfm x 60 minutes / hour

Where:
E = Emission rate of TSP/PM10 in lb/hr
G = Outlet Grain Loading in grain per dry standard cubic foot of air
Q = Flow Rate in dry standard cubic feet per minute

The uncontrolled potential emission were calculated by multiplying the AP-42 emission factor by the annual throughput in tons/year. The equation for the uncontrolled emission rate is:

Eu ton/yr = Ef * Q

Where:
Eu = Uncontrolled Emission rate in ton/yr
Ef = AP-42 Emission Factor
Q = Annual Throughput

Qddgs = 254,040 tons/year

Conversion Factors:

1 ton =	2000	lb
1 lb =	7000	gr
1 year =	8760	hours
1 hour =	60	minutes

Assumptions:

Maximum controlled TSP/PM10 emission rate[1] =	0.0032	gr/dscf
PM Control Efficiency[2] =	99%	
Maximum controlled PM2.5 emission rate =	100%	of PM10

Given:
Capacity = 29 ton/hr
All point source emissions from these emission units will be controlled by a fabric filter.
Exhaust Flow Rate = 23,800 dscfm

				Permit Limits	
	Uncontrolled	Uncontrolled (based on 8760 hrs/yr)	Limited Uncontrolled[4]	Controlled[3]	Controlled[3]
	lbs/hr	Unc. TPY	TPY	lbs/hr	TPY
PM	65.28	285.93	285.93	0.65	2.86
PM10	65.28	285.93	285.93	0.65	2.86
PM2.5	65.28	285.93	285.93	0.65	2.86

[1] This is assumed loading. Stack tests have indicated that this is a conservative assumption
[2] Assumed control efficiency
[3] Controlled is based on maximum flow rate
[4] Limited is based on annual throughput

The DDGS cooler is also a source of VOC emissions because the DDGS retains a small quantity of ethanol after drying. This ethanol is emitted from the cooler stack. The cooler is not controlled. The concentration of VOC in the DDGS cooler exhaust ranges from 50 to 100 PPMV. The HAP and VOC emissions are based upon engineering estimates from similar facilities.

Proposed Beerfeed =	1004	GPM
Hours of Operation=	8760	hrs/year
Safety Factor =	1.25	

Caro Stack Test - 4/12/2018

Test Results	Run 1	Run 2	Run 3	Average
	lb/hr	lb/hr	lb/hr	lb/hr
VOC	6.52	5.15	4.09	5.25
Acetaldehyde	0.08	0.3	0.05	0.14
Methanol	0.01	0.01	0.01	0.01
Acrolein	0.01	0.01	0.01	0.01
Formaldehyde	0.004	0.004	0.004	0.00
Process Rate	Run1	Run 2	Run 3	Average
	gpm	gpm	gpm	gpm
Beerfeed	874.37	874.93	874.13	874

	Uncontrolled Potential to Emit		Controlled Potential to Emit	
	lb/hr	TPY	lb/hr	TPY
VOC	7.54	33.02	7.54	33.02
Acetaldehyde	0.21	0.90	0.21	0.90
Methanol	0.01	0.06	0.01	0.06
Acrolein	0.01	0.06	0.01	0.06
Formaldehyde	0.01	0.03	0.01	0.03
Total HAPs	0.24	1.05	0.24	1.05

POET Biorefining - Caro
Caro, Michigan
SV008 - DDGS Silo

The following calculations are for the emissions of total suspended particulate (TSP), particulate matter less than 10 micron (PM10), and particulate matter less than 2.5 micron (PM2.5) from point sources at the proposed ethanol facility. For the purposes of these calculations, TSP, PM10, and PM2.5 are assumed to be equal.

The controlled potential TSP/PM10/PM2.5 emissions were calculated by multiplying the design grain loading from the fabric filter by the design flow rate for the source and converting to a pound per hour emission rate. The equation for the calculations is:

Ec lb/hr = G gr/dscf x 1 lb / 7000 gr x Q dscfm x 60 minutes / hour

Where:
E = Emission rate of TSP/PM10 in lb/hr
G = Outlet Grain Loading in grain per dry standard cubic foot of air
Q = Flow Rate in dry standard cubic feet per minute

The uncontrolled potential emission were calculated by multiplying the AP-42 emission factor by the annual throughput in tons/year. The equation for the uncontrolled emission rate is:

Eu ton/yr = Ef * Q

Where:
Q = Annual Throughput

Qddgs = 254,040 tons/year

Conversion Factors:

1 ton =	2000	lb
1 lb =	7000	gr
1 year =	8760	hours
1 hour =	60	minutes

Assumptions:

Maximum controlled TSP/PM10 emission rate[1] =	0.004	gr/dscf
Maximum controlled PM2.5 emission rate[1] =	0.0018	
Control Efficiency[2] =	99%	
Maximum controlled PM2.5 emission rate =	100%	of PM10

Given:
Capacity = 29 ton/hr
All point source emissions from these emission units will be controlled by a fabric filter.
Exhaust Flow Rate = 4,300 dscfm

				Permit Limits	
	Uncontrolled	Uncontrolled (based on 8760	Limited Uncontrolled[4]	Controlled[3]	Controlled[3]
	lbs/hr	Unc. TPY	TPY	lbs/hr	TPY
PM	14.74	64.57	64.57	0.15	0.65
PM10	14.74	64.57	64.57	0.15	0.65
PM2.5	6.63	29.06	29.06	0.07	0.29

[1] This is assumed loading. Stack tests have indicated that this is a conservative assumption
[2] Assumed control efficiency
[3] Controlled is based on maximum flow rate
[4] Limited is based on annual throughput

POET Biorefining - Caro
Caro, Michigan

Storage Tanks (see TANKS 4.0 reports for lb/year VOC emissions)

		VOCs			
Unit Number	**Tank Description**	**lb/year**	**lb/hr**	**Ton/year**	**Current Ton/year**
EU190TANK	190 Proof Ethanol Storage Tank	745	0.09	0.37	0.352
EUNATGASTANK1	Denaturant Storage Tank	3534	0.40	1.77	1.767
EU200TANK1	200 Proof Storage Tank	415	0.05	0.21	0.196
EU200TANK2	200 Proof Storage Tank	415	0.05	0.21	0.196
EUNATGASTANK2	Denaturant Storage Tank	3840	0.44	1.92	1.92
EUINHIBITANK	Corrosion Inhibitor Tank	2.6	0.00	0.00	0.0013

HAP	HAP Fraction[1]	
	Denaturant	Ethanol[2]
Benzene	1.31E-02	
Ethylbenzene	2.00E-04	
Hexane	6.53E-02	
Toluene	2.10E-03	
Xylenes	9.00E-04	
Acetaldehyde		2.00E-04
Methanol		2.11E-05
Formaldehyde		2.81E-05
Total	**0.08**	**0.0002**

Conversion Factors:

1 year = 8760 hours
1 ton = 2000 lb

	EU190TANK			EUNATGASTANK1			EU200TANK1			EU200TANK2			EUNATGASTANK2		
HAP Name	Lbs/yr	Lbs/hr	Tons/yr	Lbs/yr	Lbs/hr	Tons/yr	Lbs/yr	Lbs/hr	Tons/yr	Lbs/yr	Lbs/hr	Tons/yr	Lbs/yr	Lbs/hr	Tons/yr
Benzene	0	0	0	46.30	0.01	0.023	0	0	0	0	0	0	50.30	0.01	0.025
Ethylbenzene	0	0	0	0.71	0.00	0.000	0	0	0	0	0	0	0.77	0.00	0.000
Hexane	0	0	0	230.77	0.03	0.115	0	0	0	0	0	0	250.75	0.03	0.125
Toluene	0	0	0	7.42	0.00	0.004	0	0	0	0	0	0	8.06	0.00	0.004
Xylenes	0	0	0	3.18	0.00	0.002	0	0	0	0	0	0	3.46	0.00	0.002
Acetaldehyde	0.15	1.70E-05	7.45E-05	0.71	8.07E-05	3.53E-04	0.08	9.48E-06	4.15E-05	0.08	9.48E-06	4.15E-05	0	0	0
Methanol	0.02	1.79E-06	7.85E-06	0.07	8.49E-06	3.72E-05	0.01	9.97E-07	4.37E-06	0.01	9.97E-07	4.37E-06	0	0	0
Formaldehyde	0.02	2.39E-06	1.05E-05	0.10	1.13E-05	4.96E-05	0.01	1.33E-06	5.83E-06	0.01	1.33E-06	5.83E-06	0	0	0
Total	**0.19**	**0.00**	**0.000**	**289.25**	**0.03**	**0.145**	**0.10**	**0.00**	**0.000**	**0.10**	**0.00**	**0.000**	**313.34**	**0.04**	**0.157**

[1] HAP fractions for gasoline vapors
HAP Emissions from the Corrosion Inhibitor Tank are not included. Based on the level of total VOC emissions, any HAP emissions are assumed negligible.
[2]Based on the average weight fraction of the denaturant & weight fraction in 200 proof ethanol (POET analytical data Feb & March 2016)

POET Biorefining - Caro
Caro, Michigan
EP- SV014: Uncontrolled Ethanol Loadout Emission Calculations

Emission Factors: AP-42, Section 5.2, June 2008

Undenatured ethanol, denatured ethanol (95% to 98% ethanol) and E85 (70% to 85% ethanol) will be shipped by truck. Undenatured and denatured ethanol may also be shipped by rail. Trucks or railcars may be used to carry gasoline/denaturant prior to filling with ethanol. Both railcars and trucks will be filled by submerged loading process. Truck loadout operations will be controlled by the TO (CE10), which has a control efficiency of 98% for VOC and HAPs. The calculations on this page do not differentiate undenatured ethanol loadout from denatured ethanol loadout. Undenatured ethanol loadout would result in lower emissions and these calculations conservatively assume that all ethanol loaded out is denatured ethanol. A maximum of 5 MMGPY gallons per year of denatured ethanol may be loaded out to truck or rail while not being vented to the TO.

Conversion Factors:

1 ton =	2000	lb
1 year =	8760	hours

According to AP-42, Chapter 5.2 - Transportation and Marketing of Petroleum Liquids (06/08), the VOC emission factors for the truck and rail loading racks can be estimated from the following equation:

$$L = 12.46 \times (S \times P \times M) / T$$

where:
L = loading loss (lbs/kgal)
S = a saturation factor (see AP-42, Table 5.2-1)
P = true vapor pressure of the liquid loaded (psia)
M = molecular weight of vapors
T = temperature of the bulk liquid loaded (degree R)

Previous Stored Liquid	***S**	**P** (psia)	**M** (lbs/mole lbs)	**T** (degree R)	**L** (lbs/kgal)
Gasoline (dedicated vapor balance)	1.0	5.13	66	513	8.22
Gasoline (clean cargo)	0.5	5.13	66	513	4.11
Denatured Ethanol (dedicated normal)	0.6	0.55	49.7	513	0.40
Denatured Ethanol (clean cargo)	0.5	0.55	49.7	513	0.33

True vapor pressure and the molecular weight are calculated within Tanks 4.0.9d software using Detriot, MI meterological data.
Gasoline service is assuming RVP10 gasoline

Source-Specific Emission Factors

		(lbs/kgal)
The emission factor for loading denatured ethanol to rail which previously contained denaturant = L (gasoline, dedicated vapor balance) - L (gasoline, clean cargo) + L (denatured ethanol, clean cargo) =	Denatured Ethanol to Rail	4.44
The emission factor for loading denatured ethanol to trucks which stored gasoline previously = L (gasoline, dedicated vapor balance) - L (gasoline, clean cargo) + L (denatured ethanol, clean cargo) =	Denatured Ethanol to Truck	4.44

The emission factor for loading denaturant to trucks which previously contained gasoline

1. Throughputs:

Worst Case Truck and Rail(MMgal/yr)	**Ethanol Loading Capacity**		
	Truck (gal/hr)	Rail (gal/hr)	Total (MMgal/yr)
5.00			
Permit Limit: Unflared truck loadout or Rail to cars to previously contained denaturant	72,000	36,000	946

2. Hourly Potential to Emit (Annual Unlimited):

	Maximum Loading Capacity kgal/hr	**Emission Factor** lb/kgal	**Emissions Uncontrolled** lb/hr
Denatured Ethanol to Truck	72	4.44	319.95
Denatured Ethanol to Rail	36	4.44	159.98
Worst case scenario =			**319.95**

3. Limited Annual VOC Potential to Emit:

	Limited* Throughput kgal/yr	**Uncontrolled Emission Factor** lbs/kgal	**Limited* Emissions Uncontrolled** ton/yr
Denatured Ethanol to Truck or Rail	5,000	4.44	11.11
Worst case scenario =			**11.11**

4. Potential to Emit HAPs:

HAP	**HAP Fractions**		**Denatured Ethanol to Truck/Rail**	**Denatured Ethanol to Truck/Rail**	**Denatured Ethanol to Truck/Rail**
	Denaturant/ Gasoline HAP Fraction[1]	**Denatured Ethanol HAP Fraction[2]**	**lb/kgal**	**lb/hr**	**TPY**
Acetaldehyde	0.00E+00	4.13E-03	0.00137	0.15	0.00
Benzene	9.00E-03	2.40E-03	0.03780	4.08	0.09
Ethylbenzene	1.00E-03	1.00E-06	0.00411	0.44	0.01
Hexane	1.60E-02	3.64E-03	0.06700	7.24	0.17
Methanol	0.00E+00	3.10E-04	0.00010	0.01	0.00
Toluene	1.30E-02	8.00E-05	0.05348	5.78	0.13
Xylenes	5.00E-03	9.00E-06	0.02056	2.22	0.05
Total	0.04	1.06E-02	0.18	19.92	0.46

[1]Default values from vapor profile of normal gasoline as listed in EPA document 453/R-94-002a Gasoline Distribution Industry
[2]Based on the average weight fraction of the denaturant & weight fraction in 200 proof ethanol (POET analytical data Feb & March 2016)

Methodology
HAP emissions are based on worst-case emission scenario.
HAP emission factors are based on content of HAP in product (denaturant, gasoline, or ethanol), content of material in product (E85, denatured ethanol, or undenatured ethanol), and VOC emission factor calculations above
PTE of HAP before Control (lb/hr) = Uncontrolled HAP Emission Factor (lb/kgal) x Loadout Rate (kgal/hr)
PTE of HAP before Control (tons/yr) = Worst Case PTE of HAP before Control (lb/hr) x 8,760 (hrs/yr) / 2,000 (lbs/ton)
PTE of HAP after Control (lb/hr) = PTE of HAP before Control (lb/hr) x (1-Control Efficiency)
Limited PTE of HAP after Control (tons/yr) = Uncontrolled HAP Emission Factor (lb/kgal) x throughput (MMgal/yr) x (1-Control Efficiency) x 1,000 (Kgal/MMgal) / 2,000 (lb/ton)

POET Biorefining - Groton
Groton, South Dakota
EU Syrup Tank

The syrup tank is vented to atmosphere.

Syrup Tank Capacity = 61,000 gallons

Methodology:

1. It is assumed the liquid level sweeps up and down, between 40% and 90% (high level control) twice per month
2. In dilute ethanol conditions, the slope of the ethanol vapor-liquid equilibrium equation (by weight) approaches 6. Therefore, the vapor space will be at six times the concentration of ethanol.
3. Analysis of whole stillage at POET Biorefining - Ashton on 4-21-2015 showed ethanol concentrations of 8 ppm ethanol and 1.7 ppm acetaldehyde. For normal conditions, a conservative value of 10 ppm ethanol and 2 ppm acetaldehyde is assumed. During upset conditions, ethanol concentrations could be as high as 500 ppm. Concentrations in excess of this result in observable changes in distillation which would trigger a response by operations. A maximum acetaldehyde concentrations of 2 ppm is assumed, as it is difficult to keep acetaldehyde in water solution above this concentration.

Conversions:	1	cubic foot	=	7.48	gallons
	1	day	=	24	hours
	12	month	=	1	year
	365	day	=	1	year

Given:

Volume Fluctuations	2,005	gallons per day
Max Ethanol Concentration	500	ppmw
Max Acetaldehyde Conc.	2	ppmw
Flow Rate =	370	gpm
Service Temp =	190	F
from ASME Steam Tables	40.31	cubic foot per lb.
dilute concentrations of ethanol	6	ethanol vapor weight fraction/ethanol liquid weight fraction

Sulfur Content[1] = 2140 ppmv
Sulfur Density = 0.8012 g/L 0.006686 lb/gal

Uncontrolled Emissions	lb/hr	ton/year
Ethanol	0.008	0.036
Acetaldehyde	0.0000	0.0001
Total VOC	0.008	0.037
Sulfur	0.0012	0.0052

[1]Based on syrup tank headspace analysis complete at Caro

POET Biorefining - Caro
Caro, Michigan
FS003 & FS005 Equipment Leaks & Tank Farm Fugitives - Fugitive Emissions

Equipment Leaks

Process Stream	Equipment Component Source	Product	Component Count	Emission Factor (lb/comp.-hr)	Uncontrolled VOC (lb/hr)	Uncontrolled VOC (ton/yr)	Subpart VVa Control Effectiveness	Controlled Rate (lb/hr)	TOC Weight (%)	Emitted Water (lb/hr)	Controlled VOC (lb/hr)	Controlled VOC (ton/yr)
Distillation	Valves	Gas/Vapor	5	0.013134	0.07	0.29	92.00%	0.01	100.00%	0.000	0.005	0.023
	Valves	Light Liquid	267	0.008866	2.37	10.37	88.00%	0.28	100.00%	0.000	0.284	1.244
	Pump Seals	Light Liquid	11	0.04378	0.48	2.11	69.00%	0.15	100.00%	0.000	0.149	0.654
	Compressors	Gas/Vapor	0	0.5016	0.00	0.00		0.00	100.00%	0.000	0.000	0.000
	Relief Valves	Gas/Vapor	10	0.2288	2.29	10.02	92.00%	0.18	100.00%	0.000	0.183	0.802
	Sampling Connections	All	0	0.033	0.00	0.00		0.00	100.00%	0.000	0.000	0.000
	Open Ended Lines	All	27	0.00374	0.10	0.44		0.10	100.00%	0.000	0.101	0.442
	Connectors	All	580	0.004026	2.34	10.23	93.00%	0.16	100.00%	0.000	0.163	0.716
Fermentation	Valves	Gas/Vapor	0	0.013134	0.00	0.00	92.00%	0.00	15.00%	0.000	0.000	0.000
	Valves	Heavy Liquid	37	0.000506	0.02	0.08	88.00%	0.00	15.00%	0.002	0.000	0.001
	Pump Seals	Heavy Liquid	3	0.01804	0.05	0.24	69.00%	0.02	15.00%	0.014	0.003	0.011
	Compressors	Gas/Vapor	0	0.5016	0.00	0.00		0.00	15.00%	0.000	0.000	0.000
	Relief Valves	Gas/Vapor	3	0.2288	0.69	3.01	92.00%	0.05	15.00%	0.047	0.008	0.036
	Sampling Connections	All	0	0.033	0.00	0.00		0.00	15.00%	0.000	0.000	0.000
	Open Ended Lines	All	5	0.00374	0.02	0.08		0.02	15.00%	0.016	0.003	0.012
	Connectors	All	203	0.004026	0.82	3.58	93.00%	0.06	15.00%	0.049	0.009	0.038
	Totals				**9.23**	**40.44**		**1.04**		**0.127**	**0.909**	**3.980**

Tank Farm Equipment Fugitives

Process Stream	Equipment Component Source	Product	Component Count	Emission Factor (lb/comp.-hr)	Uncontrolled Rate (lb/hr)	Uncontrolled Rate (ton/yr)	Subpart VVa Control Effectiveness	Controlled Rate (lb/hr)	TOC Weight (%)	Emitted Water (lb/hr)	Controlled VOC (lb/hr)	Controlled VOC (ton/yr)
Denaturant Tanks	Valves	Gas/Vapor	0	0.013134	0.00	0.00	92.00%	0.00	100.00%	0.000	0.000	0.000
	Valves	Light Liquid	20	0.0089	0.18	0.78	88.00%	0.02	100.00%	0.000	0.021	0.094
	Pump Seals	Light Liquid	2	0.04378	0.09	0.38	69.00%	0.03	100.00%	0.000	0.027	0.119
	Compressors	Gas/Vapor	0	0.5016	0.00	0.00		0.00	100.00%	0.000	0.000	0.000
	Relief Valves	Gas/Vapor	4	0.2288	0.92	4.01	92.00%	0.07	100.00%	0.000	0.073	0.321
	Sampling Connections	All	0	0.033	0.00	0.00		0.00	100.00%	0.000	0.000	0.000
	Open Ended Lines	All	0	0.00374	0.00	0.00		0.00	100.00%	0.000	0.000	0.000
	Connectors	All	118	0.004026	0.48	2.08	93.00%	0.03	100.00%	0.000	0.033	0.146
	Totals (Tanks in Denaturant Service)				1.66	7.25		0.15		0.00	0.15	0.68
Non-denaturant tanks (190 and 200-Proof Tanks)	Valves	Gas/Vapor	7	0.013134	0.09	0.40	92.00%	0.01	100.00%	0.000	0.007	0.032
	Valves	Light Liquid	113	0.0089	1.01	4.40	88.00%	0.12	100.00%	0.000	0.121	0.529
	Pump Seals	Light Liquid	5	0.04378	0.22	0.96	69.00%	0.07	100.00%	0.000	0.068	0.297
	Compressors	Gas/Vapor	0	0.5016	0.00	0.00		0.00	100.00%	0.000	0.000	0.000
	Relief Valves	Gas/Vapor	38	0.2288	8.69	38.08	92.00%	0.70	100.00%	0.000	0.696	3.047
	Sampling Connections	All	0	0.033	0.00	0.00		0.00	100.00%	0.000	0.000	0.000
	Open Ended Lines	All	0	0.00374	0.00	0.00		0.00	100.00%	0.000	0.000	0.000
	Connectors	All	861	0.004026	3.47	15.18	93.00%	0.24	100.00%	0.000	0.243	1.063
	Totals (Tanks in Ethanol Service)				13.48	59.03		1.13		0.00	1.13	4.97
	Totals Tank Farm Equipment Fugitives				**15.13**	**66.28**		**1.29**		**0.00**	**1.29**	**5.65**
Total VOCs: Equipment Leaks and Tank Farm Equipment Fugitives					**24.37**	**106.73**		**2.33**		**0.13**	**2.20**	**9.63**

* Component count provided by source.

** Emission factors are from Protocol for Equipment leak Emission Estimates, EPA-453/R-95-017. Table 2-1 and Table 5-2

2. Fugitive HAP Emissions:

Fugitive HAP Emissions (tons/yr) = Controlled TOC (tons/yr) x HAP Fraction

Equipment Leaks (Ethanol Service)

HAP	HAP Fraction	Fugitive HAP Emissions-Uncontroled (lbs/hr)	Fugitive HAP Emissions-Uncontroled (tons/yr)	Fugitive HAP Emissions-Controled (lbs/hr)	Fugitive HAP Emissions-Controled (tons/yr)
Acetaldehyde	2.00E-04	1.85E-03	8.09E-03	1.82E-04	7.96E-04
Methanol	2.11E-05	1.94E-04	8.51E-04	1.91E-05	8.38E-05
Formaldehyde	2.81E-05	2.59E-04	1.14E-03	2.55E-05	1.12E-04
Acrolein	1.40E-05	1.30E-04	5.68E-04	1.28E-05	5.59E-05
Totals		**2.43E-03**	**1.06E-02**	**2.39E-04**	**1.05E-03**

Tank Farm Equipment Fugitives in Ethanol Service

HAP	HAP Fraction	Fugitive HAP Emissions-Uncontroled (lbs/hr)	Fugitive HAP Emissions-Uncontroled (tons/yr)	Fugitive HAP Emissions-Controled (lbs/hr)	Fugitive HAP Emissions-Controled (tons/yr)
Acetaldehyde	2.00E-04	2.70E-03	1.99E-02	2.27E-04	9.93E-04
Methanol	2.11E-05	2.84E-04	2.09E-03	2.39E-05	1.05E-04
Formaldehyde	2.81E-05	3.78E-04	2.79E-03	3.18E-05	1.39E-04
Acrolein	1.40E-05	1.89E-04	1.40E-03	1.59E-05	6.97E-05

Tank Farm Equipment Fugitives in Denaturant Service

HAP	HAP Fraction	Fugitive HAP Emissions-Uncontroled (lbs/hr)	Fugitive HAP Emissions-Uncontroled (tons/yr)	Fugitive HAP Emissions-Controled (lbs/hr)	Fugitive HAP Emissions-Controled (tons/yr)
Benzene	2.50E-03	4.14E-03	1.81E-02	3.87E-04	1.70E-03
Carbon Disulfide	2.00E-05	3.31E-05	1.45E-04	3.10E-06	1.36E-05
Cumene	1.00E-03	1.66E-03	7.25E-03	1.55E-04	6.79E-04
Ethylbenzene	5.00E-05	8.28E-05	3.63E-04	7.75E-06	3.39E-05
Formaldehyde	2.81E-05	4.65E-05	2.04E-04	4.35E-06	1.91E-05
Hexane	5.00E-02	8.28E-02	3.63E-01	7.75E-03	3.39E-02
Toluene	5.00E-03	8.28E-03	3.63E-02	7.75E-04	3.39E-03
Xylenes	5.00E-04	8.28E-04	3.63E-03	7.75E-05	3.39E-04
Total HAPs in Tank Farm		**0.101**	**0.455**	**0.009**	**0.041**

Total HAPs: Equipment Leaks and Tank Farm Equipment Fugitives	**0.104**	**0.465**	**0.010**	**0.042**

POET Biorefining - Caro
Caro, Michigan
SV017 - Emergency Generator

The facility is equipped with one 1000 kw electric generator. The primary purpose of the generator is to provide electricity in the event of an emergency condition at the plant.

In the event of an emergency, the generator is of sufficient size to operate emergency shutdown systems, lighting systems, cooling tower water pumps and limited ancillary equipment. The DDGS dryers, RTO, centrifuges, boilers and other process sytems will be not be powered by the emergency generator. Therefore, emissions from the generator during emergency conditions will be off set by the shutdown of the remainder of the emission units at the site. Thus the annual PTE of the facility is not impacted by the operation of the generator in emergency conditions.

As an alterrnate operating scenario, the generator may be used for peak shaving operation.
The sulfur content of the fuel used for the generator will be less than 0.5 wt%.

Given:

Generator Size	1340	HP	
Limited Hours =	500	hours/year	
Unlimited Hours =	8760	hours/year	
1 ton =	2000	lbs	
1 MMBTU =	1000000	BTU	
	7000	BTU/hp-hr	Per methodology in AP-42 Table 3.3-1

	Emission Factor[1]	Unlimited Potential to Emit		Limited Potential to Emit	
Pollutant	**lb/Hp-hr**	**lb/hr**	**ton/yr**	**lb/hr**	**ton/yr**
TSP	0.00070	0.938	4.108	0.938	0.235
PM10	0.00070	0.938	4.108	0.938	0.235
PM2.5	0.00070	0.938	4.108	0.938	0.235
NOx	0.02400	32.16	140.86	32.16	8.04
SOx	0.00040	0.536	2.348	0.536	0.134
VOC	0.00071	0.945	4.138	0.945	0.236
CO	0.00550	7.37	32.28	7.37	1.84

[1] Emission factors taken from AP-42 Section 3.4 Table 3.4-1

	Emission Factor[1]	Emission Factor[1]	Unlimited Potential to Emit		Limited Potential to Emit	
HAP Pollutant	**lb/MMBTU**	**(lb/hp-hr)**	**lb/hr**	**ton/yr**	**lb/hr**	**ton/yr**
Acetaldehyde	2.52E-05	1.76E-07	0.0002	0.0010	0.0002	0.0001
Acrolein	7.88E-06	5.52E-08	0.0001	0.0003	0.0001	0.0000
Benzene	7.76E-04	5.43E-06	0.0073	0.0319	0.0073	0.0018
Formaldehyde	7.89E-05	5.52E-07	0.0007	0.0032	0.0007	0.0002
Naphthalene	1.30E-04	9.10E-07	0.0012	0.0053	0.0012	0.0003
Toluene	2.81E-04	1.97E-06	0.0026	0.0115	0.0026	0.0007
Xylenes	1.93E-04	1.35E-06	0.0018	0.0079	0.0018	0.0005
Total HAPs			0.01	0.06	0.01	0.00

[1] Emission factors in lb/hp-hr were calculated using emission factors in lb/MMBtu (from Table 3.4-3) and a brake specific fuel consumption of 7,000 Btu / hp-hr (per methodology in AP-42 Table 3.3-1).

POET Biorefining - Caro
Caro, Michigan
Greenhouse Gas

Conversion Factors:

1 lb/MMBtu =	1020	Btu/scf
1 ton =	2000	lb
1 year =	8760	hours

Emission Factors: AP-42, Section 1.4 Natural Gas Combustion, July 1998

Assumptions:

Generator Operating Time = 500 hr/year

Combustion Emission Factors		
	Natural Gas	Diesel
	lb/mmcf	lb/HP-hr
CO2	120,000	1.15
CH4	2.3	0.00247
N2O	2.2	0.000021
Low Nox	0.64	-

Global Warming Potential Factor	
CO2	1
CH4	25
N2O	298

1. Green House Gas from Natural Gas Combustion

			CO2	**CH4**	**N2O**	**CO2e**
	MMBtu/hr	MMCF/yr*	tons/yr	tons/yr	tons/yr	tons/yr
Boiler #1	99.9	858	51,478	0.99	0.27	51,584
Dryer #1	60	515	30,918	0.59	0.57	31,101
Dryer #2	33	283	17,005	0.33	0.31	17,106
RTO	18	155	9,275	0.18	0.05	9,294
TO	100	858	51,478	0.99	0.27	51,584
Potential Emission (tons/yr)	310.8	2,669	**160,153**	**3.1**	**1.5**	**160,670**

2. Green House Gas from Diesel Combustion

			CO2	**CH4**	**N2O**	**CO2e**
	kW	HP	tons/yr	tons/yr	tons/yr	tons/yr
Diesel Generator	1000	1340	**385.25**	**0.827**	**0.007**	**408.033**

Methodology

All emission factors are based on normal firing.
MMBtu = 1,000,000 Btu
MMCF = 1,000,000 Cubic Feet of Gas
*Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,020 MMBtu

The N2O Emission Factor for uncontrolled is 2.2. The N2O Emission Factor for low Nox burner is 0.64.
Emission Factors for Natural Gas Combustion are from AP 42, Table 1.4-2 SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03.
Emission Factors for Diesel Generator are from AP 42, Table 3.3-1 SCC #2-02-001-02, 2-03-001-01.
Greenhouse Warming Potentials (GWP) from Table A-1 of 40 CFR Part 98 Subpart A.
Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton
CO2e (tons/yr) = CO2 Potential Emission ton/yr x CO2 GWP (1) + CH4 Potential Emission ton/yr x CH4 GWP (25) + N2O Potential Emission ton/yr x N2O GWP (298).

3. Green House Gas from Fermentation (Biogenic)

Fermentation Process

Given:

90,000,000	gallons of undenatured (200-proof) EtOH / year
46.06844	[g/mol] mole weight of EtOH
0.789	[g/cm^3] density of liquid EtOH
44.0095	[g/mol] mole weight of CO2

and: $C_6H_{12}O_6$ + yeast = 2 CH_3CH_2OH + 2 CO_2

sugar + yeast = ethanol + carbon dioxide

Therefore:

$$\frac{90{,}000{,}000 \text{ gal 200-proof EtOH}}{\text{year}} \times \frac{0.789 \text{ g EtOH}}{1 \text{ cm}^3} \times \frac{3{,}785.41 \text{ cm}^3}{1 \text{ gal}}$$

$$= \frac{2.69\text{E+}11 \text{ g EtOH}}{\text{year}} \times \frac{1 \text{ mol EtOH}}{46.06844 \text{ g EtOH}}$$

$$= \frac{5{,}834{,}839{,}732 \text{ mol EtOH}}{\text{year}} \times \frac{2 \text{ mol } CO_2}{2 \text{ mol EtOH}}$$

$$= \frac{5{,}834{,}839{,}732 \text{ mol } CO_2}{\text{year}} \times \frac{44.0095 \text{ g } CO_2}{1 \text{ mol } CO_2} \times \frac{1 \text{ ton}}{907{,}184.74 \text{ g}}$$

= **283,061** tons CO_2 / year

Biogenic GHG= **283,061** CO2e Total in tons/yr

Total GHG Emissions (Combustion and Biogenic)			
CO2	**CH4**	**N2O**	**CO2e**
tons/yr	tons/yr	tons/yr	tons/yr
443,599.40	3.90	1.48	444,139.11