NOTICE OF 30-DAY PERIOD FOR PUBLIC COMMENT

Preliminary Findings Regarding a Significant Modification to a Part 70 Operating Permit

for POET Biorefining-Portland, LLC in Jay County

Significant Source Modification No.: 075-41725-00032
Significant Permit Modification No.: 075-41904-00032

The Indiana Department of Environmental Management (IDEM) has received an application from POET Biorefining-Portland, LLC, located at 1542 South 200 West, Portland, Indiana, 47371, for a significant modification of its Part 70 Operating Permit issued on July 27, 2017. If approved by IDEM’s Office of Air Quality (OAQ), this proposed modification would allow POET Biorefining-Portland, LLC to make certain changes at its existing source. POET Biorefining-Portland, LLC has applied to make the following changes:

- The source is adding a denaturant loading rack to the ethanol loading system.
- Increasing PM, PM$_{10}$, PM$_{2.5}$, VOC, methanol, Acrolein and total HAP limits of emissions from the RTO stack (SV009)
- Adding a total HAP emissions limit of the RTO stack (SV009)
- Increasing the Acetaldehyde emission limit of the Scrubber
- Correcting the loading rates of the Ethanol loading truck and rail racks
- Correcting the maximum rating of the two (2) existing boilers to accurately reflect their descriptions (there is no physical modification associated with this change).
- Updating the emission descriptions of the Corn Oil process tanks and Slurry Tanks to clarify that they are not all controlled by the RTO (there is no physical modification associated with this change).
- Increasing the VOC, Hexane and Total HAP emission limits of the Ethanol Loading system to allow for the loadout of 100% denaturant.

The applicant intends to construct and operate new equipment that will emit air pollutants; therefore, the permit contains new or different permit conditions. In addition, some conditions from previously issued permits/approvals have been corrected, changed, or removed. These corrections, changes, and removals may include Title I changes (e.g. changes that add or modify synthetic minor emission limits).

IDEM has reviewed this application and has developed preliminary findings, consisting of a draft permit and several supporting documents, which would allow the applicant to make this change.

A copy of the permit application and IDEM’s preliminary findings are available at:

Jay County Public Library
315 North Ship St.
Portland, IN 47371

A copy of the preliminary findings is available on the Internet at: http://www.in.gov/ai/appfiles/idem-caats/.

A copy of the preliminary findings is also available via IDEM’s Virtual File Cabinet (VFC.) Please go to: http://www.in.gov/idem/ and enter VFC in the search box. You will then have the option to search for permit documents using a variety of criteria.
How can you participate in this process?

The date that this notice is posted on IDEM’s website (https://www.in.gov/idem/5474.htm) marks the beginning of a 30-day public comment period. If the 30th day of the comment period falls on a day when IDEM offices are closed for business, all comments must be postmarked or delivered in person on the next business day that IDEM is open.

You may request that IDEM hold a public hearing about this draft permit. If adverse comments concerning the air pollution impact of this draft permit are received, with a request for a public hearing, IDEM will decide whether or not to hold a public hearing. IDEM could also decide to hold a public meeting instead of, or in addition to, a public hearing. If a public hearing or meeting is held, IDEM will make a separate announcement of the date, time, and location of that hearing or meeting. At a hearing, you would have an opportunity to submit written comments and make verbal comments. At a meeting, you would have an opportunity to submit written comments, ask questions, and discuss any air pollution concerns with IDEM staff.

Comments and supporting documentation, or a request for a public hearing should be sent in writing to IDEM at the address below. If you comment via e-mail, please include your full U.S. mailing address so that you can be added to IDEM’s mailing list to receive notice of future action related to this permit. If you do not want to comment at this time, but would like to receive notice of future action related to this permit application, please contact IDEM at the address below. Please refer to permit number SSM075-41725-00032 and SPM075-41904-00032 in all correspondence.

Comments should be sent to:

Taylor Wade
IDEM, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251
(800) 451-6027, ask for Taylor Wade or (317) 233-0868
Or dial directly: (317) 233-0868
Fax: (317) 232-6749 attn: Taylor Wade
E-mail: twade@idem.IN.gov

All comments will be considered by IDEM when we make a decision to issue or deny the permit. Comments that are most likely to affect final permit decisions are those based on the rules and laws governing this permitting process (326 IAC 2), air quality issues, and technical issues. IDEM does not have legal authority to regulate zoning, odor, or noise. For such issues, please contact your local officials.

For additional information about air permits and how the public and interested parties can participate, refer to the IDEM Air Permits page on the Internet at: http://www.in.gov/idem/airquality/2356.htm; and the Citizens’ Guide to IDEM on the Internet at: http://www.in.gov/idem/6900.htm.

What will happen after IDEM makes a decision?

Following the end of the public comment period, IDEM will issue a Notice of Decision stating whether the permit has been issued or denied. If the permit is issued, it may be different than the draft permit because of comments that were received during the public comment period. If comments are received during the public notice period, the final decision will include a document that summarizes the comments and IDEM’s response to those comments. If you have submitted comments or have asked to be added to the mailing list, you will receive a Notice of the Decision. The notice will provide details on how you may appeal IDEM’s decision, if you disagree with that decision. The final decision will also be available on the Internet at the address indicated above, at the local library indicated above, and the IDEM public file room on the 12th floor of the Indiana Government Center North, 100 N. Senate Avenue, Indianapolis, Indiana 46204-2251.
If you have any questions, please contact Taylor Wade of my staff at the above address.

Heath Hartley, Section Chief
Permits Branch
Office of Air Quality
Mr. Aaron Edelbrock  
POET Biorefining- Portland, LLC  
1542 S. 200 West  
Portland, IN 47371  

Re: 075-41725-00032  
Significant Source Modification  

Dear Mr. Edelbrock:

POET Biorefining- Portland, LLC was issued Part 70 Operating Permit Renewal No. T075-38211-00032 on July 27, 2017 for a stationary ethanol plant located at 1542 South 200 West, Portland, Indiana 47371. An application to modify the source was received on July 29, 2019. Pursuant to the provisions of 326 IAC 2-7-10.5, a Significant Source Modification is hereby approved as described in the attached Technical Support Document.

Pursuant to 326 IAC 2-7-10.5, the following emission unit is approved for construction at the source:

One (1) ethanol loading system, identified as EU036, constructed in 2006 and modified in 2007 and 2019. This unit is controlled by enclosed flare CE015, which is fueled by natural gas and has a pilot gas flare heat input capacity of 54,000 Btu/hr, and exhausts through stack SV016., consisting of the following components:

1. Two (2) truck loading racks, identified as EU036a and EU036b, each with a maximum throughput of 43,200 gallons/hr (86,400 gal/hr total) when loading ethanol and 39,000 gal/hr when loading 100% denaturant.

2. One (1) rail loading rack, identified as EU036c, with a maximum throughput of 72,000 gallons of ethanol per hour.

The following construction conditions are applicable to the proposed modification:

**General Construction Conditions**

1. The data and information supplied with the application shall be considered part of this source modification approval. Prior to any proposed change in construction which may affect the potential to emit (PTE) of the proposed project, the change must be approved by the Office of Air Quality (OAQ).

2. This approval to construct does not relieve the Permittee of the responsibility to comply with the provisions of the Indiana Environmental Management Law (IC 13-11 through 13-20; 13-22 through 13-25; and 13-30), the Air Pollution Control Law (IC 13-17) and the rules promulgated thereunder, as well as other applicable local, state, and federal requirements.

3. Pursuant to IC 13-15-5-3, this approval becomes effective upon its issuance.
Commenced Construction

4. Pursuant to 326 IAC 2-1.1-9 and 326 IAC 2-7-10.5(j), the Commissioner may revoke this approval if construction is not commenced within eighteen (18) months after receipt of this approval or if construction is suspended for a continuous period of one (1) year or more.

5. All requirements and conditions of this construction approval shall remain in effect unless modified in a manner consistent with procedures established pursuant to 326 IAC 2.

Approval to Construct

6. Pursuant to 326 IAC 2-7-10.5(h)(2), this Significant Source Modification authorizes the construction of the new emission unit(s), when the Significant Source Modification has been issued.

Pursuant to 326 IAC 2-7-10.5(m), the emission units constructed under this approval shall not be placed into operation prior to revision of the source’s Part 70 Operating Permit to incorporate the required operation conditions.

Pursuant to 326 IAC 2-7-12, operation of the new emission unit(s) is not approved until the Significant Permit Modification has been issued. Operating conditions shall be incorporated into the Part 70 Operating Permit as a Significant Permit Modification in accordance with 326 IAC 2-7-10.5(m)(2) and 326 IAC 2-7-12 (Permit Modification).

A copy of the permit is available on the Internet at: http://www.in.gov/ai/appfiles/idem-caats/. A copy of the permit is also available via IDEM’s Virtual File Cabinet (VFC.) Please go to: http://www.in.gov/idem/ and enter VFC in the search box. You will then have the option to search for permit documents using a variety of criteria. For additional information about air permits and how the public and interested parties can participate, refer to the IDEM Air Permits page on the Internet at: http://www.in.gov/idem/airquality/2356.htm; and the Citizens’ Guide to IDEM on the Internet at: http://www.in.gov/idem/6900.htm.

This decision is subject to the Indiana Administrative Orders and Procedures Act - IC 4-21.5-3-5.

If you have any questions regarding this matter, please contact Taylor Wade, Indiana Department Environmental Management, Office of Air Quality, Permits Branch, 100 North Senate Avenue, MC 61-53 IGCN 1003, Indianapolis, Indiana 46204-2251, or by telephone at (317) 233-0868 or (800) 451-6027, and ask for Taylor Wade or (317) 233-0868.

Sincerely,

Heath Hartley, Section Chief
Permits Branch
Office of Air Quality

Attachments: Significant Source Modification and Technical Support Document

cc: File - Jay County
Jay County Health Department
U.S. EPA, Region 5
Compliance and Enforcement Branch
OFFICE OF AIR QUALITY

POET Biorefining - Portland, LLC
1542 South 200 West
Portland, Indiana 47371

(herein known as the Permittee) is hereby authorized to construct subject to the conditions contained herein, the source described in Section A (Source Summary) of this permit.

This permit is issued in accordance with 326 IAC 2 and 40 CFR Part 70 Appendix A and contains the conditions and provisions specified in 326 IAC 2-7 as required by 42 U.S.C. 7401, et. seq. (Clean Air Act as amended by the 1990 Clean Air Act Amendments), 40 CFR Part 70.6, IC 13-15 and IC 13-17. This permit also addresses certain new source review requirements for new and/or existing equipment and is intended to fulfill the new source review procedures pursuant to 326 IAC 2-7-10.5, applicable to those conditions.

Significant Source Modification No.: 075-41725-00032
Master Agency Interest ID.: 25539

Issued by:
Heath Hartley, Section Chief
Permits Branch
Office of Air Quality

Issuance Date:
# Table of Contents

## Section A  
**Source Summary**
- A.1 General Information [326 IAC 2-7-4(c)][326 IAC 2-7-5(14)][326 IAC 2-7-1(22)]
- A.2 Emission Units and Pollution Control Equipment Summary [326 IAC 2-7-4(c)(3)][326 IAC 2-7-5(14)]
- A.3 Specifically Regulated Insignificant Activities [326 IAC 2-7-1(21)][326 IAC 2-7-4(c)][326 IAC 2-7-5(14)]
- A.4 Insignificant Activities [326 IAC 2-7-1(21)][326 IAC 2-7-4(c)][326 IAC 2-7-5(14)]
- A.5 Part 70 Permit Applicability [326 IAC 2-7-2]

## Section B  
**General Conditions**
- B.1 Definitions [326 IAC 2-7-1]
- B.2 Permit Term [326 IAC 2-7-5(2)][326 IAC 2-1.1-9.5][326 IAC 2-7-4(a)(1)(D)][IC 13-15-3-6(a)]
- B.3 Term of Conditions [326 IAC 2-1.1-9.5]
- B.4 Enforceability [326 IAC 2-7-7][IC 13-17-12]
- B.5 Severability [326 IAC 2-7-5(5)]
- B.6 Property Rights or Exclusive Privilege [326 IAC 2-7-5(6)(D)]
- B.7 Duty to Provide Information [326 IAC 2-7-5(6)(E)]
- B.8 Certification [326 IAC 2-7-4(f)][326 IAC 2-7-6(1)][326 IAC 2-7-5(3)(C)]
- B.9 Annual Compliance Certification [326 IAC 2-7-5(6)]
- B.10 Preventive Maintenance Plan [326 IAC 2-7-5(12)][326 IAC 1-6-3]
- B.11 Emergency Provisions [326 IAC 2-7-16]
- B.12 Permit Shield [326 IAC 2-7-15][326 IAC 2-7-20][326 IAC 2-7-12]
- B.13 Prior Permits Superseded [326 IAC 2-1.1-9.5][326 IAC 2-7-10.5]
- B.14 Termination of Right to Operate [326 IAC 2-7-10][326 IAC 2-7-4(a)]
- B.15 Permit Modification, Reopening, Revocation and Reissuance, or Termination [326 IAC 2-7-5(6)(C)][326 IAC 2-7-8(a)][326 IAC 2-7-9]
- B.16 Permit Renewal [326 IAC 2-7-3][326 IAC 2-7-4][326 IAC 2-7-8(e)]
- B.17 Permit Amendment or Modification [326 IAC 2-7-11][326 IAC 2-7-12]
- B.18 Permit Revision Under Economic Incentives and Other Programs [326 IAC 2-7-5(8)][326 IAC 2-7-12(b)(2)]
- B.19 Operational Flexibility [326 IAC 2-7-20][326 IAC 2-7-10.5]
- B.20 Source Modification Requirement [326 IAC 2-7-10.5]
- B.21 Inspection and Entry [326 IAC 2-7-6][IC 13-14-2-2][IC 13-30-3-1][IC 13-17-3-2]
- B.22 Transfer of Ownership or Operational Control [326 IAC 2-7-11]
- B.23 Annual Fee Payment [326 IAC 2-7-19][326 IAC 2-7-5(7)][326 IAC 2-1-1-7]
- B.24 Credible Evidence [326 IAC 2-7-5(3)][326 IAC 2-7-6][62 FR 8314][326 IAC 1-1-6]

## Section C  
**Source Operation Conditions**
- Emission Limitations and Standards [326 IAC 2-7-5(1)]
- C.1 Particulate Emission Limitations For Processes with Process Weight Rates Less Than One Hundred (100) Pounds per Hour [326 IAC 6-3-2]
- C.2 Opacity [326 IAC 5-1]
- C.3 Open Burning [326 IAC 4-1][IC 13-17-9]
- C.4 Incineration [326 IAC 4-2][326 IAC 9-1-2]
- C.5 Fugitive Dust Emissions [326 IAC 6-4]
- C.6 Fugitive Particulate Matter Emission Limitations [326 IAC 6-5]
- C.7 Stack Height [326 IAC 1-7]
- C.8 Asbestos Abatement Projects [326 IAC 14-10][326 IAC 18][40 CFR 61, Subpart M]

**Testing Requirements** [326 IAC 2-7-5(1)]
- C.9 Performance Testing [326 IAC 3-6]
Compliance Requirements [326 IAC 2-1.1-11] ................................................................. 27

C.10 Compliance Requirements [326 IAC 2-1.1-11]

Compliance Monitoring Requirements [326 IAC 2-7-5(1)][326 IAC 2-7-6(1)] ............... 27

C.11 Compliance Monitoring [326 IAC 2-7-5(3)][326 IAC 2-7-6(1)][40 CFR 64][326 IAC 3-8]

C.12 Instrument Specifications [326 IAC 2-1.1-11][326 IAC 2-7-5(3)][326 IAC 2-7-6(1)]

Corrective Actions and Response Steps [326 IAC 2-7-5][326 IAC 2-7-6] ....................... 28
C.13 Emergency Reduction Plans [326 IAC 1-5-2][326 IAC 1-5-3]

C.14 Risk Management Plan [326 IAC 2-7-5(11)][40 CFR 68]

C.15 Response to Excursions or Exceedances [40 CFR 64][326 IAC 3-8][326 IAC 2-7-5][326 IAC 2-7-6]

C.16 Actions Related to Noncompliance Demonstrated by a Stack Test [326 IAC 2-7-5][326 IAC 2-7-6]

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)][326 IAC 2-7-19] .......... 31

C.17 Emission Statement [326 IAC 2-7-5(3)(C)(iii)][326 IAC 2-7-5(7)][326 IAC 2-7-19(c)][326 IAC 2-6]

C.18 General Record Keeping Requirements [326 IAC 2-7-5(3)][326 IAC 2-7-6]

C.19 General Reporting Requirements [326 IAC 2-7-5(3)(C)][326 IAC 2-1.1-11][40 CFR 64][326 IAC 3-8]

Stratospheric Ozone Protection ....................................................................................... 33

C.20 Compliance with 40 CFR 82 and 326 IAC 22-1

SECTION D.1 EMISSIONS UNIT OPERATION CONDITIONS Grain and DDGS Handling Processes .......................................................................................................................... 34

Emission Limitations and Standards [326 IAC 2-7-5(1)] .................................................. 35

D.1.1 PM, PM10 and PM2.5 PSD Minor Limits [326 IAC 2-2]

D.1.2 Particulate Emission Limitations [326 IAC 6-3-2]

D.1.3 Preventive Maintenance Plan [326 IAC 2-7-5 (12)]

Compliance Determination Requirements [326 IAC 2-7-5(1)] ......................................... 37

D.1.4 Particulate Control

D.1.5 Testing Requirements [326 IAC 2-1.1-11]

Compliance Monitoring Requirements [326 IAC 2-7-5(1)][326 IAC 2-7-6(1)] ............... 38

D.1.6 Visible Emissions Notations

D.1.7 Visible Emissions Notations [40 CFR 64]

D.1.8 Broken or Failed Bag Detection

Record Keeping and Reporting Requirement [326 IAC 2-7-5(3)][326 IAC 2-7-19] ............ 39

D.1.9 Record Keeping Requirements

SECTION D.2 EMISSIONS UNIT OPERATION CONDITIONS Fermentation/Distillation and DDGS Drying ................................................................................................................. 40

Emission Limitations and Standards [326 IAC 2-7-5(1)] .................................................. 41

D.2.1 PSD and HAP Minor Limits [326 IAC 2-2][326 IAC 2-4.1]

D.2.2 VOC Emissions [326 IAC 8-5-6]

D.2.3 VOC BACT [326 IAC 8-1-6]

D.2.4 Particulate Emission Limitations [326 IAC 6-3-2]

D.2.5 Preventive Maintenance Plan [326 IAC 2-7-5(12)]

Compliance Determination Requirements [326 IAC 2-7-5(1)] ......................................... 45

D.2.6 VOC and HAP Control

D.2.7 Testing Requirements [326 IAC 2-1.1-11]

Compliance Monitoring Requirements [326 IAC 2-7-5(1)][326 IAC 2-7-6(1)] ............... 46

D.2.8 Visible Emissions Notations [40 CFR 64]
D.2.9 Thermal Oxidizer Temperature [326 IAC 8-5-6][40 CFR 64]
D.2.10 Parametric Monitoring [326 IAC 8-5-6]
D.2.11 Scrubber Pressure Drop and Flow Rate [326 IAC 8-5-6][40 CFR 64]
D.2.12 Scrubber Failure Detection

Record Keeping and Reporting Requirement [326 IAC 2-7-5(3)][326 IAC 2-7-19] .......... 49
D.2.13 Record Keeping Requirements
D.2.14 Reporting Requirements

SECTION D.3 EMISSIONS UNIT OPERATION CONDITIONS – Boilers .............................................. 50

Emission Limitations and Standards [326 IAC 2-7-5(1)] .......................................................... 50
D.3.1 Particulate Emissions [326 IAC 6-2-4]
D.3.2 Preventive Maintenance Plan [326 IAC 2-7-5(12)]

SECTION D.4 EMISSIONS UNIT OPERATION CONDITIONS – DDGS Cooler ......................... 51

Emission Limitations and Standards [326 IAC 2-7-5(1)] .......................................................... 51
D.4.1 PM, PM10 and PM2.5 PSD Minor Limits [326 IAC 2-2]
D.4.2 VOC Emissions [326 IAC 8-1-6]
D.4.3 Particulate Emission Limitations [326 IAC 6-3-2]
D.4.4 Preventive Maintenance Plan [326 IAC 2-7-5(12)]

Compliance Determination Requirements [326 IAC 2-7-5(1)] ............................................. 52
D.4.5 Particulate Control
D.4.6 Testing Requirements [326 IAC 2-1.1-11]

Compliance Monitoring Requirements [326 IAC 2-7-5(1)][326 IAC 2-7-6(1)] ...................... 52
D.4.7 Visible Emissions Notations [40 CFR 64]
D.4.8 Broken or Failed Bag Detection

Record Keeping and Reporting Requirement [326 IAC 2-7-5(3)][326 IAC 2-7-19] ............... 53
D.4.9 Record Keeping Requirements

SECTION D.5 EMISSIONS UNIT OPERATION CONDITIONS Ethanol Loading Racks .................... 54

Emission Limitations and Standards [326 IAC 2-7-5(1)] .......................................................... 54
D.5.1 PSD and HAP Minor Limits [326 IAC 2-2][326 IAC 2-4.1][40 CFR 63]
D.5.2 VOC Emissions [326 IAC 8-5-6]
D.5.3 VOC BACT [326 IAC 8-1-6]
D.5.5 Preventive Maintenance Plan [326 IAC 2-7-5(12)]

Compliance Determination Requirements [326 IAC 2-7-5(1)] ............................................. 56
D.5.6 VOC Control
D.5.7 Testing Requirements [326 IAC 2-1.1-11]

Compliance Monitoring Requirements [326 IAC 2-7-5(1)][326 IAC 2-7-6(1)] ...................... 57
D.5.8 Flare Pilot Flame [326 IAC 8-5-6][40 CFR 64]

Record Keeping and Reporting Requirement [326 IAC 2-8-4(3)][326 IAC 2-8-16] ............. 57
D.5.9 Record Keeping Requirements
D.5.10 Reporting Requirements

SECTION D.6 EMISSIONS UNIT OPERATION CONDITIONS Diesel-Fired Generator .................. 58

Emission Limitations and Standards [326 IAC 2-7-5(1)] .......................................................... 58
D.6.1 PSD Minor Limits [326 IAC 2-2]
D.6.2 Preventive Maintenance Plan [326 IAC 2-7-5(12)]

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)][326 IAC 2-7-19] .......... 58
D.6.3 Record Keeping Requirements
D.6.4 Reporting Requirements
SECTION E.1 NSPS ................................................................................................................................ 60

New Source Performance Standards (NSPS) Requirements [326 IAC 2-7-5(1)].............................. 61

SECTION E.2 NSPS ................................................................................................................................ 62

New Source Performance Standards (NSPS) Requirements [326 IAC 2-7-5(1)].............................. 62
E.2.2 Industrial-Commercial-Institutional Steam Generating Units Requirements NSPS [326 IAC 12][40 CFR Part 60, Subpart Db]

SECTION E.3 NSPS ................................................................................................................................ 63

New Source Performance Standards (NSPS) Requirements [326 IAC 2-7-5(1)].............................. 63
E.3.2 Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) NSPS [326 IAC 12][40 CFR Part 60, Subpart Kb]

SECTION E.4 NSPS ................................................................................................................................ 65

New Source Performance Standards (NSPS) Requirements [326 IAC 2-7-5(1)].............................. 65
E.4.2 Stationary Compression Ignition Internal Combustion Engines NSPS [326 IAC 12][40 CFR Part 60, Subpart IIII]
E.4.3 Preventive Maintenance Plan [326 IAC 2-7-5(12)]

SECTION E.5 NESHAP ........................................................................................................................... 66

National Emission Standards for Hazardous Air Pollutants (NESHAP) Requirements [326 IAC 2-7-5(1)] ................................................................................................................................. 66
E.5.2 Stationary Reciprocating Internal Combustion Engines NESHAP [40 CFR Part 63, Subpart ZZZZ][326 IAC 20-82]

SECTION E.6 NESHAP ........................................................................................................................... 67

National Emission Standards for Hazardous Air Pollutants (NESHAP) Requirements [326 IAC 2-7-5(1)] ................................................................................................................................. 67
E.6.2 Source Category: Gasoline Dispensing Facilities NESHAP [40 CFR Part 63, Subpart CCCCC]
E.6.3 Preventive Maintenance Plan [326 IAC 2-7-5(12)]

SECTION E.7 NSPS ................................................................................................................................ 68

New Source Performance Standards (NSPS) Requirements [326 IAC 2-7-5(1)].............................. 68
E.7.2 Grain Elevators NSPS [326 IAC 12][40 CFR Part 60, Subpart DD]

Compliance Determination Requirements [326 IAC 2-7-5(1)]......................................................... 69
E.7.3 Testing Requirements [326 IAC 2-1.1-11][326 IAC 2-7-6(1)][326 IAC 2-7-5(1)]
CERTIFICATION ........................................................................................................................................ 71
EMERGENCY OCCURRENCE REPORT .................................................................................................. 72
Part 70 Quarterly Report......................................................................................................................... 74
Part 70 Quarterly Report......................................................................................................................... 75
Part 70 Quarterly Report......................................................................................................................... 76
Part 70 Quarterly Report......................................................................................................................... 77
Part 70 Quarterly Report......................................................................................................................... 78
QUARTERLY DEVIATION AND COMPLIANCE MONITORING REPORT .............................................. 79

Attachment A:  Fugitive Dust Control Plan
Attachment C:  NSPS Subpart Db - Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units
Attachment D:  NSPS Subpart 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
Attachment E:  NSPS Subpart IIII - Standards of Performance for Stationary Compression Ignition Internal Combustion Engines
Attachment F:  NESHAP Subpart ZZZZ - National Emission Standards for Reciprocating Internal Combustion Engines (RICE)
Attachment G:  NESHAP Subpart CCCCCC - National Emission Standards for Gasoline Dispensing Facilities (Area Sources)
Attachment H:  NSPS Subpart DD - Standards of Performance for Grain Elevators
SECTION A  SOURCE SUMMARY

This permit is based on information requested by the Indiana Department of Environmental Management (IDEM), Office of Air Quality (OAQ). The information describing the source contained in conditions A.1 through A.3 is descriptive information and does not constitute enforceable conditions. However, the Permittee should be aware that a physical change or a change in the method of operation that may render this descriptive information obsolete or inaccurate may trigger requirements for the Permittee to obtain additional permits or seek modification of this permit pursuant to 326 IAC 2, or change other applicable requirements presented in the permit application.

A.1 General Information [326 IAC 2-7-4(c)][326 IAC 2-7-5(14)][326 IAC 2-7-1(22)]

The Permittee owns and operates a stationary ethanol production plant.

<table>
<thead>
<tr>
<th>Source Address:</th>
<th>1542 South 200 West, Portland, Indiana 47371</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Source Phone Number:</td>
<td>(260) 729-8203</td>
</tr>
<tr>
<td>SIC Code:</td>
<td>2869 (Industrial Organic Chemicals, Not Elsewhere Classified) and 2048 (Prepared Feeds and Feed Ingredients for Animals and Fowls, Except for Dogs and Cats)</td>
</tr>
<tr>
<td>County Location:</td>
<td>Jay</td>
</tr>
<tr>
<td>Source Location Status:</td>
<td>Attainment for all criteria pollutants</td>
</tr>
<tr>
<td>Source Status:</td>
<td>Part 70 Operating Permit Program</td>
</tr>
<tr>
<td></td>
<td>Minor Source, under PSD Rules</td>
</tr>
<tr>
<td></td>
<td>Minor Source, Section 112 of the Clean Air Act</td>
</tr>
<tr>
<td></td>
<td>Minor Nested Source, under PSD Rules, with fossil fuel fired boilers totaling more than two hundred fifty million (250,000,000) British thermal units per hour heat input, as 1 of 28 Source Categories, within a non-listed source</td>
</tr>
</tbody>
</table>

A.2 Emission Units and Pollution Control Equipment Summary [326 IAC 2-7-4(c)(3)][326 IAC 2-7-5(14)]

This stationary source consists of the following emission units and pollution control devices:

(a) One (1) grain receiving and handling operation, consisting of the following:

(1) Two (2) truck dump pits, identified as EU001, constructed in 2006, with a maximum throughput rate of 840 tons of grain per hour, controlled by baghouse CE001, and exhausting through stack SV001.

(2) Conveying system, with a maximum throughput rate of 840 tons per hour, consisting of the following:

(A) Two (2) grain legs and conveying system, identified as EU002a, constructed in 2006, with a maximum rated capacity of 840 tons per hour, controlled by baghouse CE001, and exhausting through stack SV001.

(B) Two (2) enclosed belt conveyors, identified as EU002b, constructed in 2016, with a maximum rated capacity of 840 tons per hour, total, controlled by dust collectors CE016, CE017, and CE018, and exhausting through stacks SV018, SV019, SV020, respectively.

Under 40 CFR 60, Subpart DD, this is an affected grain handling operation.
(3) Grain bins, with a maximum throughput rate of 840 tons per hour, consisting of the following:

(A) Four (4) grain bins, identified as EU003a, constructed in 2006, with a total maximum capacity of 1,341,276 bushels, controlled by baghouse CE001, and exhausting through stack SV001.

(B) Two (2) grain bins, identified as EU003b, constructed in 2016, each with a maximum capacity of 683,855 bushels, controlled by dust collectors CE016, CE017, and CE018, and exhausting through stacks SV018, SV019, SV020, respectively.

Under 40 CFR 60, Subpart DD, this is an affected grain handling operation.

(b) One (1) grain scalper, identified as EU004, constructed in 2006, with a maximum throughput rate of 140 tons of grain per hour, controlled by baghouse CE002, and exhausting through stack SV002.

(c) One (1) surge bin, identified as EU005, constructed in 2006, with a maximum throughput rate of 140 tons of grain per hour, controlled by baghouse CE002, and exhausting through stack SV002.

(d) Five (5) hammermills, identified as EU006, EU007, EU008, EU009, and EU010, constructed in 2006, and approved in 2018 for modification to increase the maximum throughput rate from 20 to 24 tons of grain per hour, each, controlled by baghouses CE003, CE004, CE005, CE006, and CE007, respectively, and exhausting through stacks SV003, SV004, SV005, SV006, and SV007, respectively.

(e) One (1) fermentation process, constructed in 2006, modified in 2016, and approved in 2018 for modification to increase the maximum production rate from 60,000 to 69,000 gallons of beer per hour, controlled by scrubber CE008 and regenerative thermal oxidizer (RTO) CE009, with emissions exhausted through SV009. During scrubber downtime, emissions from the fermentation process are controlled by the RTO with emissions exhausted through stack SV009. During RTO downtime, emissions from the fermentation process are controlled by the scrubber and exhausted through RTO bypass stack SV008. This process consists of the following:

1. Five (5) fermenters, identified as EU012 through EU016, constructed in 2006.
2. One (1) fermenter, identified as EU047, constructed in 2016.
3. One (1) fermenter, identified as EU048, approved in 2018 for construction.
4. One (1) yeast propagation tank, identified as EU017, constructed in 2006.
5. One (1) beer well, identified as EU018, constructed in 2006.

Under NSPS, Subpart VVa, equipment (as defined in 40 CFR 60.481a) within a process unit is an affected facility.

(f) One (1) regenerative thermal oxidizer (RTO), identified as CE009, constructed in 2006, with a maximum heat input capacity of 30 MMBtu/hr, using natural gas as fuel, with emissions exhausted through stack SV009.
(g) One (1) distillation process, constructed in 2006, modified in 2016, and approved in 2018 for modification to increase the maximum input rate from 60,000 to 69,000 gallons of beer per hour, with a maximum production rate of 12,000 gallons of ethanol per hour, controlled by scrubber CE008 and regenerative thermal oxidizer (RTO) CE009, with emissions exhausted through stack SV009. During scrubber downtime, emissions from the distillation process are controlled by the RTO with emissions exhausted through stack SV009. During RTO downtime, emissions from the distillation process are controlled by the scrubber and exhausted through RTO bypass stack SV008. The process consists of the following:

1. One (1) beer stripper, identified as EU019, constructed in 2006.
2. One (1) rectifier column, identified as EU020, constructed in 2006.
3. One (1) side stripper, identified as EU021, constructed in 2006.
4. One (1) set of three (3) molecular sieves, identified as EU022, constructed in 2006.
5. One (1) set of four (4) evaporators, identified as EU023, constructed in 2006.

Under NSPS, Subpart VVa, equipment (as defined in 40 CFR 60.481a) within a process unit is an affected facility.

(h) One (1) set of four (4) whole stillage centrifuges, identified as EU024, constructed in 2006, controlled by regenerative thermal oxidizer (RTO) CE009, with emissions exhausted through stack SV009. During RTO downtime, the emissions from EU024 are uncontrolled exhausted through bypass stack SV017.

(i) Two (2) natural gas fired DDGS dryers, identified as EU025 and EU026, constructed in 2006 and approved in 2018 for modification to increase the total maximum input rate from 73.0 to 85.0 tons/hr of wetcake and the maximum output rate from 27 to 34.3 tons of DDGS per hour, each dryer with a maximum heat input rate of 60 MMBtu/hr controlled by multiclones CE013 and CE014, respectively, with emissions venting to regenerative thermal oxidizer (RTO) CE009, and exhausting to stack SV009. The DDGS dryers are not in operation during RTO downtime.

(j) Two (2) natural gas fired boilers, identified as EU027 and EU028, constructed in 2006, each with a maximum heat input rate of 146 MMBtu/hr, with emissions exhausting to stacks SV013 and SV014, respectively.

Under NSPS, 40 CFR 60, Subpart Db, these units are considered affected facilities.

(k) One (1) fluidized DDGS cooler, identified as EU029, constructed in 2006, and approved in 2018 for modification to increase the maximum throughput rate from 27 to 34.3 tons/hr of DDGS, controlled by baghouse CE010, and exhausting to stack SV010. Note: The Permittee has the option of routing the DDGS cooler baghouse exhaust to the DDGS Dryers, identified as EU025 and EU026.

(l) One (1) DDGS handling and storage operation, with a maximum throughput rate of 220 tons/hr of DDGS, and consisting of the following:

1. One (1) DDGS storage silo, identified as EU030, constructed in 2006, with a maximum throughput rate of 34.3 tons/hr of DDGS, controlled by baghouse CE011, with emissions exhausted to stack SV011.
(2) One (1) DDGS silo bypass, identified as EU031, constructed in 2006, with a maximum throughput rate of 34.3 tons/hr of DDGS, controlled by baghouse CE012, with emissions exhausted to stack SV012.

(3) One (1) DDGS storage building, identified as EU032, constructed in 2006, controlled by baghouse CE001, with emissions exhausted to stack SV001.

(m) One (1) DDGS loadout operation, with a maximum throughput rate of 220 tons/hr of DDGS, and consisting of the following:

(1) One (1) DDGS conveyor, identified as EU033, constructed in 2006, controlled by baghouse CE001, with emissions exhausted to stack SV001.

(2) One (1) DDGS truck loadout spout, identified as EU034, constructed in 2006, controlled by baghouse CE001, with emissions exhausted to stack SV001.

(3) One (1) DDGS rail loadout spout, identified as EU035, constructed in 2006, controlled by baghouse CE001, with emissions exhausted to stack SV001.

(4) One (1) DDGS export container loadout spout, identified as EU049, approved in 2018 for construction, controlled by baghouse CE001, with emissions exhausted to stack SV001.

(n) One (1) ethanol loading system, identified as EU036, constructed in 2006 and modified in 2007 and 2019. This unit is controlled by enclosed flare CE015, which is fueled by natural gas and has a pilot gas flare heat input capacity of 54,000 Btu/hr, and exhausts through stack SV016, consisting of the following components:

(1) Two (2) truck loading racks, identified as EU036a and EU036b, each with a maximum throughput of 43,200 gal/hr (86,400 gal/hr total) when loading ethanol and 39,000 gal/hr when loading 100% denaturant.

(2) One (1) rail loading rack, identified as EU036c, with a maximum throughput of 72,000 gallons of ethanol per hour.

Under NSPS, Subpart VVa, equipment (as defined in 40 CFR 60.481a) within a process unit is an affected facility.

(o) One (1) diesel generator, identified as EU037, constructed in 2006, with a maximum power output rate of 3017.25 HP (2,250 kW), and exhausting to stack SV015.

Under 40 CFR 60, Subpart III this is an affected unit. Under 40 CFR 63, subpart ZZZZ this is a new affected unit.

A.3 Specifically Regulated Insignificant Activities [326 IAC 2-7-1(21)][326 IAC 2-7-4(c)][326 IAC 2-7-5(14)]

This stationary source also includes the following insignificant activities which are specifically regulated, as defined in 326 IAC 2-7-1(21):

(a) Paved roads and parking lots with public access.
(b) Two (2) centrifuges, identified as EU038 and EU039, constructed in 2012, with a maximum throughput for EU038 of 150 gpm and the maximum throughput for EU039 of 30 gpm, used in series to separate corn oil from the syrup system, exhausted to the atmosphere.

(c) Other emission units, not regulated by a NESHAP, with PM10, NOx, and SO₂ emissions less than five (5) pounds per hour or twenty-five (25) pounds per day, CO emissions less than twenty-five (25) pounds per day, VOC emissions less than three (3) pounds per hour or fifteen (15) pounds per day, lead emissions less than six-tenths (0.6) tons per year or three and twenty-nine hundredths (3.29) pounds per day, and emitting greater than one (1) pound per day but less than five (5) pounds per day or one (1) ton per year of a single HAP, or emitting greater than one (1) pound per day but less than twelve and five tenths (12.5) pounds per day or two and five tenths (2.5) ton per year of any combination of HAPs:

1. One (1) 190 or 200-proof ethanol tank, identified as T001, constructed in 2006 with a maximum capacity of 250,000 gallons.

   Under NSPS, 40 CFR 60, Subpart Kb, this unit is considered an affected facility.

2. One (1) denaturant tank, identified as T002, constructed in 2006, modified in 2009, with a maximum capacity of 250,000 gallons of denaturant. Natural gasoline is the denaturant used.

   Under NSPS, 40 CFR 60, Subpart Kb, this unit is considered an affected facility.

3. One (1) denatured ethanol or 200-proof ethanol tank, identified as T003, constructed in 2006, modified in 2009, with a maximum capacity of 2,000,000 gallons of denatured ethanol or 200-proof ethanol. Natural gasoline is the denaturant used.

   Under NSPS, 40 CFR 60, Subpart Kb, this unit is considered an affected facility.

4. One (1) denatured ethanol or 200-proof ethanol tank, identified as T004, constructed in 2006, modified in 2009, with a maximum capacity of 2,000,000 gallons of denatured ethanol or 200-proof ethanol. Natural gasoline is the denaturant used.

   Under NSPS, 40 CFR 60, Subpart Kb, this unit is considered an affected facility.

5. One (1) denaturant tank, identified as T005, constructed in 2006, with a maximum capacity of 126,900 gallons of natural gasoline.

   Under NSPS, 40 CFR 60, Subpart Kb, this unit is considered an affected facility.

(d) One (1) gasoline dispensing operation for plant vehicles, identified as T009, installed in 2006 and modified in 2016, with a 300 gallon capacity storage tank and an estimated annual throughput of 15,600 gallons per year.

   Under NESHAP, 40 CFR 63, Subpart CCCCCC, this unit is considered an affected facility.

A.4 Insignificant Activities [326 IAC 2-7-1(21)][326 IAC 2-7-4(c)][326 IAC 2-7-5(14)]

This stationary source also includes the following insignificant activities which are not specifically regulated, as defined in 326 IAC 2-7-1(21):
(a) Solvent recycling systems with batch capacity less than or equal to 100 gallons.

(b) One (1) forced and induced draft cooling tower system not regulated under a NESHAP with a maximum flow rate of 30,000 gallons per minute.

(c) Replacement or repair of bags in baghouses and filters in other air filtration equipment.

(d) Underground conveyors, including underground grain and product transfer conveyors.

(e) Blowdown for any of the following: sight glass; boiler; compressors; pumps; and cooling tower.

(f) Other emission units, not regulated by a NESHAP, with PM10, NOx, and SO2 emissions less than five (5) pounds per hour or twenty-five (25) pounds per day, CO emissions less than twenty-five (25) pounds per day, VOC emissions less than three (3) pounds per hour or fifteen (15) pounds per day, lead emissions less than six-tenths (0.6) tons per year or three and twenty-nine hundredths (3.29) pounds per day, and emitting greater than one (1) pound per day but less than five (5) pounds per day or one (1) ton per year of a single HAP, or emitting greater than one (1) pound per day but less than twelve and five tenths (12.5) pounds per day or two and five tenths (2.5) ton per year of any combination of HAPs:

1. One (1) diesel storage tank, identified as T006, constructed in 2006, with a maximum storage capacity less than 2,000 gallons of diesel fuel.

2. One (1) thin stillage tank, identified as T007, constructed in 2006, with a maximum storage capacity of 500,000 gallons of thin stillage.

3. One (1) syrup tank, identified as T008, constructed in 2006, with a maximum storage capacity of 61,000 gallons of syrup.

4. Five (5) process tanks, identified as EU040 through EU044, constructed in 2012, used for pH adjustment and used to accept corn oil and defatted syrup process streams from the centrifuges. Tanks EU040 through EU042 exhaust to the thermal oxidizer CE009, while tanks EU043 and EU044 exhaust to the atmosphere.

5. Two (2) large oil storage tanks, identified as EU045 and EU046 constructed in 2012, each with a maximum storage capacity of 30,000 gallons, each with a maximum true vapor pressure less than 15.0 kPa, used for storage of corn oil prior to loading into trucks for sale.

6. One (1) slurry tank, identified as EU011, constructed in 2006, and exhausting to the atmosphere.

7. One (1) wetcake storage operation, with a maximum throughput of 639,480 tons per year.

8. One (1) rail car venting operation, identified as EU050, approved in 2018 for construction, with emissions uncontrolled.
(a) It is a major source, as defined in 326 IAC 2-7-1(22);

(b) It is a source in a source category designated by the United States Environmental Protection Agency (U.S. EPA) under 40 CFR 70.3 (Part 70 - Applicability).
SECTION B  GENERAL CONDITIONS

B.1 Definitions [326 IAC 2-7-1]

Terms in this permit shall have the definition assigned to such terms in the referenced regulation. In the absence of definitions in the referenced regulation, the applicable definitions found in the statutes or regulations (IC 13-11, 326 IAC 1-2 and 326 IAC 2-7) shall prevail.

B.2 Permit Term [326 IAC 2-7-5(2)][326 IAC 2-1.1-9.5][326 IAC 2-7-4(a)(1)(D)][IC 13-15-3-6(a)]

(a) This permit, T075-38211-00032, is issued for a fixed term of five (5) years from the issuance date of this permit, as determined in accordance with IC 4-21.5-3-5(f) and IC 13-15-5-3. Subsequent revisions, modifications, or amendments of this permit do not affect the expiration date of this permit.

(b) If IDEM, OAQ, upon receiving a timely and complete renewal permit application, fails to issue or deny the permit renewal prior to the expiration date of this permit, this existing permit shall not expire and all terms and conditions shall continue in effect, including any permit shield provided in 326 IAC 2-7-15, until the renewal permit has been issued or denied.

B.3 Term of Conditions [326 IAC 2-1.1-9.5]

Notwithstanding the permit term of a permit to construct, a permit to operate, or a permit modification, any condition established in a permit issued pursuant to a permitting program approved in the state implementation plan shall remain in effect until:

(a) the condition is modified in a subsequent permit action pursuant to Title I of the Clean Air Act; or

(b) the emission unit to which the condition pertains permanently ceases operation.

B.4 Enforceability [326 IAC 2-7-7][IC 13-17-12]

Unless otherwise stated, all terms and conditions in this permit, including any provisions designed to limit the source's potential to emit, are enforceable by IDEM, the United States Environmental Protection Agency (U.S. EPA) and by citizens in accordance with the Clean Air Act.

B.5 Severability [326 IAC 2-7-5(5)]

The provisions of this permit are severable; a determination that any portion of this permit is invalid shall not affect the validity of the remainder of the permit.

B.6 Property Rights or Exclusive Privilege [326 IAC 2-7-5(6)(D)]

This permit does not convey any property rights of any sort or any exclusive privilege.

B.7 Duty to Provide Information [326 IAC 2-7-5(6)(E)]

(a) The Permittee shall furnish to IDEM, OAQ, within a reasonable time, any information that IDEM, OAQ may request in writing to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. Upon request, the Permittee shall also furnish to IDEM, OAQ copies of records required to be kept by this permit.

(b) For information furnished by the Permittee to IDEM, OAQ, the Permittee may include a claim of confidentiality in accordance with 326 IAC 17.1. When furnishing copies of requested records directly to U. S. EPA, the Permittee may assert a claim of confidentiality in accordance with 40 CFR 2, Subpart B.

B.8 Certification [326 IAC 2-7-4(f)][326 IAC 2-7-6(1)][326 IAC 2-7-5(3)(C)]

(a) A certification required by this permit meets the requirements of 326 IAC 2-7-6(1) if:
(1) it contains a certification by a "responsible official" as defined by 326 IAC 2-7-1(35), and

(2) the certification states that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

(b) The Permittee may use the attached Certification Form, or its equivalent with each submittal requiring certification. One (1) certification may cover multiple forms in one (1) submittal.

(c) A "responsible official" is defined at 326 IAC 2-7-1(35).

B.9 Annual Compliance Certification [326 IAC 2-7-6(5)]

(a) The Permittee shall annually submit a compliance certification report which addresses the status of the source’s compliance with the terms and conditions contained in this permit, including emission limitations, standards, or work practices. All certifications shall cover the time period from January 1 to December 31 of the previous year, and shall be submitted no later than July 1 of each year to:

Indiana Department of Environmental Management
Compliance and Enforcement Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

and

United States Environmental Protection Agency, Region 5
Air and Radiation Division, Air Enforcement Branch - Indiana (AE-17J)
77 West Jackson Boulevard
Chicago, Illinois 60604-3590

(b) The annual compliance certification report required by this permit shall be considered timely if the date postmarked on the envelope or certified mail receipt, or affixed by the shipper on the private shipping receipt, is on or before the date it is due. If the document is submitted by any other means, it shall be considered timely if received by IDEM, OAQ on or before the date it is due.

(c) The annual compliance certification report shall include the following:

(1) The appropriate identification of each term or condition of this permit that is the basis of the certification;

(2) The compliance status;

(3) Whether compliance was continuous or intermittent;

(4) The methods used for determining the compliance status of the source, currently and over the reporting period consistent with 326 IAC 2-7-5(3); and

(5) Such other facts, as specified in Sections D of this permit, as IDEM, OAQ may require to determine the compliance status of the source.
The submittal by the Permittee does require a certification that meets the requirements of 326 IAC 2-7-6(1) by a "responsible official" as defined by 326 IAC 2-7-1(35).

B.10 Preventive Maintenance Plan [326 IAC 2-7-5(12)] [326 IAC 1-6-3]

(a) A Preventive Maintenance Plan meets the requirements of 326 IAC 1-6-3 if it includes, at a minimum:

(1) Identification of the individual(s) responsible for inspecting, maintaining, and repairing emission control devices;

(2) A description of the items or conditions that will be inspected and the inspection schedule for said items or conditions; and

(3) Identification and quantification of the replacement parts that will be maintained in inventory for quick replacement.

The Permittee shall implement the PMPs.

(b) If required by specific condition(s) in Section D of this permit where no PMP was previously required, the Permittee shall prepare and maintain Preventive Maintenance Plans (PMPs) no later than ninety (90) days after issuance of this permit or ninety (90) days after initial start-up, whichever is later, including the following information on each facility:

(1) Identification of the individual(s) responsible for inspecting, maintaining, and repairing emission control devices;

(2) A description of the items or conditions that will be inspected and the inspection schedule for said items or conditions; and

(3) Identification and quantification of the replacement parts that will be maintained in inventory for quick replacement.

If, due to circumstances beyond the Permittee's control, the PMPs cannot be prepared and maintained within the above time frame, the Permittee may extend the date an additional ninety (90) days provided the Permittee notifies:

Indiana Department of Environmental Management
Compliance and Enforcement Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

The PMP extension notification does not require a certification that meets the requirements of 326 IAC 2-7-6(1) by a "responsible official" as defined by 326 IAC 2-7-1(35).

The Permittee shall implement the PMPs.

(c) A copy of the PMPs shall be submitted to IDEM, OAQ upon request and within a reasonable time, and shall be subject to review and approval by IDEM, OAQ. IDEM, OAQ may require the Permittee to revise its PMPs whenever lack of proper maintenance causes or is the primary contributor to an exceedance of any limitation on emissions. The PMPs and their submittal do not require a certification that meets the requirements of 326 IAC 2-7-6(1) by a "responsible official" as defined by 326 IAC 2-7-1(35).
(d) To the extent the Permittee is required by 40 CFR Part 60/63 to have an Operation Maintenance, and Monitoring (OMM) Plan for a unit, such Plan is deemed to satisfy the PMP requirements of 326 IAC 1-6-3 for that unit.

B.11 Emergency Provisions [326 IAC 2-7-16]

(a) An emergency, as defined in 326 IAC 2-7-1(12), is not an affirmative defense for an action brought for noncompliance with a federal or state health-based emission limitation.

(b) An emergency, as defined in 326 IAC 2-7-1(12), constitutes an affirmative defense to an action brought for noncompliance with a technology-based emission limitation if the affirmative defense of an emergency is demonstrated through properly signed, contemporaneous operating logs or other relevant evidence that describe the following:

1. An emergency occurred and the Permittee can, to the extent possible, identify the causes of the emergency;
2. The permitted facility was at the time being properly operated;
3. During the period of an emergency, the Permittee took all reasonable steps to minimize levels of emissions that exceeded the emission standards or other requirements in this permit;
4. For each emergency lasting one (1) hour or more, the Permittee notified IDEM, OAQ, within four (4) daytime business hours after the beginning of the emergency, or after the emergency was discovered or reasonably should have been discovered;
   Telephone Number: 1-800-451-6027 (ask for Office of Air Quality, Compliance and Enforcement Branch), or
   Telephone Number: 317-233-0178 (ask for Office of Air Quality, Compliance and Enforcement Branch)
   Facsimile Number: 317-233-6865
5. For each emergency lasting one (1) hour or more, the Permittee submitted the attached Emergency Occurrence Report Form or its equivalent, either by mail or facsimile to:
   Indiana Department of Environmental Management Compliance and Enforcement Branch, Office of Air Quality
   100 North Senate Avenue
   MC 61-53 IGCN 1003
   Indianapolis, Indiana 46204-2251
   within two (2) working days of the time when emission limitations were exceeded due to the emergency.
   The notice fulfills the requirement of 326 IAC 2-7-5(3)(C)(ii) and must contain the following:
   A description of the emergency;
   Any steps taken to mitigate the emissions; and
   Corrective actions taken.
The notification which shall be submitted by the Permittee does not require a certification that meets the requirements of 326 IAC 2-7-6(1) by a "responsible official" as defined by 326 IAC 2-7-1(35).

(6) The Permittee immediately took all reasonable steps to correct the emergency.

(c) In any enforcement proceeding, the Permittee seeking to establish the occurrence of an emergency has the burden of proof.

(d) This emergency provision supersedes 326 IAC 1-6 (Malfunctions). This permit condition is in addition to any emergency or upset provision contained in any applicable requirement.

(e) The Permittee seeking to establish the occurrence of an emergency shall make records available upon request to ensure that failure to implement a PMP did not cause or contribute to an exceedance of any limitations on emissions. However, IDEM, OAQ may require that the Preventive Maintenance Plans required under 326 IAC 2-7-4(c)(8) be revised in response to an emergency.

(f) Failure to notify IDEM, OAQ by telephone or facsimile of an emergency lasting more than one (1) hour in accordance with (b)(4) and (5) of this condition shall constitute a violation of 326 IAC 2-7 and any other applicable rules.

(g) If the emergency situation causes a deviation from a technology-based limit, the Permittee may continue to operate the affected emitting facilities during the emergency provided the Permittee immediately takes all reasonable steps to correct the emergency and minimize emissions.

B.12 Permit Shield [326 IAC 2-7-15][326 IAC 2-7-20][326 IAC 2-7-12]

(a) Pursuant to 326 IAC 2-7-15, the Permittee has been granted a permit shield. The permit shield provides that compliance with the conditions of this permit shall be deemed compliance with any applicable requirements as of the date of permit issuance, provided that either the applicable requirements are included and specifically identified in this permit or the permit contains an explicit determination or concise summary of a determination that other specifically identified requirements are not applicable. The Indiana statutes from IC 13 and rules from 326 IAC, referenced in conditions in this permit, are those applicable at the time the permit was issued. The issuance or possession of this permit shall not alone constitute a defense against an alleged violation of any law, regulation or standard, except for the requirement to obtain a Part 70 permit under 326 IAC 2-7 or for applicable requirements for which a permit shield has been granted.

This permit shield does not extend to applicable requirements which are promulgated after the date of issuance of this permit unless this permit has been modified to reflect such new requirements.

(b) If, after issuance of this permit, it is determined that the permit is in nonconformance with an applicable requirement that applied to the source on the date of permit issuance, IDEM, OAQ shall immediately take steps to reopen and revise this permit and issue a compliance order to the Permittee to ensure expeditious compliance with the applicable requirement until the permit is reissued. The permit shield shall continue in effect so long as the Permittee is in compliance with the compliance order.
(c) No permit shield shall apply to any permit term or condition that is determined after issuance of this permit to have been based on erroneous information supplied in the permit application. Erroneous information means information that the Permittee knew to be false, or in the exercise of reasonable care should have been known to be false, at the time the information was submitted.

(d) Nothing in 326 IAC 2-7-15 or in this permit shall alter or affect the following:

1. The provisions of Section 303 of the Clean Air Act (emergency orders), including the authority of the U.S. EPA under Section 303 of the Clean Air Act;
2. The liability of the Permittee for any violation of applicable requirements prior to or at the time of this permit's issuance;
3. The applicable requirements of the acid rain program, consistent with Section 408(a) of the Clean Air Act; and
4. The ability of U.S. EPA to obtain information from the Permittee under Section 114 of the Clean Air Act.

(e) This permit shield is not applicable to any change made under 326 IAC 2-7-20(b)(2) (Sections 502(b)(10) of the Clean Air Act changes) and 326 IAC 2-7-20(c)(2) (trading based on State Implementation Plan (SIP) provisions).

(f) This permit shield is not applicable to modifications eligible for group processing until after IDEM, OAQ, has issued the modifications. [326 IAC 2-7-12(c)(7)]

(g) This permit shield is not applicable to minor Part 70 permit modifications until after IDEM, OAQ, has issued the modification. [326 IAC 2-7-12(b)(8)]

B.13 Prior Permits Superseded [326 IAC 2-1.1-9.5][326 IAC 2-7-10.5]

(a) All terms and conditions of permits established prior to T075-38211-00032 and issued pursuant to permitting programs approved into the state implementation plan have been either:

1. incorporated as originally stated,
2. revised under 326 IAC 2-7-10.5, or
3. deleted under 326 IAC 2-7-10.5.

(b) Provided that all terms and conditions are accurately reflected in this permit, all previous registrations and permits are superseded by this Part 70 operating permit.

B.14 Termination of Right to Operate [326 IAC 2-7-10][326 IAC 2-7-4(a)]

The Permittee's right to operate this source terminates with the expiration of this permit unless a timely and complete renewal application is submitted at least nine (9) months prior to the date of expiration of the source's existing permit, consistent with 326 IAC 2-7-3 and 326 IAC 2-7-4(a).

B.15 Permit Modification, Reopening, Revocation and Reissuance, or Termination [326 IAC 2-7-5(6)(C)][326 IAC 2-7-8(a)][326 IAC 2-7-9]

(a) This permit may be modified, reopened, revoked and reissued, or terminated for cause. The filing of a request by the Permittee for a Part 70 Operating Permit modification, revocation and reissuance, or termination, or of a notification of planned changes or anticipated noncompliance does not stay any condition of this permit. [326 IAC 2-7-
(b) This permit shall be reopened and revised under any of the circumstances listed in IC 13-15-7-2 or if IDEM, OAQ determines any of the following:

1. That this permit contains a material mistake.

2. That inaccurate statements were made in establishing the emissions standards or other terms or conditions.

3. That this permit must be revised or revoked to assure compliance with an applicable requirement. [326 IAC 2-7-9(a)(3)]

(c) Proceedings by IDEM, OAQ to reopen and revise this permit shall follow the same procedures as apply to initial permit issuance and shall affect only those parts of this permit for which cause to reopen exists. Such reopening and revision shall be made as expeditiously as practicable. [326 IAC 2-7-9(b)]

(d) The reopening and revision of this permit, under 326 IAC 2-7-9(a), shall not be initiated before notice of such intent is provided to the Permittee by IDEM, OAQ at least thirty (30) days in advance of the date this permit is to be reopened, except that IDEM, OAQ may provide a shorter time period in the case of an emergency. [326 IAC 2-7-9(c)]

B.16 Permit Renewal [326 IAC 2-7-3][326 IAC 2-7-4][326 IAC 2-7-8(e)]

(a) The application for renewal shall be submitted using the application form or forms prescribed by IDEM, OAQ and shall include the information specified in 326 IAC 2-7-4. Such information shall be included in the application for each emission unit at this source, except those emission units included on the trivial or insignificant activities list contained in 326 IAC 2-7-1(21) and 326 IAC 2-7-1(42). The renewal application does require a certification that meets the requirements of 326 IAC 2-7-6(1) by a "responsible official" as defined by 326 IAC 2-7-1(35).

Request for renewal shall be submitted to:

Indiana Department of Environmental Management
Permit Administration and Support Section, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

(b) A timely renewal application is one that is:

1. Submitted at least nine (9) months prior to the date of the expiration of this permit; and

2. If the date postmarked on the envelope or certified mail receipt, or affixed by the shipper on the private shipping receipt, is on or before the date it is due. If the document is submitted by any other means, it shall be considered timely if received by IDEM, OAQ on or before the date it is due.

(c) If the Permittee submits a timely and complete application for renewal of this permit, the source's failure to have a permit is not a violation of 326 IAC 2-7 until IDEM, OAQ takes final action on the renewal application, except that this protection shall cease to apply if,
subsequent to the completeness determination, the Permittee fails to submit by the
deadline specified, pursuant to 326 IAC 2-7-4(a)(2)(D), in writing by IDEM, OAQ any
additional information identified as being needed to process the application.

B.17  Permit Amendment or Modification [326 IAC 2-7-11][326 IAC 2-7-12]

(a) Permit amendments and modifications are governed by the requirements of 326 IAC 2-
7-11 or 326 IAC 2-7-12 whenever the Permittee seeks to amend or modify this permit.

(b) Any application requesting an amendment or modification of this permit shall be
submitted to:

Indiana Department of Environmental Management
Permit Administration and Support Section, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251
Any such application does require a certification that meets the requirements of 326 IAC
2-7-6(1) by a "responsible official" as defined by 326 IAC 2-7-1(35).

(c) The Permittee may implement administrative amendment changes addressed in the
request for an administrative amendment immediately upon submittal of the request. [326
IAC 2-7-11(c)(3)]

B.18  Permit Revision Under Economic Incentives and Other Programs [326 IAC 2-7-5(8)][326 IAC 2-7-
12(b)(2)]

(a) No Part 70 permit revision or notice shall be required under any approved economic
incentives, marketable Part 70 permits, emissions trading, and other similar programs or
processes for changes that are provided for in a Part 70 permit.

(b) Notwithstanding 326 IAC 2-7-12(b)(1) and 326 IAC 2-7-12(c)(1), minor Part 70 permit
modification procedures may be used for Part 70 modifications involving the use of
economic incentives, marketable Part 70 permits, emissions trading, and other similar
approaches to the extent that such minor Part 70 permit modification procedures are
explicitly provided for in the applicable State Implementation Plan (SIP) or in applicable
requirements promulgated or approved by the U.S. EPA.

B.19  Operational Flexibility [326 IAC 2-7-20][326 IAC 2-7-10.5]

(a) The Permittee may make any change or changes at the source that are described in 326
IAC 2-7-20(b) or (c) without a prior permit revision, if each of the following conditions is
met:

(1) The changes are not modifications under any provision of Title I of the Clean Air
Act;

(2) Any preconstruction approval required by 326 IAC 2-7-10.5 has been obtained;

(3) The changes do not result in emissions which exceed the limitations provided in
this permit (whether expressed herein as a rate of emissions or in terms of total
emissions);

(4) The Permittee notifies the:
and

United States Environmental Protection Agency, Region 5  
Air and Radiation Division, Regulation Development Branch - Indiana (AR-18J)  
77 West Jackson Boulevard  
Chicago, Illinois 60604-3590

in advance of the change by written notification at least ten (10) days in advance  
of the proposed change. The Permittee shall attach every such notice to the  
Permittee's copy of this permit; and

(5) The Permittee maintains records on-site, on a rolling five (5) year basis, which  
document all such changes and emission trades that are subject to 326 IAC 2-7-20(b)(1) and (c)(1). The Permittee shall make such records available, upon  
reasonable request, for public review.

Such records shall consist of all information required to be submitted to IDEM,  
OAQ in the notices specified in 326 IAC 2-7-20(b)(1) and (c)(1).

(b) The Permittee may make Section 502(b)(10) of the Clean Air Act changes (this term is  
defined at 326 IAC 2-7-1(37)) without a permit revision, subject to the constraint of 326  
IAC 2-7-20(a). For each such Section 502(b)(10) of the Clean Air Act change, the  
required written notification shall include the following:

(1) A brief description of the change within the source;

(2) The date on which the change will occur;

(3) Any change in emissions; and

(4) Any permit term or condition that is no longer applicable as a result of the  
change.

The notification which shall be submitted is not considered an application form, report or  
compliance certification. Therefore, the notification by the Permittee does not require a  
certification that meets the requirements of 326 IAC 2-7-6(1) by a "responsible official" as  
defined by 326 IAC 2-7-1(35).

(c) Emission Trades [326 IAC 2-7-20(c)]  
The Permittee may trade emissions increases and decreases at the source, where the  
applicable SIP provides for such emission trades without requiring a permit revision,  
subject to the constraints of Section (a) of this condition and those in 326 IAC 2-7-20(c).

(d) Alternative Operating Scenarios [326 IAC 2-7-20(d)]  
The Permittee may make changes at the source within the range of alternative operating  
scenarios that are described in the terms and conditions of this permit in accordance with  
326 IAC 2-7-5(9). No prior notification of IDEM, OAQ or U.S. EPA is required.
(e) Backup fuel switches specifically addressed in, and limited under, Section D of this permit shall not be considered alternative operating scenarios. Therefore, the notification requirements of part (a) of this condition do not apply.

B.20 Source Modification Requirement [326 IAC 2-7-10.5]

A modification, construction, or reconstruction is governed by the requirements of 326 IAC 2.

B.21 Inspection and Entry [326 IAC 2-7-6][IC 13-14-2-2][IC 13-30-3-1][IC 13-17-3-2]

Upon presentation of proper identification cards, credentials, and other documents as may be required by law, and subject to the Permittee's right under all applicable laws and regulations to assert that the information collected by the agency is confidential and entitled to be treated as such, the Permittee shall allow IDEM, OAQ, U.S. EPA, or an authorized representative to perform the following:

(a) Enter upon the Permittee's premises where a Part 70 source is located, or emissions related activity is conducted, or where records must be kept under the conditions of this permit;

(b) As authorized by the Clean Air Act, IC 13-14-2-2, IC 13-17-3-2, and IC 13-30-3-1, have access to and copy any records that must be kept under the conditions of this permit;

(c) As authorized by the Clean Air Act, IC 13-14-2-2, IC 13-17-3-2, and IC 13-30-3-1, inspect any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under this permit;

(d) As authorized by the Clean Air Act, IC 13-14-2-2, IC 13-17-3-2, and IC 13-30-3-1, sample or monitor substances or parameters for the purpose of assuring compliance with this permit or applicable requirements; and

(e) As authorized by the Clean Air Act, IC 13-14-2-2, IC 13-17-3-2, and IC 13-30-3-1, utilize any photographic, recording, testing, monitoring, or other equipment for the purpose of assuring compliance with this permit or applicable requirements.

B.22 Transfer of Ownership or Operational Control [326 IAC 2-7-11]

(a) The Permittee must comply with the requirements of 326 IAC 2-7-11 whenever the Permittee seeks to change the ownership or operational control of the source and no other change in the permit is necessary.

(b) Any application requesting a change in the ownership or operational control of the source shall contain a written agreement containing a specific date for transfer of permit responsibility, coverage and liability between the current and new Permittee. The application shall be submitted to:

Indiana Department of Environmental Management
Permit Administration and Support Section, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

Any such application does require a certification that meets the requirements of 326 IAC 2-7-6(1) by a "responsible official" as defined by 326 IAC 2-7-1(35).

(c) The Permittee may implement administrative amendment changes addressed in the request for an administrative amendment immediately upon submittal of the request. [326 IAC 2-7-11(c)(3)]
B.23 Annual Fee Payment [326 IAC 2-7-19][326 IAC 2-7-5(7)][326 IAC 2-1.1-7]

(a) The Permittee shall pay annual fees to IDEM, OAQ within thirty (30) calendar days of receipt of a billing. Pursuant to 326 IAC 2-7-19(b), if the Permittee does not receive a bill from IDEM, OAQ the applicable fee is due April 1 of each year.

(b) Except as provided in 326 IAC 2-7-19(e), failure to pay may result in administrative enforcement action or revocation of this permit.

(c) The Permittee may call the following telephone numbers: 1-800-451-6027 or 317-233-4230 (ask for OAQ, Billing, Licensing, and Training Section), to determine the appropriate permit fee.

B.24 Credible Evidence [326 IAC 2-7-5(3)][326 IAC 2-7-6][62 FR 8314][326 IAC 1-1-6]

For the purpose of submitting compliance certifications or establishing whether or not the Permittee has violated or is in violation of any condition of this permit, nothing in this permit shall preclude the use, including the exclusive use, of any credible evidence or information relevant to whether the Permittee would have been in compliance with the condition of this permit if the appropriate performance or compliance test or procedure had been performed.
SECTION C  SOURCE OPERATION CONDITIONS

Entire Source

Emission Limitations and Standards [326 IAC 2-7-5(1)]

C.1 Particulate Emission Limitations For Processes with Process Weight Rates Less Than One Hundred (100) Pounds per Hour [326 IAC 6-3-2]

Pursuant to 326 IAC 6-3-2(e)(2), particulate emissions from any process not exempt under 326 IAC 6-3-1(b) or (c) which has a maximum process weight rate less than 100 pounds per hour and the methods in 326 IAC 6-3-2(b) through (d) do not apply shall not exceed 0.551 pounds per hour.

C.2 Opacity [326 IAC 5-1]

Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-1 (Applicability) and 326 IAC 5-1-3 (Temporary Alternative Opacity Limitations), opacity shall meet the following, unless otherwise stated in this permit:

(a) Opacity shall not exceed an average of forty percent (40%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.

(b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

C.3 Open Burning [326 IAC 4-1][IC 13-17-9]

The Permittee shall not open burn any material except as provided in 326 IAC 4-1-3, 326 IAC 4-1-4 or 326 IAC 4-1-6. The previous sentence notwithstanding, the Permittee may open burn in accordance with an open burning approval issued by the Commissioner under 326 IAC 4-1-4.1.

C.4 Incineration [326 IAC 4-2][326 IAC 9-1-2]

The Permittee shall not operate an incinerator except as provided in 326 IAC 4-2 or in this permit. The Permittee shall not operate a refuse incinerator or refuse burning equipment except as provided in 326 IAC 9-1-2 or in this permit.

C.5 Fugitive Dust Emissions [326 IAC 6-4]

The Permittee shall not allow fugitive dust to escape beyond the property line or boundaries of the property, right-of-way, or easement on which the source is located, in a manner that would violate 326 IAC 6-4 (Fugitive Dust Emissions). 326 IAC 6-4-2(4) is not federally enforceable.

C.6 Fugitive Particulate Matter Emission Limitations [326 IAC 6-5]

Pursuant to 326 IAC 6-5 (Fugitive Particulate Matter Emission Limitations), fugitive particulate matter emissions shall be controlled according to the attached plan as in Attachment A. The provisions of 326 IAC 6-5 are not federally enforceable.

C.7 Stack Height [326 IAC 1-7]

The Permittee shall comply with the applicable provisions of 326 IAC 1-7 (Stack Height Provisions), for all exhaust stacks through which a potential (before controls) of twenty-five (25) tons per year or more of particulate matter or sulfur dioxide is emitted. The provisions of 326 IAC 1-7-1(3), 326 IAC 1-7-2, 326 IAC 1-7-3(c) and (d), 326 IAC 1-7-4, and 326 IAC 1-7-5(a), (b), and (d) are not federally enforceable.
C.8 Asbestos Abatement Projects [326 IAC 14-10-3][326 IAC 18][40 CFR 61, Subpart M]

(a) Notification requirements apply to each owner or operator. If the combined amount of regulated asbestos containing material (RACM) to be stripped, removed or disturbed is at least 260 linear feet on pipes or 160 square feet on other facility components, or at least thirty-five (35) cubic feet on all facility components, then the notification requirements of 326 IAC 14-10-3 are mandatory. All demolition projects require notification whether or not asbestos is present.

(b) The Permittee shall ensure that a written notification is sent on a form provided by the Commissioner at least ten (10) working days before asbestos stripping or removal work or before demolition begins, per 326 IAC 14-10-3, and shall update such notice as necessary, including, but not limited to the following:

(1) When the amount of affected asbestos containing material increases or decreases by at least twenty percent (20%); or

(2) If there is a change in the following:

   (A) Asbestos removal or demolition start date;
   (B) Removal or demolition contractor; or
   (C) Waste disposal site.

(c) The Permittee shall ensure that the notice is postmarked or delivered according to the guidelines set forth in 326 IAC 14-10-3(2).

(d) The notice to be submitted shall include the information enumerated in 326 IAC 14-10-3(3).

All required notifications shall be submitted to:

Indiana Department of Environmental Management
Compliance and Enforcement Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

The notice shall include a signed certification from the owner or operator that the information provided in this notification is correct and that only Indiana licensed workers and project supervisors will be used to implement the asbestos removal project. The notifications do not require a certification that meets the requirements of 326 IAC 2-7-6(1) by a "responsible official" as defined by 326 IAC 2-7-1(35).

(e) Procedures for Asbestos Emission Control

The Permittee shall comply with the applicable emission control procedures in 326 IAC 14-10-4 and 40 CFR 61.145(c). Per 326 IAC 14-10-1, emission control requirements are applicable for any removal or disturbance of RACM greater than three (3) linear feet on pipes or three (3) square feet on any other facility components or a total of at least 0.75 cubic feet on all facility components.
Demolition and Renovation
The Permittee shall thoroughly inspect the affected facility or part of the facility where the demolition or renovation will occur for the presence of asbestos pursuant to 40 CFR 61.145(a).

Indiana Licensed Asbestos Inspector
The Permittee shall comply with 326 IAC 14-10-1(a) that requires the owner or operator, prior to a renovation/demolition, to use an Indiana Licensed Asbestos Inspector to thoroughly inspect the affected portion of the facility for the presence of asbestos. The requirement to use an Indiana Licensed Asbestos inspector is not federally enforceable.

Testing Requirements [326 IAC 2-7-6(1)]

C.9 Performance Testing [326 IAC 3-6]

(a) For performance testing required by this permit, a test protocol, except as provided elsewhere in this permit, shall be submitted to:

Indiana Department of Environmental Management
Compliance and Enforcement Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

no later than thirty-five (35) days prior to the intended test date. The protocol submitted by the Permittee does not require a certification that meets the requirements of 326 IAC 2-7-6(1) by a "responsible official" as defined by 326 IAC 2-7-1(35).

(b) The Permittee shall notify IDEM, OAQ of the actual test date at least fourteen (14) days prior to the actual test date. The notification submitted by the Permittee does not require a certification that meets the requirements of 326 IAC 2-7-6(1) by a "responsible official" as defined by 326 IAC 2-7-1(35).

(c) Pursuant to 326 IAC 3-6-4(b), all test reports must be received by IDEM, OAQ not later than forty-five (45) days after the completion of the testing. An extension may be granted by IDEM, OAQ if the Permittee submits to IDEM, OAQ a reasonable written explanation not later than five (5) days prior to the end of the initial forty-five (45) day period.

Compliance Requirements [326 IAC 2-1.1-11]

C.10 Compliance Requirements [326 IAC 2-1.1-11]

The commissioner may require stack testing, monitoring, or reporting at any time to assure compliance with all applicable requirements by issuing an order under 326 IAC 2-1.1-11. Any monitoring or testing shall be performed in accordance with 326 IAC 3 or other methods approved by the commissioner or the U. S. EPA.

Compliance Monitoring Requirements [326 IAC 2-7-5(1)][326 IAC 2-7-6(1)]

C.11 Compliance Monitoring [326 IAC 2-7-5(3)][326 IAC 2-7-6(1)][40 CFR 64][326 IAC 3-8]

(a) For new units:
Unless otherwise specified in the approval for the new emission unit(s), compliance monitoring for new emission units shall be implemented on and after the date of initial start-up.

(b) For existing units:
Unless otherwise specified in this permit, for all monitoring requirements not already legally required, the Permittee shall be allowed up to ninety (90) days from the date of
permit issuance to begin such monitoring. If, due to circumstances beyond the Permittee's control, any monitoring equipment required by this permit cannot be installed and operated no later than ninety (90) days after permit issuance, the Permittee may extend the compliance schedule related to the equipment for an additional ninety (90) days provided the Permittee notifies:

Indiana Department of Environmental Management
Compliance and Enforcement Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

in writing, prior to the end of the initial ninety (90) day compliance schedule, with full justification of the reasons for the inability to meet this date.

The notification which shall be submitted by the Permittee does require a certification that meets the requirements of 326 IAC 2-7-6(1) by a "responsible official" as defined by 326 IAC 2-7-1(35).

(c) For monitoring required by CAM, at all times, the Permittee shall maintain the monitoring, including but not limited to, maintaining necessary parts for routine repairs of the monitoring equipment.

(d) For monitoring required by CAM, except for, as applicable, monitoring malfunctions, associated repairs, and required quality assurance or control activities (including, as applicable, calibration checks and required zero and span adjustments), the Permittee shall conduct all monitoring in continuous operation (or shall collect data at all required intervals) at all times that the pollutant-specific emissions unit is operating. Data recorded during monitoring malfunctions, associated repairs, and required quality assurance or control activities shall not be used for purposes of this part, including data averages and calculations, or fulfilling a minimum data availability requirement, if applicable. The owner or operator shall use all the data collected during all other periods in assessing the operation of the control device and associated control system. A monitoring malfunction is any sudden, infrequent, not reasonably preventable failure of the monitoring to provide valid data. Monitoring failures that are caused in part by poor maintenance or careless operation are not malfunctions.

C.12 Instrument Specifications [326 IAC 2-1.1-11][326 IAC 2-7-5(3)][326 IAC 2-7-6(1)]

(a) When required by any condition of this permit, an analog instrument used to measure a parameter related to the operation of an air pollution control device shall have a scale such that the expected maximum reading for the normal range shall be no less than twenty percent (20%) of full scale. The analog instrument shall be capable of measuring values outside of the normal range.

(b) The Permittee may request that the IDEM, OAQ approve the use of an instrument that does not meet the above specifications provided the Permittee can demonstrate that an alternative instrument specification will adequately ensure compliance with permit conditions requiring the measurement of the parameters.

Corrective Actions and Response Steps [326 IAC 2-7-5][326 IAC 2-7-6]

C.13 Emergency Reduction Plans [326 IAC 1-5-2][326 IAC 1-5-3]

Pursuant to 326 IAC 1-5-2 (Emergency Reduction Plans; Submission):
(a) The Permittee shall maintain the most recently submitted written emergency reduction plans (ERPs) consistent with safe operating procedures.

(b) Upon direct notification by IDEM, OAQ that a specific air pollution episode level is in effect, the Permittee shall immediately put into effect the actions stipulated in the approved ERP for the appropriate episode level. [326 IAC 1-5-3]

C.14 Risk Management Plan [326 IAC 2-7-5(11)][40 CFR 68]

If a regulated substance, as defined in 40 CFR 68, is present at a source in more than a threshold quantity, the Permittee must comply with the applicable requirements of 40 CFR 68.

C.15 Response to Excursions or Exceedances [40 CFR 64][326 IAC 3-8][326 IAC 2-7-5][326 IAC 2-7-6]

(I) Upon detecting an excursion where a response step is required by the D Section, or an exceedance of a limitation, not subject to CAM, in this permit:

(a) The Permittee shall take reasonable response steps to restore operation of the emissions unit (including any control device and associated capture system) to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing excess emissions.

(b) The response shall include minimizing the period of any startup, shutdown or malfunction. The response may include, but is not limited to, the following:

(1) initial inspection and evaluation;
(2) recording that operations returned or are returning to normal without operator action (such as through response by a computerized distribution control system); or
(3) any necessary follow-up actions to return operation to normal or usual manner of operation.

(c) A determination of whether the Permittee has used acceptable procedures in response to an excursion or exceedance will be based on information available, which may include, but is not limited to, the following:

(1) monitoring results;
(2) review of operation and maintenance procedures and records; and/or
(3) inspection of the control device, associated capture system, and the process.

(d) Failure to take reasonable response steps shall be considered a deviation from the permit.

(e) The Permittee shall record the reasonable response steps taken.

(II)

(a) CAM Response to excursions or exceedances.

(1) Upon detecting an excursion or exceedance, subject to CAM, the Permittee shall restore operation of the pollutant-specific emissions unit (including the control device and associated capture system) to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing
emissions. The response shall include minimizing the period of any startup, shutdown or malfunction and taking any necessary corrective actions to restore normal operation and prevent the likely recurrence of the cause of an excursion or exceedance (other than those caused by excused startup or shutdown conditions). Such actions may include initial inspection and evaluation, recording that operations returned to normal without operator action (such as through response by a computerized distribution control system), or any necessary follow-up actions to return operation to within the indicator range, designated condition, or below the applicable emission limitation or standard, as applicable.

(2) Determination of whether the Permittee has used acceptable procedures in response to an excursion or exceedance will be based on information available, which may include but is not limited to, monitoring results, review of operation and maintenance procedures and records, and inspection of the control device, associated capture system, and the process.

(b) If the Permittee identifies a failure to achieve compliance with an emission limitation, subject to CAM, or standard, subject to CAM, for which the approved monitoring did not provide an indication of an excursion or exceedance while providing valid data, or the results of compliance or performance testing document a need to modify the existing indicator ranges or designated conditions, the Permittee shall promptly notify the IDEM, OAQ and, if necessary, submit a proposed significant permit modification to this permit to address the necessary monitoring changes. Such a modification may include, but is not limited to, reestablishing indicator ranges or designated conditions, modifying the frequency of conducting monitoring and collecting data, or the monitoring of additional parameters.

(c) Based on the results of a determination made under paragraph (II)(a)(2) of this condition, the EPA or IDEM, OAQ may require the Permittee to develop and implement a Quality Improvement Plan (QIP). The Permittee shall develop and implement a QIP if notified to in writing by the EPA or IDEM, OAQ.

(d) Elements of a QIP:
The Permittee shall maintain a written QIP, if required, and have it available for inspection. The plan shall conform to 40 CFR 64.8 b (2).

(e) If a QIP is required, the Permittee shall develop and implement a QIP as expeditiously as practicable and shall notify the IDEM, OAQ if the period for completing the improvements contained in the QIP exceeds 180 days from the date on which the need to implement the QIP was determined.

(f) Following implementation of a QIP, upon any subsequent determination pursuant to paragraph (II)(c) of this condition the EPA or the IDEM, OAQ may require that the Permittee make reasonable changes to the QIP if the QIP is found to have:

(1) Failed to address the cause of the control device performance problems; or

(2) Failed to provide adequate procedures for correcting control device performance problems as expeditiously as practicable in accordance with good air pollution control practices for minimizing emissions.

(g) Implementation of a QIP shall not excuse the Permittee from compliance with any existing emission limitation or standard, or any existing monitoring, testing,
reporting or recordkeeping requirement that may apply under federal, state, or local law, or any other applicable requirements under the Act.

(h) CAM recordkeeping requirements.

(1) The Permittee shall maintain records of monitoring data, monitor performance data, corrective actions taken, any written quality improvement plan required pursuant to paragraph (II)(c) of this condition and any activities undertaken to implement a quality improvement plan, and other supporting information required to be maintained under this condition (such as data used to document the adequacy of monitoring, or records of monitoring maintenance or corrective actions). Section C - General Record Keeping Requirements of this permit contains the Permittee's obligations with regard to the records required by this condition.

(2) Instead of paper records, the owner or operator may maintain records on alternative media, such as microfilm, computer files, magnetic tape disks, or microfiche, provided that the use of such alternative media allows for expeditious inspection and review, and does not conflict with other applicable recordkeeping requirements.

C.16 Actions Related to Noncompliance Demonstrated by a Stack Test [326 IAC 2-7-5][326 IAC 2-7-6]

(a) When the results of a stack test performed in conformance with Section C - Performance Testing, of this permit exceed the level specified in any condition of this permit, the Permittee shall submit a description of its response actions to IDEM, OAQ no later than seventy-five (75) days after the date of the test.

(b) A retest to demonstrate compliance shall be performed no later than one hundred eighty (180) days after the date of the test. Should the Permittee demonstrate to IDEM, OAQ that retesting in one hundred eighty (180) days is not practicable, IDEM, OAQ may extend the retesting deadline.

(c) IDEM, OAQ reserves the authority to take any actions allowed under law in response to noncompliant stack tests.

The response action documents submitted pursuant to this condition do require a certification that meets the requirements of 326 IAC 2-7-6(1) by a "responsible official" as defined by 326 IAC 2-7-1(35).

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)][326 IAC 2-7-19]

C.17 Emission Statement [326 IAC 2-7-5(3)(C)(iii)][326 IAC 2-7-5(7)][326 IAC 2-7-19(c)][326 IAC 2-6]

Pursuant to 326 IAC 2-6-3(b)(2), starting in 2005 and every three (3) years thereafter, the Permittee shall submit by July 1 an emission statement covering the previous calendar year. The emission statement shall contain, at a minimum, the information specified in 326 IAC 2-6-4(c) and shall meet the following requirements:

(1) Indicate estimated actual emissions of all pollutants listed in 326 IAC 2-6-4(a);

(2) Indicate estimated actual emissions of regulated pollutants as defined by 326 IAC 2-7-1(33) ("Regulated pollutant, which is used only for purposes of Section 19 of this rule") from the source, for purpose of fee assessment.

The statement must be submitted to:
C.18 General Record Keeping Requirements [326 IAC 2-7-5(3)][326 IAC 2-7-6]

(a) Records of all required monitoring data, reports and support information required by this permit shall be retained for a period of at least five (5) years from the date of monitoring sample, measurement, report, or application. Support information includes the following, where applicable:

(AA) All calibration and maintenance records.
(BB) All original strip chart recordings for continuous monitoring instrumentation.
(CC) Copies of all reports required by the Part 70 permit.

Records of required monitoring information include the following, where applicable:

(AA) The date, place, as defined in this permit, and time of sampling or measurements.
(BB) The dates analyses were performed.
(CC) The company or entity that performed the analyses.
(DD) The analytical techniques or methods used.
(EE) The results of such analyses.
(FF) The operating conditions as existing at the time of sampling or measurement.

These records shall be physically present or electronically accessible at the source location for a minimum of three (3) years. The records may be stored elsewhere for the remaining two (2) years as long as they are available upon request. If the Commissioner makes a request for records to the Permittee, the Permittee shall furnish the records to the Commissioner within a reasonable time.

(b) Unless otherwise specified in this permit, for all record keeping requirements not already legally required, the Permittee shall be allowed up to ninety (90) days from the date of permit issuance or the date of initial start-up, whichever is later, to begin such record keeping.

C.19 General Reporting Requirements [326 IAC 2-7-5(3)(C)][326 IAC 2-1.1-11][40 CFR 64][326 IAC 3-8]

(a) The Permittee shall submit the attached Quarterly Deviation and Compliance Monitoring Report or its equivalent. Proper notice submittal under Section B -Emergency Provisions satisfies the reporting requirements of this paragraph. Any deviation from permit requirements, the date(s) of each deviation, the cause of the deviation, and the response steps taken must be reported except that a deviation required to be reported pursuant to an applicable requirement that exists independent of this permit, shall be reported according to the schedule stated in the applicable requirement and does not need to be included in this report. This report shall be submitted not later than thirty (30) days after the end of the reporting period. The Quarterly Deviation and Compliance Monitoring Report shall include a certification that meets the requirements of 326 IAC 2-7-6(1) by a "responsible official" as defined by 326 IAC 2-7-1(35). A deviation is an exceedance of a permit limitation or a failure to comply with a requirement of the permit.

On and after the date by which the Permittee must use monitoring that meets the requirements of 40 CFR Part 64 and 326 IAC 3-8, the Permittee shall submit CAM reports to the IDEM, OAQ.
A report for monitoring under 40 CFR Part 64 and 326 IAC 3-8 shall include, at a minimum, the information required under paragraph (a) of this condition and the following information, as applicable:

1. Summary information on the number, duration and cause (including unknown cause, if applicable) of excursions or exceedances, as applicable, and the corrective actions taken;

2. Summary information on the number, duration and cause (including unknown cause, if applicable) for monitor downtime incidents (other than downtime associated with zero and span or other daily calibration checks, if applicable); and

3. A description of the actions taken to implement a QIP during the reporting period as specified in Section C-Response to Excursions or Exceedances. Upon completion of a QIP, the owner or operator shall include in the next summary report documentation that the implementation of the plan has been completed and reduced the likelihood of similar levels of excursions or exceedances occurring.

The Permittee may combine the Quarterly Deviation and Compliance Monitoring Report and a report pursuant to 40 CFR 64 and 326 IAC 3-8.

(b) The address for report submittal is:

Indiana Department of Environmental Management
Compliance and Enforcement Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

(c) Unless otherwise specified in this permit, any notice, report, or other submission required by this permit shall be considered timely if the date postmarked on the envelope or certified mail receipt, or affixed by the shipper on the private shipping receipt, is on or before the date it is due. If the document is submitted by any other means, it shall be considered timely if received by IDEM, OAQ on or before the date it is due.

(d) Reporting periods are based on calendar years, unless otherwise specified in this permit. For the purpose of this permit “calendar year” means the twelve (12) month period from January 1 to December 31 inclusive.

Stratospheric Ozone Protection

C.20 Compliance with 40 CFR 82 and 326 IAC 22-1

Pursuant to 40 CFR 82 (Protection of Stratospheric Ozone), Subpart F, except as provided for motor vehicle air conditioners in Subpart B, the Permittee shall comply with applicable standards for recycling and emissions reduction.
SECTION D.1  EMISSIONS UNIT OPERATION CONDITIONS
Grain and DDGS Handling Processes

Emissions Unit Description:

(a) One (1) grain receiving and handling operation, consisting of the following:

(1) Two (2) truck dump pits, identified as EU001, constructed in 2006, with a maximum throughput rate of 840 tons of grain per hour, controlled by baghouse CE001, and exhausting through stack SV001.

(2) Conveying system, with a maximum throughput rate of 840 tons per hour, consisting of the following:

(A) Two (2) grain legs and conveying system, identified as EU002a, constructed in 2006, with a maximum rated capacity of 840 tons per hour, controlled by baghouse CE001, and exhausting through stack SV001.

(B) Two (2) enclosed belt conveyors, identified as EU002b, constructed in 2016, with a maximum rated capacity of 840 tons per hour, total, controlled by dust collectors CE016, CE017, and CE018, and exhausting through stacks SV018, SV019, SV020, respectively.

Under 40 CFR 60, Subpart DD, this is an affected grain handling operation.

(3) Grain bins, with a maximum throughput rate of 840 tons per hour, consisting of the following:

(A) Four (4) grain bins, identified as EU003a, constructed in 2006, with a total maximum capacity of 1,341,276 bushels, controlled by baghouse CE001, and exhausting through stack SV001.

(B) Two (2) grain bins, identified as EU003b, constructed in 2016, each with a maximum capacity of 683,855 bushels, controlled by dust collectors CE016, CE017, and CE018, and exhausting through stacks SV018, SV019, SV020, respectively.

Under 40 CFR 60, Subpart DD, this is an affected grain handling operation.

(b) One (1) grain scalper, identified as EU004, constructed in 2006, with a maximum throughput rate of 140 tons of grain per hour, controlled by baghouse CE002, and exhausting through stack SV002.

(c) One (1) surge bin, identified as EU005, constructed in 2006, with a maximum throughput rate of 140 tons of grain per hour, controlled by baghouse CE002, and exhausting through stack SV002.

(d) Five (5) hammermills, identified as EU006, EU007, EU008, EU009, and EU010, constructed in 2006, and approved in 2018 for modification to increase the maximum throughput rate from 20 to 24 tons of grain per hour, each, controlled by baghouses CE003, CE004, CE005, CE006, and CE007, respectively, and exhausting through stacks SV003, SV004, SV005, SV006, and SV007, respectively.

(l) One (1) DDGS handling and storage operation, with a maximum throughput rate of 220 tons/hr of DDGS, and consisting of the following:
(1) One (1) DDGS storage silo, identified as EU030, constructed in 2006, with a maximum throughput rate of 34.3 tons/hr of DDGS, controlled by baghouse CE011, with emissions exhausted to stack SV011.

(2) One (1) DDGS silo bypass, identified as EU031, constructed in 2006, with a maximum throughput rate of 34.3 tons/hr of DDGS, controlled by baghouse CE012, with emissions exhausted to stack SV012.

(3) One (1) DDGS storage building, identified as EU032, constructed in 2006, controlled by baghouse CE001, with emissions exhausted to stack SV001.

(m) One (1) DDGS loadout operation, with a maximum throughput rate of 220 tons/hr of DDGS, and consisting of the following:

(1) One (1) DDGS conveyor, identified as EU033, constructed in 2006, controlled by baghouse CE001, with emissions exhausted to stack SV001.

(2) One (1) DDGS truck loadout spout, identified as EU034, constructed in 2006, controlled by baghouse CE001, with emissions exhausted to stack SV001.

(3) One (1) DDGS rail loadout spout, identified as EU035, constructed in 2006, controlled by baghouse CE001, with emissions exhausted to stack SV001.

(4) One (1) DDGS export container loadout spout, identified as EU049, approved in 2018 for construction, controlled by baghouse CE001, with emissions exhausted to stack SV001.

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.1.1 PM, PM10 and PM2.5 PSD Minor Limits [326 IAC 2-2]

In order to render the requirements of 326 IAC 2-2 (PSD) not applicable, PM, PM10 and PM2.5 emissions from the following units shall not exceed the emission limits listed in the table below.

<table>
<thead>
<tr>
<th>Unit ID</th>
<th>Unit Description</th>
<th>Baghouse ID</th>
<th>PM Emission Limit (lbs/hr)</th>
<th>PM10 Emission Limit (lbs/hr)</th>
<th>PM2.5 Emission Limit (lbs/hr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EU001, EU002a, EU003a, EU032, EU033, EU034, EU035</td>
<td>Grain Receiving, Conveyors, and Storage Bins, and DDGS conveying, storage, and loadout</td>
<td>CE001</td>
<td>2.82 (Combined)</td>
<td>3.26 (Combined)</td>
<td>3.45 (Combined)</td>
</tr>
<tr>
<td>EU004, EU005</td>
<td>Grain Scalper, Surge Bin</td>
<td>CE002</td>
<td>0.32 (Combined)</td>
<td>0.37 (Combined)</td>
<td>0.39 (Combined)</td>
</tr>
<tr>
<td>EU006</td>
<td>Hammermill #1</td>
<td>CE003</td>
<td>1.45</td>
<td>1.67</td>
<td>1.77</td>
</tr>
<tr>
<td>EU007</td>
<td>Hammermill #2</td>
<td>CE004</td>
<td>1.45</td>
<td>1.67</td>
<td>1.77</td>
</tr>
<tr>
<td>EU008</td>
<td>Hammermill #3</td>
<td>CE005</td>
<td>1.45</td>
<td>1.67</td>
<td>1.77</td>
</tr>
<tr>
<td>EU009</td>
<td>Hammermill #4</td>
<td>CE006</td>
<td>1.45</td>
<td>1.67</td>
<td>1.77</td>
</tr>
<tr>
<td>EU010</td>
<td>Hammermill #5</td>
<td>CE007</td>
<td>1.45</td>
<td>1.67</td>
<td>1.77</td>
</tr>
<tr>
<td>EU002b, EU003b</td>
<td>Conveyors, Storage Bins</td>
<td>CE016</td>
<td>0.05</td>
<td>0.05</td>
<td>0.01</td>
</tr>
<tr>
<td>EU002b, EU003b</td>
<td>Conveyors, Storage Bins</td>
<td>CE017</td>
<td>0.05</td>
<td>0.05</td>
<td>0.01</td>
</tr>
<tr>
<td>EU002b, EU003b</td>
<td>Conveyors, Storage Bins</td>
<td>CE018</td>
<td>0.05</td>
<td>0.05</td>
<td>0.01</td>
</tr>
<tr>
<td>EU030</td>
<td>DDGS Silo Loading</td>
<td>CE011</td>
<td>0.49</td>
<td>0.57</td>
<td>0.60</td>
</tr>
<tr>
<td>EU031</td>
<td>DDGS Silo Bypass</td>
<td>CE012</td>
<td>0.49</td>
<td>0.57</td>
<td>0.60</td>
</tr>
</tbody>
</table>
Compliance with these limits, combined with the potential to emit of PM, PM10 and PM2.5 from other emission units at this source, shall limit the source-wide total potential to emit PM, PM10 and PM2.5 to less than two hundred fifty (250) tons per twelve (12) consecutive month period, each, and shall render the requirements of 326 IAC 2-2 (PSD) not applicable.

D.1.2 Particulate Emission Limitations [326 IAC 6-3-2]

Pursuant to 326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes), particulate emissions from each of the following operations shall not exceed the pound per hour limitations listed in the table below when operating at the maximum process weight rates listed below:

<table>
<thead>
<tr>
<th>Unit ID</th>
<th>Unit Description</th>
<th>Max. Process Weight Rate (tons/hr)</th>
<th>Particulate Emission Limit (lbs/hr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EU001, EU002a, EU002b, EU003a, EU003b</td>
<td>Grain Receiving, Conveyors, and Storage Bins</td>
<td>840</td>
<td>75.4</td>
</tr>
<tr>
<td>EU004, EU005</td>
<td></td>
<td>140</td>
<td>54.7</td>
</tr>
<tr>
<td>EU006</td>
<td>Grain Scalper, Surge Bin</td>
<td>24</td>
<td>34.5</td>
</tr>
<tr>
<td>EU007</td>
<td>Hammermill #1</td>
<td>24</td>
<td>34.5</td>
</tr>
<tr>
<td>EU008</td>
<td>Hammermill #3</td>
<td>24</td>
<td>34.5</td>
</tr>
<tr>
<td>EU009</td>
<td>Hammermill #4</td>
<td>24</td>
<td>34.5</td>
</tr>
<tr>
<td>EU010</td>
<td>Hammermill #5</td>
<td>24</td>
<td>34.5</td>
</tr>
<tr>
<td>EU002b, EU003b</td>
<td>Conveyors, Storage Bins</td>
<td>840</td>
<td>75.4</td>
</tr>
<tr>
<td>EU030</td>
<td>DDGS Silo Loading</td>
<td>34.3</td>
<td>41.14</td>
</tr>
<tr>
<td>EU031</td>
<td>DDGS Silo Bypass</td>
<td>34.3</td>
<td>41.14</td>
</tr>
<tr>
<td>EU032</td>
<td>DDGS Storage Building</td>
<td>220</td>
<td>59.5</td>
</tr>
<tr>
<td>EU033</td>
<td>DDGS Conveyor</td>
<td>220</td>
<td>59.5</td>
</tr>
<tr>
<td>EU034</td>
<td>DDGS Truck Loadout Spout</td>
<td>220</td>
<td>59.5</td>
</tr>
<tr>
<td>EU035</td>
<td>DDGS Rail Loadout Spout</td>
<td>220</td>
<td>59.5</td>
</tr>
</tbody>
</table>

The pounds per hour limitations were calculated using the following equation:

Interpolation of the data for the process weight rate up to sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

\[ E = 4.10 P^{0.67} \]

where \( E \) = rate of emission in pounds per hour and 
\( P \) = process weight rate in tons per hour

Interpolation and extrapolation of the data for the process weight rate in excess of sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

\[ E = 55.0 P^{0.11} - 40 \]

where \( E \) = rate of emission in pounds per hour; and 
\( P \) = process weight rate in tons per hour

Pursuant to 326 IAC 6-3-2(e)(3), when the process weight exceeds 200 tons per hour, the maximum allowable emission may exceed the emission limits shown in the table above, provided the concentration of particulate matter in the gas discharged to the atmosphere is less than 0.10 pounds per 1,000 pounds of gases.

D.1.3 Preventive Maintenance Plan [326 IAC 2-7-5 (12)]

A Preventive Maintenance Plan is required for these facilities and any control devices. Section B - Preventive Maintenance Plan contains the Permittee's obligation with regard to the plan required by this condition.
Compliance Determination Requirements [326 IAC 2-7-5(1)]

D.1.4 Particulate Control

(a) In order to assure compliance with Conditions D.1.1 and D.1.2, each of the following
emission units shall be controlled by the associated baghouse, as listed in the table
below, when these units are in operation:

<table>
<thead>
<tr>
<th>Unit ID</th>
<th>Unit Description</th>
<th>Baghouse ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>EU001, EU002a, EU003a, EU003b, EU033, EU034, EU035</td>
<td>Grain Receiving, Conveyors, and Storage Bins, and DDGS conveying, storage, and loadout</td>
<td>CE001</td>
</tr>
<tr>
<td>EU002b, EU003b</td>
<td>Conveyors, Storage Bins</td>
<td>CE016</td>
</tr>
<tr>
<td>EU002b, EU003b</td>
<td>Conveyors, Storage Bins</td>
<td>CE017</td>
</tr>
<tr>
<td>EU002b, EU003b</td>
<td>Conveyors, Storage Bins</td>
<td>CE018</td>
</tr>
<tr>
<td>EU004, EU005</td>
<td>Grain Scalper, Surge Bin</td>
<td>CE002</td>
</tr>
<tr>
<td>EU006</td>
<td>Hammermill #1</td>
<td>CE003</td>
</tr>
<tr>
<td>EU007</td>
<td>Hammermill #2</td>
<td>CE004</td>
</tr>
<tr>
<td>EU008</td>
<td>Hammermill #3</td>
<td>CE005</td>
</tr>
<tr>
<td>EU009</td>
<td>Hammermill #4</td>
<td>CE006</td>
</tr>
<tr>
<td>EU010</td>
<td>Hammermill #5</td>
<td>CE007</td>
</tr>
<tr>
<td>EU030</td>
<td>DDGS Silo Loading</td>
<td>CE011</td>
</tr>
<tr>
<td>EU031</td>
<td>DDGS Silo Bypass</td>
<td>CE012</td>
</tr>
</tbody>
</table>

(b) In the event that bag failure is observed in a multi-compartment baghouse, if operations
will continue for ten (10) days or more after the failure is observed before the failed units
will be repaired or replaced, the Permittee shall promptly notify the IDEM, OAQ of the
expected date the failed units will be repaired or replaced. The notification shall also
include the status of the applicable compliance monitoring parameters with respect to
normal, and the results of any response actions taken up to the time of notification.

D.1.5 Testing Requirements [326 IAC 2-1.1-11]

In order to demonstrate compliance with Conditions D.1.1 and D.1.2, the Permittee shall perform
PM, PM10 and PM2.5 testing on the following:

(a) Both Baghouses CE001 and CE002 at least once every five (5) years from the date of
the most recent valid compliance demonstration utilizing methods as approved by the
Commissioner.

(b) One (1) baghouse from the group of baghouses CE003 through CE007, at least once
every five (5) years from the date of the most recent valid compliance demonstration
utilizing methods as approved by the Commissioner. The source will test the baghouse
for which the longest period of time has passed since the last valid compliance test.

(c) One (1) baghouse from CE011 or CE012, at least once every five (5) years from the date
of the most recent valid compliance demonstration utilizing methods as approved by the
Commissioner. The source will test the baghouse for which the longest period of time
has passed since the last valid compliance test.

(d) The Permittee shall perform PM, PM10, and PM2.5 testing of dust collectors CE016
through CE018, utilizing methods as approved by the Commissioner. Testing shall be
repeated for one (1) dust collector from the group of dust collectors CE016 through
CE018, at least once every five (5) years from the date of the most recent valid
compliance demonstration. The source will test the dust collector for which the longest
period of time has passed since the last valid compliance test.
(e) Testing shall be conducted in accordance with the provisions of 326 IAC 3-6 (Source Sampling Procedures). Section C - Performance Testing contains the Permittee's obligation with regard to the performance testing required by this condition. PM10 and PM2.5 includes filterable and condensible PM.

**Compliance Monitoring Requirements [326 IAC 2-7-5(1)][326 IAC 2-7-6(1)]**

### D.1.6 Visible Emissions Notations

(a) Visible emission notations of the baghouse stack exhausts (stacks SV002, SV011, SV012, SV018, SV019, and SV020) shall be performed once per day during normal daylight operations. A trained employee or a trained contractor shall record whether emissions are normal or abnormal.

(b) For processes operated continuously, "normal" means those conditions prevailing, or expected to prevail, eighty percent (80%) of the time the process is in operation, not counting startup or shut down time.

(c) In the case of batch or discontinuous operations, readings shall be taken during that part of the operation that would normally be expected to cause the greatest emissions.

(d) A trained employee or contractor is a person who has worked or trained at the plant at least one (1) month and has been trained in the appearance and characteristics of normal visible emissions for that specific process.

(e) If abnormal emissions are observed, the Permittee shall take a reasonable response. Section C- Response to Excursions or Exceedances contains the Permittee's obligation with regard to the response steps required by this condition. Failure to take response steps shall be considered a deviation from this permit.

### D.1.7 Visible Emissions Notations [40 CFR 64]

(a) Visible emission notations of the baghouse stack exhausts (stacks SV001, SV003 through SV007) shall be performed once per day during normal daylight operations. A trained employee or a trained contractor shall record whether emissions are normal or abnormal.

(b) For processes operated continuously, "normal" means those conditions prevailing, or expected to prevail, eighty percent (80%) of the time the process is in operation, not counting startup or shut down time.

(c) In the case of batch or discontinuous operations, readings shall be taken during that part of the operation that would normally be expected to cause the greatest emissions.

(d) A trained employee or contractor is a person who has worked or trained at the plant at least one (1) month and has been trained in the appearance and characteristics of normal visible emissions for that specific process.

(e) If abnormal emissions are observed, the Permittee shall take a reasonable response. Section C- Response to Excursions or Exceedances contains the Permittee's obligation with regard to the response steps required by this condition. Failure to take response steps shall be considered a deviation from this permit.

### D.1.8 Broken or Failed Bag Detection

(a) For a single compartment baghouse controlling emissions from a process operated continuously, a failed unit and the associated process shall be shut down immediately until the failed unit has been repaired or replaced. Operations may continue only if the
event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

(b) For a single compartment baghouse controlling emissions from a batch process, the feed to the process shall be shut down immediately until the failed unit has been repaired or replaced. The emissions unit shall be shut down no later than the completion of the processing of the material in the line. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

Bag failure can be indicated by a significant drop in the baghouse's pressure reading with abnormal visible emissions, by an opacity violation, or by other means such as gas temperature, flow rate, air infiltration, leaks, dust traces or triboflows.

Record Keeping and Reporting Requirement [326 IAC 2-7-5(3)][326 IAC 2-7-19]

D.1.9 Record Keeping Requirements

(a) To document the compliance status with Conditions D.1.6 and D.1.7, the Permittee shall maintain records of once per day visible emission notations of the baghouse stack exhausts. The Permittee shall include in its daily record when a visible emission notation is not taken and the reason for the lack of visible emission notation (e.g. the process did not operate that day).

(b) Section C - General Record Keeping Requirements contains the Permittee's obligation with regard to the response steps required by this condition.
Emissions Unit Description:

(e) One (1) fermentation process, constructed in 2006, modified in 2016, and approved in 2018 for modification to increase the maximum production rate from 60,000 to 69,000 gallons of beer per hour, controlled by scrubber CE008 and regenerative thermal oxidizer (RTO) CE009, with emissions exhausted through SV009. During scrubber downtime, emissions from the fermentation process are controlled by the RTO with emissions exhausted through stack SV009. During RTO downtime, emissions from the fermentation process are controlled by the scrubber and exhausted through RTO bypass stack SV008. This process consists of the following:

(1) Five (5) fermenters, identified as EU012 through EU016, constructed in 2006.
(2) One (1) fermenter, identified as EU047, constructed in 2016.
(3) One (1) fermenter, identified as EU048, approved in 2018 for construction.
(4) One (1) yeast propagation tank, identified as EU017, constructed in 2006.
(5) One (1) beer well, identified as EU018, constructed in 2006.

Under NSPS, Subpart VVa, equipment (as defined in 40 CFR 60.481a) within a process unit is an affected facility.

(f) One (1) regenerative thermal oxidizer (RTO), identified as CE009, constructed in 2006, with a maximum heat input capacity of 30 MMBtu/hr, using natural gas as fuel, with emissions exhausted through stack SV009.

(g) One (1) distillation process, constructed in 2006, modified in 2016, and approved in 2018 for modification to increase the maximum input rate from 60,000 to 69,000 gallons of beer per hour, with a maximum production rate of 12,000 gallons of ethanol per hour, controlled by scrubber CE008 and regenerative thermal oxidizer (RTO) CE009, with emissions exhausted through stack SV009. During scrubber downtime, emissions from the distillation process are controlled by the RTO with emissions exhausted through stack SV009. During RTO downtime, emissions from the distillation process are controlled by the scrubber and exhausted through RTO bypass stack SV008.

(1) One (1) beer stripper, identified as EU019, constructed in 2006.
(2) One (1) rectifier column, identified as EU020, constructed in 2006.
(3) One (1) side stripper, identified as EU021, constructed in 2006.
(4) One (1) set of three (3) molecular sieves, identified as EU022, constructed in 2006.
(5) One (1) set of four (4) evaporators, identified as EU023, constructed in 2006.

Under NSPS, Subpart VVa, equipment (as defined in 40 CFR 60.481a) within a process unit is an affected facility.

(h) One (1) set of four (4) whole stillage centrifuges, identified as EU024, constructed in 2006, controlled by regenerative thermal oxidizer (RTO) CE009, with emissions exhausted through
stack SV009. During RTO downtime, the emissions from EU024 are uncontrolled exhausted through bypass stack SV017.

(i) Two (2) natural gas fired DDGS dryers, identified as EU025 and EU026, constructed in 2006 and approved in 2018 for modification to increase the total maximum input rate from 73.0 to 85.0 tons/hr of wetcake and the maximum output rate from 27 to 34.3 tons of DDGS per hour, each dryer with a maximum heat input rate of 60 MMBtu/hr controlled by multiclones CE013 and CE014, respectively, with emissions venting to regenerative thermal oxidizer (RTO) CE009, and exhausting to stack SV009. The DDGS dryers are not in operation during RTO downtime.

**Insignificant Activities**

(b) Two (2) centrifuges, identified as EU038 and EU039, constructed in 2012, with a maximum throughput for EU038 of 150 gpm and the maximum throughput for EU039 of 30 gpm, used in series to separate corn oil from the syrup system, exhausted atmosphere.

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

### Emission Limitations and Standards [326 IAC 2-7-5(1)]

**D.2.1 PSD and HAP Minor Limits [326 IAC 2-2][326 IAC 2-4.1]**

In order to render the requirements of 326 IAC 2-2 (PSD) and 326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants (HAP)) not applicable, the Permittee shall comply with the following:

(a) Unless operating under Alternative Operating Scenario No. 1 (AOS1) or No. 2 (AOS2):

1. The scrubber (CE008) and RTO (CE009) shall control emissions from the fermentation and distillation processes.

2. The RTO (CE009) shall control emissions from the DDGS dryers (EU025 and EU026).

3. The RTO (CE009) shall control emissions from the set of four centrifuges (EU024).

The emissions from the RTO (CE009) stack exhaust (SV009) shall be limited as follows:

4. PM emissions shall not exceed 33.1 lbs/hr.

5. PM10 emissions shall not exceed 33.1 lbs/hr.

6. PM2.5 emissions shall not exceed 33.1 lbs/hr.

7. VOC emissions shall not exceed 30.8 lbs/hr.

8. CO emissions shall not exceed 41.95 lbs/hr.

9. Acetaldehyde emissions shall not exceed 1.27 lbs/hr.

10. Methanol emissions shall not exceed 1.0 lbs/hr.

11. Acrolein emissions shall not exceed 1.09 lbs/hr.

12. Formaldehyde emissions shall not exceed 1.0 lb/hr.
(13) Total HAP emissions shall not exceed 2.50 lb/hr.

(b) Alternative Operating Scenario No. 1 (AOS1)

When the Scrubber (CE008) is not operating, the Permittee shall comply with the following:

(1) The RTO (CE009) shall control emissions from the fermentation and distillation processes.

(2) The RTO (CE009) shall control emissions from the DDGS dryers (EU025 and EU026).

(3) The RTO (CE009) shall control emissions from the set of four centrifuges (EU024).

The emissions from the RTO (CE009) stack exhaust (SV009) shall be limited as follows:

(4) PM emissions shall not exceed 33.1 lbs/hr.

(5) PM10 emissions shall not exceed 33.1 lbs/hr.

(6) PM2.5 emissions shall not exceed 33.1 lbs/hr.

(7) VOC emissions shall not exceed 30.8 lbs/hr.

(8) CO emissions shall not exceed 41.95 lbs/hr.

(9) Acetaldehyde emissions shall not exceed 1.27 lbs/hr.

(10) Methanol emissions shall not exceed 1.0 lbs/hr.

(11) Acrolein emissions shall not exceed 1.09 lbs/hr.

(12) Formaldehyde emissions shall not exceed 1.0 lb/hr

(13) Total HAP emissions shall not exceed 2.50 lb/hr.

(c) Alternative Operating Scenario No. 2 (AOS2)

When the RTO (CE009) is not operating, the Permittee shall comply with the following:

(1) The Scrubber (CE008) shall control emissions from the fermentation and distillation processes and exhaust to the RTO bypass stack exhaust (SV008) shall be limited as follows:

(A) VOC emissions shall not exceed 79.39 lbs/hr.

(B) Acetaldehyde emissions shall not exceed 9.00 lbs/hr.

(2) The scrubber (CE008) shall not vent to the atmosphere (RTO bypass stack SV008) more than 500 hours per twelve (12) consecutive month period with compliance determined at the end of each month.
(3) The DDGS dryers (EU25 and EU26) shall not be in operation.

(4) The set of four centrifuges (EU024) shall vent to atmosphere through SV017. The time the set of four centrifuges vent to atmosphere shall not exceed 500 hours per twelve (12) consecutive month period with compliance determined at the end of each month.

(A) VOC emissions shall not exceed 0.138 lbs/hr.

(B) Total HAP emissions shall not exceed 0.0085 lbs/hr.

Compliance with these limits, combined with the potential to emit PM, PM10, PM2.5, VOC, and CO from all other emission units at this source, shall limit the source-wide potential to emit of PM, PM10, PM2.5, VOC and CO to less than two hundred fifty (250) tons per twelve (12) consecutive month period, each and shall render the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) not applicable.

Compliance with these limits, combined with the potential to emit HAPs from all other emission units at this source, shall limit the source-wide potential to emit of any single HAP to less than ten (10) tons per twelve (12) consecutive month period for a single HAP, total HAPs to less than twenty five (25) tons per twelve (12) consecutive month period and shall render the requirements of 326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants (HAP)) not applicable, and this source is an area source of HAP emissions under Section 112 of the Clean Air Act (CAA).

D.2.2 VOC Emissions [326 IAC 8-5-6]

Pursuant to 326 IAC 8-5-6 (Fuel Grade Ethanol Production at Dry Mills), the Permittee shall comply with the following when using only whole kernel corn to produce a meal that is then used in the production of fuel grade ethanol:

(a) The VOC emissions from the fermentation and distillation processes shall be controlled by either the scrubber CE008 or the regenerative thermal oxidizer (RTO) CE009 or a combination of both the scrubber CE008 and RTO system CE009.

(b) The overall efficiency for the scrubber (CE008) and RTO (CE009) (including the capture efficiency and destruction efficiency) shall be at least 98%, or the VOC outlet concentration shall not exceed 10 ppmv at 100% capture.

(c) The overall efficiency for the scrubber (CE008) (including the capture efficiency) shall be at least 98%, or the VOC outlet concentration shall not exceed 20 ppmv at 100% capture.

(d) The VOC emissions from the DDGS dryers (EU025 and EU026) shall be controlled by regenerative thermal oxidizer CE009.

(e) The overall efficiency for the regenerative thermal oxidizer CE009 (including the capture efficiency and destruction efficiency) shall be at least 98%, or the VOC outlet concentration shall not exceed 10 ppmv at 100% capture.

D.2.3 VOC BACT [326 IAC 8-1-6]

Pursuant to 326 IAC 8-1-6 (VOC BACT), the Permittee shall comply with the following when using a feedstock other than whole kernel corn, or in combination with whole kernel corn, to produce a meal that is then used in the production of fuel grade ethanol:

(a) The VOC emissions from the fermentation and distillation processes shall be controlled by either the scrubber CE008 or the regenerative thermal oxidizer (RTO) CE009 or a combination of both the scrubber CE008 and RTO system CE009.
(b) The VOC emissions from the DDGS dryers (EU025 and EU026) shall be controlled by RTO CE009.

(c) The overall efficiency for the scrubber and RTO combined (including the capture efficiency and destruction efficiency) shall be at least 98%, or the VOC outlet concentration shall not exceed 10 ppmv at 100% capture.

(d) The overall efficiency for the RTO (including the capture efficiency and destruction efficiency) shall be at least 98%, or the VOC outlet concentration shall not exceed 10 ppmv at 100% capture.

(e) When not operating under AOS1 or AOS2, VOC emissions from SV009 shall not exceed 30.80 lbs/hr.

When operating under AOS1 – Scrubber Downtime

(f) The overall efficiency for the RTO (including the capture efficiency and destruction efficiency) shall be at least 98%, or the VOC outlet concentration shall not exceed 10 ppmv at 100% capture.

(g) The VOC emissions from SV009 shall not exceed 30.80 lbs/hr.

When operating under AOS2 – RTO Downtime

(h) The overall efficiency for the scrubber (including the capture efficiency and the destruction efficiency) shall be at least 98%, or the VOC outlet concentration shall not exceed 20 ppmv at 100% capture.

(i) The VOC emissions from SV008 shall not exceed 79.39 lbs/hr.

(j) The scrubber shall not vent to the atmosphere (RTO bypass stack) more than 500 hours per twelve (12) consecutive month period.

(k) The DDGS dryers (EU25 and EU26) shall not be in operation when the RTO is not operating.

D.2.4 Particulate Emission Limitations [326 IAC 6-3-2]

Pursuant to 326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes), particulate emissions from each of following operations shall not exceed the pound per hour limit listed in the table below:

<table>
<thead>
<tr>
<th>Unit ID</th>
<th>Unit Description</th>
<th>Max. Throughput Rate (tons/hr)</th>
<th>Particulate Emission Limit (lbs/hr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EU025</td>
<td>DDGS Dryer</td>
<td>85</td>
<td>49.66</td>
</tr>
<tr>
<td>EU026</td>
<td>DDGS Dryer</td>
<td>85</td>
<td>49.66</td>
</tr>
</tbody>
</table>

The pounds per hour limitations were calculated using the following equation:

Interpolation and extrapolation of the data for the process weight rate in excess of sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

\[ E = 55.0 P^{0.11} - 40 \]

where \( E \) = rate of emission in pounds per hour; and \( P \) = process weight rate in tons per hour.
D.2.5 Preventive Maintenance Plan  [326 IAC 2-7-5(12)]

A Preventive Maintenance Plan is required for these facilities and any control devices. Section B - Preventive Maintenance Plan contains the Permittee's obligation with regard to the preventive maintenance plan required by this condition.

Compliance Determination Requirements [326 IAC 2-7-5(1)]

D.2.6 VOC and HAP Control

(a) Unless operating under AOS1 or AOS2:
   In order to assure compliance with Condition D.2.1(a):

   (1) the regenerative thermal oxidizer (RTO) CE009 and the scrubber CE008 shall be in operation and control emissions from the fermentation and distillation processes at all times that these processes are in operation.

   (2) the regenerative thermal oxidizer (RTO) CE009 shall be in operation and control emissions from the DDGS dryers (EU25 and EU26) at all times that the dryers are in operation.

   (3) the regenerative thermal oxidizer (RTO) CE009 shall be in operation and control emissions from the set of four centrifuges (EU024) at all times that the set of four whole stillage centrifuges are in operation.

(b) When operating under AOS1: (Scrubber Downtime)
   In order to assure compliance with D.2.1(b), the RTO CE009 shall be in operation and control emissions from the fermentation and distillation processes, DDGS dryers, and the set up four (4) centrifuges (EU024) at all times that these processes are in operation.

(c) When operating under AOS2: (RTO Downtime)
   In order to assure compliance with D.2.1(c), the scrubber CE008 shall be in operation and control emissions from the fermentation and distillation processes at all times that these processes are in operation.

D.2.7 Testing Requirements  [326 IAC 2-1.1-11]

Only Whole Kernel Corn Feedstock

(a) In order to demonstrate compliance with Conditions D.2.1(a), D.2.2, D.2.3, and D.2.4, when both the RTO system (CE009) and scrubber (CE008) control emissions from the fermentation and distillation processes, DDGS dryers, and the set of four centrifuges, the Permittee shall perform PM, PM10, PM2.5, VOC (including emission rate, destruction efficiency, and capture efficiency), CO, acetaldehyde, acrolein, and methanol testing for the RTO system stack (SV009), utilizing methods as approved by the Commissioner. PM10 and PM2.5 includes filterable and condensable PM.

(b) In order to demonstrate compliance with Conditions D.2.1(b), D.2.2, D.2.3, and D.2.4, when only the RTO system (CE009) controls emissions from the fermentation and distillation processes, the DDGS dryers, and the set of four centrifuges, the Permittee shall perform PM, PM10, PM2.5, VOC (including emission rate, destruction efficiency, and capture efficiency), CO, acetaldehyde, acrolein, and methanol testing for the RTO system stack (SV009). The testing shall utilize methods as approved by the Commissioner and be conducted not later than 180 days after initial startup of the scrubber bypass. PM10 and PM2.5 includes filterable and condensable PM.
In order to demonstrate compliance with Condition D.2.1(c), D.2.2, and D.2.3, the Permittee shall perform VOC (including emission rate and capture efficiency) and Acetaldehyde testing for the scrubber (CE008) utilizing methods approved by the Commissioner. These tests shall be performed without the RTO operating.

Feedstock Other than Only Whole Kernel Corn

(d) Within sixty (60) days of utilizing a feedstock other than whole kernel corn for which testing has not previously been conducted, in order to demonstrate compliance with Conditions D.2.1(a), D.2.2, D.2.3, and D.2.4, when both the RTO system (CE009) and scrubber (CE008) control emissions from the fermentation and distillation processes, DDGS dryers, and the set of four centrifuges, the Permittee shall perform PM, PM10, PM2.5, VOC (including emission rate, destruction efficiency, and capture efficiency), CO, acetaldehyde, acrolein, and methanol testing for the RTO system stack (SV009), utilizing methods as approved by the Commissioner. PM10 and PM2.5 includes filterable and condensable PM.

(e) Within sixty (60) days of utilizing a feedstock other than whole kernel corn for which testing has not previously been conducted, in order to demonstrate compliance with Conditions D.2.1(b), D.2.2, D.2.3, and D.2.4, when only the RTO system (CE009) controls emissions from the fermentation and distillation processes, the DDGS dryers, and the set of four centrifuges, the Permittee shall perform PM, PM10, PM2.5, VOC (including emission rate, destruction efficiency, and capture efficiency), CO, acetaldehyde, acrolein, and methanol testing for the RTO system stack (SV009). The testing shall utilize methods as approved by the Commissioner and be conducted not later than 180 days after initial startup of the scrubber bypass. PM10 and PM2.5 includes filterable and condensable PM.

(f) Within sixty (60) days of utilizing a feedstock other than whole kernel corn for which testing has not previously been conducted, in order to demonstrate compliance with Condition D.2.1(c), D.2.2, and D.2.3, the Permittee shall perform over all VOC control efficiency (including emission rate and capture efficiency) and Acetaldehyde emission rate testing for the scrubber (CE008) utilizing methods approved by the Commissioner. These tests shall be performed without the RTO operating.

(g) Testing in (a) through (f) shall be repeated at least once every five (5) years from the date of the last valid compliance demonstration. Testing shall be conducted in accordance with the provisions of 326 IAC 3-6 (Source Sampling Procedures). Section C – Performance Testing contains the Permittee’s obligation with regard to the performance testing required by this condition.

Scrubber Packing Replacement

(h) Not later than 180 days after replacement of the scrubber (CE008) packing with a different type and in order to demonstrate compliance with Conditions D.2.1(c), D.2.2, and D.2.3, the Permittee shall perform VOC (including emission rate and capture efficiency) and Acetaldehyde testing on the outlet of the scrubber (CE008). Testing shall be conducted in accordance with the provisions of 326 IAC 3-6 (Source Sampling Procedures). Section C – Performance Testing contains the Permittee’s obligation with regard to the performance testing required by this condition.

Compliance Monitoring Requirements [326 IAC 2-7-5(1)][326 IAC 2-7-6(1)]

D.2.8 Visible Emissions Notations [40 CFR 64]

(a) Visible emission notations of the stack exhaust from the RTO system stack (SV009) shall be performed once per day during normal daylight operations. A trained employee shall record whether emissions are normal or abnormal.
(b) For processes operated continuously, "normal" means those conditions prevailing, or expected to prevail, eighty percent (80%) of the time the process is in operation, not counting startup or shut down time.

(c) In the case of batch or discontinuous operations, readings shall be taken during that part of the operation that would normally be expected to cause the greatest emissions.

(d) A trained employee is an employee who has worked at the plant at least one (1) month and has been trained in the appearance and characteristics of normal visible emissions for that specific process.

(e) If abnormal emissions are observed, the Permittee shall take a reasonable response. Section C - Response to Excursions or Exceedances contains the Permittee's obligation with regard to the reasonable response steps required by this condition. Failure to take response steps shall be considered a deviation from this permit.

D.2.9 Thermal Oxidizer Temperature [326 IAC 8-5-6][40 CFR 64]

(a) A continuous monitoring system shall be calibrated, maintained, and operated on the RTO system (CE009) for measuring operating temperature. For the purpose of this condition, continuous means no less than once per fifteen (15) minutes. The output of this system shall be recorded as 3-hour average.

(b) When not operating under AOS1 or AOS2:
The Permittee shall determine the 3-hour average temperature from the latest valid stack test that demonstrates compliance with limits in Conditions D.2.1 and D.2.2.

When operating under AOS1:
The Permittee shall determine the 3-hour average temperature from the most recent valid stack test that demonstrates compliance with limits in Conditions D.2.1 and D.2.2.

(c) On and after the date the stack test results are available, the Permittee shall operate the thermal oxidizers at or above the 3-hour average temperatures as observed during the latest compliant stack test. If the 3-hour average temperature falls below the above mentioned 3-hour average temperature, the Permittee shall take a reasonable response.

(d) On and after the date the stack test results are available, the Permittee shall operate the thermal oxidizer at or above the 3-hour average temperatures as observed during the latest compliant stack test when the scrubber is not operating (AOS1). If the 3-hour average temperature falls below the above mentioned 3-hour average temperature, the Permittee shall take a reasonable response.

(e) Section C - Response to Excursions or Exceedances contains the Permittee's obligation with regard to the response steps required by this condition. Failure to take response steps shall be considered a deviation from this permit.

D.2.10 Parametric Monitoring [326 IAC 8-5-6]

(a) When not operating under AOS1 or AOS2:
The Permittee shall determine the appropriate duct pressure or fan amperage from the latest valid stack test that demonstrates compliance with limits in Conditions D.2.1 and D.2.2.

When operating under AOS1:
The Permittee shall determine the appropriate duct pressure or fan amperage from the latest valid stack test that demonstrates compliance with limits in Conditions D.2.1 and D.2.2.
(b) The duct pressure or fan amperage shall be observed at least once per day when the thermal oxidizer is in operation. On and after the date the stack test results are available, the duct pressure or fan amperage shall be maintained within the normal range as established in latest compliant stack test.

(c) The instruments used for determining the duct pressure or fan amperage shall comply with Section C – Instrument Specifications, of this permit, shall be subject to approval by IDEM, OAQ, and shall be calibrated or replaced at least once every six (6) months.

(d) When, for any one reading, the duct pressure or fan amperage is outside the appropriate range, the Permittee shall take a reasonable response. Section C - Response to Excursions and Exceedances contains the Permittee's obligation with regard to the reasonable response steps required by this condition. A reading that is outside the above mentioned range is not a deviation from this permit. Failure to take response steps shall be considered a deviation from this permit.

D.2.11 Scrubber Pressure Drop and Flow Rate [326 IAC 8-5-6][40 CFR 64]

(a) The Permittee shall monitor and record the water flow rate of the scrubber (CE008) at least once per day when the fermentation and/or the distillation process is in operation.

   (1) When not operating under AOS1 or AOS2:
       The Permittee shall determine the minimum water flow rate from the latest valid stack test that demonstrates compliance with the limits in Conditions D.2.1(a) and D.2.1(c).

       When operating under AOS2:
       The Permittee shall determine the minimum water flow rate from the latest valid stack test that demonstrates compliance with the limits in Conditions D.2.1(a) and D.2.1(c).

   (2) On and after the date the stack test results are available, the Permittee shall maintain a water flow rate at or above the minimum rate as observed during the latest compliant stack test. If the water flow rate falls below the level observed during the latest compliant stack test, the Permittee shall take a reasonable response.

(b) The Permittee shall monitor and record the pressure drop across the scrubber (CE008) at least once per day when the fermentation and/or the distillation process is in operation. When for any one reading, the pressure drop across the scrubber is outside the normal range, the Permittee shall take a reasonable response. The normal range for this unit is a pressure drop between 2.0 and 12.0 inches of water unless a different upper-bound or lower-bound value for this range is determined during the latest stack test. A pressure reading that is outside the above mentioned range is not a deviation from this permit.

(c) The instruments used for determining the pressure drop shall comply with Section C - Instrument Specifications, of this permit, shall be subject to approval by IDEM, OAQ, and shall be calibrated or replaced at least once every six (6) months.

(d) Section C - Response to Excursions or Exceedances contains the Permittee's obligation with regard to the response steps required by this condition. Failure to take response steps shall be considered a deviation from this permit.
D.2.12 Scrubber Failure Detection

When operating under Alternative Operating Scenario No. 2 (AOS2), in the event that a scrubber malfunction has been observed:

Failed units and the associated process will be shut down immediately until the failed units have been repaired or replaced. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions). Section C – Response to Excursions or Exceedances contains the Permittee’s obligation with regard to the reasonable response steps required by this condition. Failure to take response steps shall be considered a deviation from this permit.

Record Keeping and Reporting Requirement [326 IAC 2-7-5(3)][326 IAC 2-7-19]

D.2.13 Record Keeping Requirements

(a) To document the compliance status with Condition D.2.1(c)(2), the Permittee shall maintain monthly records of the number of hours the scrubber (CE008) is vented to the atmosphere.

(b) To document the compliance status with Condition D.2.7, the Permittee shall maintain daily records of visible emission notations of the RTO system stack (SV009). The Permittee shall include in its daily record when a visible emission notation is not taken and the reason for the lack of visible emission notation (e.g., the process did not operate that day).

(c) To document the compliance status with Condition D.2.8, the Permittee shall maintain continuous temperature records for the thermal oxidizer and the 3-hour average temperature used to demonstrate compliance during the most recent compliant stack test.

(d) To document the compliance status with Condition D.2.9, the Permittee shall maintain daily records of the duct pressure or fan amperage for the RTO system (CE009). The Permittee shall include in its daily record when the duct pressure or fan amperage is not taken and the reason for the lack of the reading (e.g., the process did not operate that day).

(e) To document the compliance status with Condition D.2.10, the Permittee shall maintain daily records of pressure drop and water flow rate for scrubber CE008. The Permittee shall include in its daily record when the pressure drop and flow rate are not taken and the reason for the lack of the readings (e.g., the process did not operate that day).

(f) Documentation of the dates, including the time, the system is operating under AOS1 or AOS2.

(g) Section C - General Record Keeping Requirements contains the Permittee's obligation with regard to the recordkeeping requirements of this requirement.

D.2.14 Reporting Requirements

A quarterly summary of the information to document the compliance status with Conditions D.2.1(c)(2) and D.2.1 (c)(4) shall be submitted not later than thirty (30) days following the end of the calendar quarter. The report submitted by the Permittee does require a certification that meets the requirements of 326 IAC 2-7-6(1) by a "responsible official" as defined by 326 IAC 2-7-1(35). Section C - General Reporting Requirements contains the Permittee's obligations with regard to the reporting required by this condition.
SECTION D.3 EMISSIONS UNIT OPERATION CONDITIONS – Boilers

Emissions Unit Description:

(j) Two (2) natural gas fired boilers, identified as EU027 and EU028, constructed in 2006, each with a maximum heat input rate of 146 MMBtu/hr each, with emissions exhausting to stacks SV013 and SV014, respectively.

Under NSPS, 40 CFR 60, Subpart Db, these units are considered affected facilities

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.3.1 Particulate Emissions [326 IAC 6-2-4]

Pursuant to 326 IAC 6-2-4 (Particulate Emission Limitations for Sources of Indirect Heating: Emission Limitations for facilities specified in 326 IAC 6-2-1(d)), the PM emissions from each boiler shall not exceed 0.250 pounds per million Btu heat input (lb/MMBtu).

D.3.2 Preventive Maintenance Plan [326 IAC 2-7-5(12)]

A Preventive Maintenance Plan is required for these facilities and their control devices. Section B - Preventive Maintenance Plan contains the Permittee’s obligation with regard to the preventive maintenance plan required by this condition.
SECTION D.4  EMISSIONS UNIT OPERATION CONDITIONS – DDGS Cooler

Emissions Unit Description:

(k) One (1) fluidized DDGS cooler, identified as EU029, constructed in 2006, and approved in 2018 for modification to increase the maximum throughput rate from 27 to 34.3 tons/hr of DDGS, controlled by baghouse CE010, and exhausting to stack SV010. Note: The Permittee has the option of routing the DDGS cooler baghouse exhaust to the DDGS Dryers, identified as EU025 and EU026.

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.4.1 PM, PM10 and PM2.5 PSD Minor Limits [326 IAC 2-2]

In order to render the requirements of 326 IAC 2-2 (PSD) not applicable, the Permittee shall comply with the following:

1. The PM emissions from the DDGS cooler, which is controlled by baghouse CE010, shall not exceed 2.89 lbs/hr.

2. The PM10 emissions from the DDGS cooler, which is controlled by baghouse CE010, shall not exceed 3.34 lbs/hr.

3. The PM2.5 emissions from the DDGS cooler, which is controlled by baghouse CE010, shall not exceed 3.53 lbs/hr.

Compliance with these limits, combined with the potential to emit PM, PM10 and PM2.5 from all other emission units at the source, shall limit the source-wide total potential to emit of PM, PM10 and PM2.5 to less than two hundred fifty (250) tons per twelve (12) consecutive month period and render the requirements of 326 IAC 2-2 (PSD) not applicable.

D.4.2 VOC Emissions [326 IAC 8-1-6]

In order to render the requirements of 326 IAC 8-1-6 (BACT) not applicable, the Permittee shall comply with the following:

VOC emissions shall not exceed 5.7 lbs/hr.

Compliance with the above limitation shall limit the VOC emissions from this emission unit to less than twenty five (25) tons per twelve (12) consecutive month period and render the requirements of 326 IAC 8-1-6 (BACT) not applicable.

D.4.3 Particulate Emission Limitations [326 IAC 6-3-2]

Pursuant to 326 IAC 6-3-2, particulate emissions from the DDGS cooler (EU029) shall not exceed 41.14 pounds per hour when operating at the maximum process throughput rate of 34.3 tons per hour.

The pounds per hour limitation was calculated using the following equation:

Interpolation of the data for the process weight rate in excess of sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

\[ E = 55.0 P^{0.11} - 40 \]

where \( E \) = rate of emission in pounds per hour; and \( P \) = process weight rate in tons per hour.
D.4.4 Preventive Maintenance Plan [326 IAC 2-7-5(12)]

A Preventive Maintenance Plan is required for this facility and any control device. Section B - Preventive Maintenance Plan contains the Permittee’s obligation with regard to the preventive maintenance plan required by this condition.

Compliance Determination Requirements [326 IAC 2-7-5(1)]

D.4.5 Particulate Control

(a) In order to assure compliance with Conditions D.4.1 and D.4.3, Baghouse CE010 shall be in operation and control emissions from the DDGS cooler (EU029) at all times that this unit is in operation.

(b) In the event that bag failure is observed in a multi-compartment baghouse, if operations will continue for ten (10) days or more after the failure is observed before the failed units will be repaired or replaced, the Permittee shall promptly notify the IDEM, OAQ of the expected date the failed units will be repaired or replaced. The notification shall also include the status of the applicable compliance monitoring parameters with respect to normal, and the results of any response actions taken up to the time of notification.

D.4.6 Testing Requirements [326 IAC 2-1.1-11]

In order to demonstrate compliance with Conditions D.4.1, D.4.2 and D.4.3, the Permittee shall perform PM, PM10, PM2.5 and VOC testing for the DDGS cooler (EU029) utilizing methods as approved by the Commissioner at least once every five (5) years from the date of the most recent valid compliance demonstration. PM10 and PM2.5 includes filterable and condensible PM. Testing shall be conducted in accordance with the provisions of 326 IAC 3-6 (Source Sampling Procedures). Section C - Performance Testing contains the Permittee's obligation with regard to the performance testing required by this condition.

Compliance Monitoring Requirements [326 IAC 2-7-5(1)] [326 IAC 2-7-6(1)]

D.4.7 Visible Emissions Notations [40 CFR 64]

(a) Visible emission notations of the baghouse stack exhaust (stack SV010) shall be performed once per day during normal daylight operations. A trained employee or a trained contractor shall record whether emissions are normal or abnormal.

(b) For processes operated continuously, "normal" means those conditions prevailing, or expected to prevail, eighty percent (80%) of the time the process is in operation, not counting startup or shut down time.

(c) In the case of batch or discontinuous operations, readings shall be taken during that part of the operation that would normally be expected to cause the greatest emissions.

(d) A trained employee or contractor is a person who has worked or trained at the plant at least one (1) month and has been trained in the appearance and characteristics of normal visible emissions for that specific process.

(e) If abnormal emissions are observed, the Permittee shall take a reasonable response. Section C- Response to Excursions or Exceedances contains the Permittee’s obligation with regard to the reasonable response steps required by this condition. Failure to take response steps shall be considered a deviation from this permit.

D.4.8 Broken or Failed Bag Detection

(a) For a single compartment baghouse controlling emissions from a process operated continuously, a failed unit and the associated process shall be shut down immediately
until the failed unit has been repaired or replaced. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

(b) For a single compartment baghouse controlling emissions from a batch process, the feed to the process shall be shut down immediately until the failed unit has been repaired or replaced. The emissions unit shall be shut down no later than the completion of the processing of the material in the line. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

Bag failure can be indicated by a significant drop in the baghouse's pressure reading with abnormal visible emissions, by an opacity violation, or by other means such as gas temperature, flow rate, air infiltration, leaks, dust traces or triboflows.

**Record Keeping and Reporting Requirement [326 IAC 2-7-5(3)][326 IAC 2-7-19]**

**D.4.9 Record Keeping Requirements**

(a) To document the compliance status with Condition D.4.7, the Permittee shall maintain records of daily visible emission notations of the baghouse stack exhaust. The Permittee shall include in its daily record when a visible emission notation is not taken and the reason for the lack of visible emission notation (e.g., the process did not operate that day).

(b) Section C - General Record Keeping Requirements contains the Permittee's obligation with regard to the records required by this condition.
SECTION D.5 EMISSIONS UNIT OPERATION CONDITIONS

Ethanol Loading Racks

Emissions Unit Description:

(n) One (1) ethanol loading system, identified as EU036, constructed in 2006 and modified in 2007 and 2019. This unit is controlled by enclosed flare CE015, which is fueled by natural gas and has a pilot gas flare heat input capacity of 54,000 Btu/hr, and exhausts through stack SV016, consisting of the following components:

(1) Two (2) truck loading racks, identified as EU036a and EU036b, each with a maximum throughput of 43,200 gallons/hr (86,400 gal/hr total) when loading ethanol and 39,000 gal/hr when loading 100% denaturant.

(2) One (1) rail loading rack, identified as EU036c, with a maximum throughput of 72,000 gallons of ethanol per hour.

Under NSPS, Subpart VVa, equipment (as defined in 40 CFR 60.481a) within a process unit is an affected facility.

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.5.1 PSD and HAP Minor Limits [326 IAC 2-2][326 IAC 2-4.1][40 CFR 63]

Pursuant to 326 IAC 2-7-5 (Part 70), the Permittee shall comply with the following emission limits for the ethanol loading racks:

(a) The combined total load-out of undenatured ethanol, denatured ethanol and E-85 from loading rack EU036 shall not exceed 107,756,000 gallons per twelve (12) consecutive month period with compliance determined at the end of each month.

(b) The combined load-out of 100% denaturant from EU036a and EU036b shall not exceed 5,000,000 gallons per twelve (12) consecutive month period with compliance determined at the end of each month.

(c) CO emissions from flare CE015 shall not exceed 0.084 lbs/kgal.

(d) NOx emissions from flare CE015 shall not exceed 0.0334 lbs/kgal.

(e) The VOC emissions from enclosed flare CE015 shall not exceed 0.118 lb/kgal, when loading undenatured ethanol, denatured ethanol and E-85.

(f) The VOC emissions from enclosed flare CE015 shall not exceed 0.178 lb/kgal, when loading 100% denaturant.

(g) Benzene emissions from the ethanol loading rack (EU036), exhausting to stack SV016 shall not exceed 0.062 lbs/kgal.

(h) Cumene emissions from the ethanol loading rack (EU036), exhausting to stack SV016 shall not exceed 0.062 lbs/kgal.

(i) Ethylbenzene emissions from the ethanol loading rack (EU036), exhausting to stack SV016 shall not exceed 0.062 lbs/kgal.
(j) Hexane emissions from the ethanol loading rack (EU036), exhausting to stack SV016 shall not exceed 0.062 lbs/kgal.

(k) Toluene emissions from the ethanol loading rack (EU036), exhausting to stack SV016 shall not exceed 0.062 lbs/kgal.

(l) Xylene emissions from the ethanol loading rack (EU036), exhausting to stack SV016 shall not exceed 0.062 lbs/kgal.

(m) Total HAP emissions from the ethanol loading rack (EU036), exhausting to stack SV016, shall not exceed 0.062 lbs/kgal.

(n) The ethanol loading rack shall utilize submerged loading method when loading trucks and railcars.

(o) The railcars and trucks shall not use vapor balance services.

(p) The flare CE015 shall be designed as a smokeless flare.

Compliance with these limits, in conjunction with the potential to emit VOC, CO, and NOx from all other emission units at this source, shall limit the source-wide total potential to emit of VOC, CO, and NOx to less than two hundred fifty (250) tons per twelve (12) consecutive month period.

Compliance with these limits, combined with the potential to emit HAPs from all other emission units at this source, shall limit the source-wide total potential to emit of any single HAP to less than ten (10) tons per twelve (12) consecutive month period, total HAPs to less than twenty-five (25) tons per twelve (12) consecutive month period, and shall render the requirements of 326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants (HAP) not applicable, and this source is an area source of HAP emissions under Section 112 of the Clean Air Act (CAA).

D.5.2 VOC Emissions [326 IAC 8-5-6]
Pursuant to 326 IAC 8-5-6 (Fuel Grade Ethanol Production at Dry Mills), the Permittee shall comply with the following when using whole kernel corn to produce a meal that is then used in the production of fuel grade ethanol:

(a) The VOC emissions from the ethanol loading rack (EU036) shall be collected and controlled by enclosed flare CE015.

(b) The overall control efficiency for the vapor collection system and enclosed flare CE015 (including the capture efficiency and destruction efficiency) shall be at least 98%.

D.5.3 VOC BACT [326 IAC 8-1-6]
Pursuant to 326 IAC 8-1-6 (VOC BACT), the Permittee shall comply with the following when using a feedstock other than whole kernel corn, or in combination with whole kernel corn, to produce a meal that is then used in the production of fuel grade ethanol:

(a) The VOC emissions from the ethanol loading rack shall be collected and controlled by an enclosed flare.

(b) The overall control efficiency for the vapor collection system and enclosed flare (including the capture efficiency and destruction efficiency) shall be at least 98%.

(c) The VOC emissions from the ethanol loadout operation shall not exceed 14.54 lb/hr.
D.5.4 VOC Emission Limitation [326 IAC 8-1-6]

In order to render the requirements of 326 IAC 8-1-6 (New Facilities; General Reduction Requirements) not applicable, the Permittee shall comply with the following:

(a) The total load-out of 100% denaturant from loading rack EU036 shall not exceed 5,000,000 gallons per twelve (12) consecutive month period with compliance determined at the end of each month.

(b) VOC emissions from the loading of 100% denaturant shall not exceed 8.89 lbs/kgal.

Compliance with these limits, shall limit the potential to emit of VOC to less than twenty-five (25) tons per twelve (12) consecutive month period from the loading of 100% denaturant and shall render the requirements of 326 IAC 8-1-6 not applicable.

D.5.5 Preventive Maintenance Plan [326 IAC 2-7-5(12)]

A Preventive Maintenance Plan is required for these facilities and any control devices. Section B - Preventive Maintenance Plan contains the Permittee's obligation with regard to the preventive maintenance plan required by this condition.

Compliance Determination Requirements [326 IAC 2-7-5(1)]

D.5.6 VOC Control

In order to assure compliance with Conditions D.5.1, D.5.2, and D.5.3, enclosed flare CE015 shall be in operation and control emissions from the ethanol loading rack (EU036) at all times when this unit is in operation.

D.5.7 Testing Requirements [326 IAC 2-1.1-11]

Only Whole Kernel Corn Feedstock

(a) In order to demonstrate compliance with Conditions D.5.1, D.5.2, and D.5.3, the Permittee shall perform VOC (including emission rate, destruction efficiency, and capture efficiency), CO, NOx, hexane, benzene, cumene, ethylbenzene, toluene and xylene testing for enclosed flare CE015 utilizing methods as approved by the Commissioner. These tests shall be repeated at least once every five (5) years from the date of the most recent valid compliance demonstration. Testing shall be conducted in accordance with 326 IAC 3-6 (Source Sampling Procedures). Section C - Performance Testing contains the Permittee's obligation with regard to the performance testing required by this condition.

Feedstock Other than Only Whole Kernel Corn

(b) Within sixty (60) days of utilizing a non-whole corn kernel for which testing has not previously been conducted, in order to demonstrate compliance with Conditions D.5.1, D.5.2, and D.5.3, the Permittee shall perform VOC (including emission rate, destruction efficiency, and capture efficiency), CO, NOx, hexane, benzene, cumene, ethylbenzene, toluene and xylene testing of the enclosed flare CE015 utilizing methods as approved by the Commissioner. These tests shall be repeated at least once every five (5) years from the date of the most recent valid compliance demonstration. Testing shall be conducted in accordance with 326 IAC 3-6 (Source Sampling Procedures). Section C - Performance Testing contains the Permittee's obligation with regard to the performance testing required by this condition.
Compliance Monitoring Requirements  [326 IAC 2-7-5(1)][326 IAC 2-7-6(1)]

D.5.8 Flare Pilot Flame [326 IAC 8-5-6][40 CFR 64]

In order to ensure compliance with Conditions D.5.1, D.5.2, and D.5.3, the Permittee shall monitor the presence of a flare pilot flame for flare CE015 using a thermocouple or any other equivalent device to detect the presence of a flame when ethanol loading rack EU036 is in operation. If a condition exists which should result in a response step, the Permittee shall take a reasonable response. Section C - Response to Excursions or Exceedances contains the Permittee’s obligation with regard to the response steps required by this condition. Failure to take response steps shall be considered a deviation from this permit.

Record Keeping and Reporting Requirement  [326 IAC 2-8-4(3)][326 IAC 2-8-16]

D.5.9 Record Keeping Requirements

(a) To document the compliance status with Condition D.5.1(a), the Permittee shall maintain monthly records of the total amount of undenatured ethanol, denatured ethanol and E-85 loaded out from loading rack EU036.

(b) To document the compliance status with Condition D.5.1(b) and D.5.4(a), the Permittee shall maintain monthly records of the total amount of 100% denaturant loaded out from loading rack EU036.

(c) To document the compliance status with Condition D.5.8, the Permittee shall maintain records of temperature or other parameters sufficient to demonstrate the presence of a pilot flame when loading rack EU036 is in operation.

(d) Section C - General Record Keeping Requirements contains the Permittee’s obligation with regard to the recordkeeping requirements of this requirement.

D.5.10 Reporting Requirements

A quarterly summary of the information to document the compliance status with Conditions D.5.1(a), D.5.1(b) and D.5.4(a) shall be submitted not later than thirty (30) days following the end of the calendar quarter. The report submitted by the Permittee does require a certification that meets the requirements of 326 IAC 2-7-6(1) by a “responsible official” as defined by 326 IAC 2-7-1(35). Section C - General Reporting Requirements contains the Permittee’s obligations with regard to the reporting required by this condition.
SECTION D.6  EMISSIONS UNIT OPERATION CONDITIONS
Diesel-Fired Generator

Emissions Unit Description:

(o) One (1) diesel generator, identified as EU037, constructed in 2006, with a maximum power output rate of 3017.25 HP (2,250 kW), and exhausting to stack SV015.

Under 40 CFR 60, Subpart III this is an affected unit. Under 40 CFR 63, subpart ZZZZ this is a new affected unit.

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.6.1 PSD Minor Limits [326 IAC 2-2]

In order to render the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) not applicable, the Permittee shall comply with the following:

(1) The diesel-fired generator (EU037) shall not operate more than five hundred (500) hours per twelve (12) consecutive month period with compliance determined at the end of each month.

(2) CO emissions from EU037 shall not exceed 0.0055 lb/HP-hr.

(3) NOx emissions from EU037 shall not exceed 0.024 lb/HP-hr.

Compliance with these limits, combined with the potential to emit NOx and CO from all other emission units at this source, shall limit the source-wide total potential to emit of NOx and CO to less than two-hundred fifty (250) tons per twelve (12) consecutive month period, each and shall render the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) not applicable.

D.6.2 Preventive Maintenance Plan [326 IAC 2-7-5(12)]

A Preventive Maintenance Plan is required for these facilities and any control devices. Section B - Preventive Maintenance Plan contains the Permittee's obligation with regard to the preventive maintenance plan required by this condition.

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-19]

D.6.3 Record Keeping Requirements

(a) To document the compliance status with Condition D.6.1, the Permittee shall maintain monthly records of the total hours generator (EU037) operated.

(b) Section C - General Record Keeping Requirements contains the Permittee's obligation with regard to the records required by this condition.

D.6.4 Reporting Requirements

A quarterly summary of the information to document the compliance status with D.6.1 shall be submitted not later than thirty (30) days after the end of the quarter being reported. Section C - General Reporting contains the Permittee's obligation with regard to the reporting required by this condition.

The report submitted by the Permittee does require a certification that meets the requirements of
326 IAC 2-7-6(1) by a “responsible official,” as defined by 326 IAC 2-7-1(35).
SECTION E.1 NSPS

Emissions Unit Description:

(e) One (1) fermentation process, constructed in 2006, modified in 2016, and approved in 2018 for modification to increase the maximum production rate from 60,000 to 69,000 gallons of beer per hour, controlled by scrubber CE008 and regenerative thermal oxidizer (RTO) CE009, with emissions exhausted through SV009. During scrubber downtime, emissions from the fermentation process are controlled by the RTO with emissions exhausted through stack SV009. During RTO downtime, emissions from the fermentation process are controlled by the scrubber and exhausted through RTO bypass stack SV008. This process consists of the following:

1. Five (5) fermenters, identified as EU012 through EU016, constructed in 2006.
2. One (1) fermenter, identified as EU047, constructed in 2016.
3. One (1) fermenter, identified as EU048, approved in 2018 for construction.
4. One (1) yeast propagation tank, identified as EU017, constructed in 2006.
5. One (1) beer well, identified as EU018, constructed in 2006.

(g) One (1) distillation process, constructed in 2006, modified in 2016, and approved in 2018 for modification to increase the maximum input rate from 60,000 to 69,000 gallons of beer per hour, with a maximum production rate of 12,000 gallons of ethanol per hour, controlled by scrubber CE008 and regenerative thermal oxidizer (RTO) CE009, with emissions exhausted through stack SV009. During scrubber downtime, emissions from the distillation process are controlled by the RTO with emissions exhausted through stack SV009. During RTO downtime, emissions from the distillation process are controlled by the scrubber and exhausted through RTO bypass stack SV008.

1. One (1) beer stripper, identified as EU019, constructed in 2006.
2. One (1) rectifier column, identified as EU020, constructed in 2006.
3. One (1) side stripper, identified as EU021, constructed in 2006.
4. One (1) set of three (3) molecular sieves, identified as EU022, constructed in 2006.
5. One (1) set of four (4) evaporators, identified as EU023, constructed in 2006.

(n) One (1) ethanol loading system, identified as EU036, constructed in 2006 and modified in 2007 and 2019. This unit is controlled by enclosed flare CE015, which is fueled by natural gas and has a pilot gas flare heat input capacity of 54,000 Btu/hr, and exhausts through stack SV016., consisting of the following components:

1. Two (2) truck loading racks, identified as EU036a and EU036b, each with a maximum throughput of 43,200 gallons/hr (86,400 gal/hr total) when loading ethanol and 39,000 gal/hr when loading 100% denaturant.
2. One (1) rail loading rack, identified as EU036c, with a maximum throughput of 72,000 gallons of ethanol per hour.
Under 40 CFR 60, Subpart VVa, these are considered process units, and the pumps, compressors, pressure relief devices, sampling connection systems, open-ended valves or lines, valves, and flanges or other connectors in VOC service of these process units are considered to be affected facilities.

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

New Source Performance Standards (NSPS) Requirements [326 IAC 2-7-5(1)]


(a) Pursuant to 40 CFR 60.1, the Permittee shall comply with the provisions of 40 CFR Part 60, Subpart A – General Provisions, which are incorporated by reference as 326 IAC 12-1, for the emission unit(s) listed above, except as otherwise specified in 40 CFR Part 60, Subpart VVa.

(b) Pursuant to 40 CFR 60.4, the Permittee shall submit all required notifications and reports to:

Indiana Department of Environmental Management
Compliance and Enforcement Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251


The Permittee shall comply with the following provisions of 40 CFR Part 60, Subpart VVa (included as Attachment B to the operating permit), which are incorporated by reference as 326 IAC 12, for the emission unit(s) listed above:

1. 40 CFR 60.480a(a), (b), (c), (d), and (f)
2. 40 CFR 60.481a
3. 40 CFR 60.482-1a
4. 40 CFR 60.482-2a
5. 40 CFR 60.482-3a
6. 40 CFR 60.482-4a
7. 40 CFR 60.482-5a
8. 40 CFR 60.482-6a
9. 40 CFR 60.482-7a
10. 40 CFR 60.482-8a
11. 40 CFR 60.482-9a
12. 40 CFR 60.482-10a
13. 40 CFR 60.482-11a
14. 40 CFR 60.483-1a
15. 40 CFR 60.483-2a
16. 40 CFR 60.484a
17. 40 CFR 60.485a
18. 40 CFR 60.486a
19. 40 CFR 60.487a
20. 40 CFR 60.488a
21. 40 CFR 60.489a
SECTION E.2  NSPS

Emissions Unit Description:

(j) Two (2) natural gas fired boilers, identified as EU027 and EU028, constructed in 2006, each with a maximum heat input rate of 146 MMBtu/hr each, with emissions exhausting to stacks SV013 and SV014, respectively.

Under NSPS, 40 CFR 60, Subpart Db, these units are considered affected facilities.

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

New Source Performance Standards (NSPS) Requirements [326 IAC 2-7-5(1)]


(a) Pursuant to 40 CFR 60.1, the Permittee shall comply with the provisions of 40 CFR Part 60, Subpart A – General Provisions, which are incorporated by reference as 326 IAC 12-1, for the emission unit(s) listed above, except as otherwise specified in 40 CFR Part 60, Subpart Db.

(b) Pursuant to 40 CFR 60.4, the Permittee shall submit all required notifications and reports to:

Indiana Department of Environmental Management
Compliance and Enforcement Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

E.2.2  Industrial-Commercial-Institutional Steam Generating Units Requirements NSPS [326 IAC 12][40 CFR Part 60, Subpart Db]

The Permittee shall comply with the following provisions of 40 CFR Part 60, Subpart Db (included as Attachment C to the operating permit), which are incorporated by reference as 326 IAC 12, for the emission unit(s) listed above:

(1) 40 CFR 60.40b (a), (g), (j)
(2) 40 CFR 60.41b
(3) 40 CFR 60.44b (a)(1), (h), (i), (l)
(4) 40 CFR 60.46b (a), (c), (e)(1), (e)(4)
(5) 40 CFR 60.48b (b), (c), (d), (e)(2), (e)(3), (f), (g)
(6) 40 CFR 60.49b (a)(1), (a)(3), (b), (c), (d), (g), (h)(2)(ii), (h)(4), (i), (o), (v), (w)
SECTION E.3 NSPS

Emissions Unit Description:

(c) Other emission units, not regulated by a NESHAP, with PM10, NOx, and SO2 emissions less than five (5) pounds per hour or twenty-five (25) pounds per day, CO emissions less than twenty-five (25) pounds per day, VOC emissions less than three (3) pounds per hour or fifteen (15) pounds per day, lead emissions less than six-tenths (0.6) tons per year or three and twenty-nine hundredths (3.29) pounds per day, and emitting greater than one (1) pound per day but less than five (5) pounds per day or one (1) ton per year of a single HAP, or emitting greater than one (1) pound per day but less than twelve and five tenths (12.5) pounds per day or two and five tenths (2.5) ton per year of any combination of HAPs:

(1) One (1) 190 or 200-proof ethanol tank, identified as T001, constructed in 2006 with a maximum capacity of 250,000 gallons.

(2) One (1) denaturant tank, identified as T002, constructed in 2006, modified in 2009, with a maximum capacity of 250,000 gallons of denaturant. Natural gasoline is the denaturant used.

(3) One (1) denatured ethanol or 200-proof ethanol tank, identified as T003, constructed in 2006, modified in 2009, with a maximum capacity of 2,000,000 gallons of denatured ethanol or 200-proof ethanol. Natural gasoline is the denaturant used.

(4) One (1) denatured ethanol or 200-proof ethanol tank, identified as T004, constructed in 2006, modified in 2009, with a maximum capacity of 2,000,000 gallons of denatured ethanol or 200-proof ethanol. Natural gasoline is the denaturant used.

(5) One (1) denaturant tank, identified as T005, constructed in 2006, with a maximum capacity of 126,900 gallons of natural gasoline.

Under NSPS, 40 CFR 60, Subpart Kb, these units are considered affected facilities.

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

New Source Performance Standards (NSPS) Requirements [326 IAC 2-7-5(1)]


(a) Pursuant to 40 CFR 60.1, the Permittee shall comply with the provisions of 40 CFR Part 60, Subpart A – General Provisions, which are incorporated by reference as 326 IAC 12-1, for the emission unit(s) listed above, except as otherwise specified in 40 CFR Part 60, Subpart Kb.

(b) Pursuant to 40 CFR 60.4, the Permittee shall submit all required notifications and reports to:

Indiana Department of Environmental Management
Compliance and Enforcement Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251
E.3.2  Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) NSPS [326 IAC 12][40 CFR Part 60, Subpart Kb]

The Permittee shall comply with the following provisions of 40 CFR Part 60, Subpart Kb (included as Attachment D to the operating permit), which are incorporated by reference as 326 IAC 12, for the emission unit(s) listed above:

(1) 40 CFR 60.110b (a), (e)(1)(i), (e)(2), (e)(3)
(2) 40 CFR 60.111b
(3) 40 CFR 60.112b (a)(1)
(4) 40 CFR 60.113b (a)
(5) 40 CFR 60.115b (a)
(6) 40 CFR 60.116b (a-e)
(7) 40 CFR 60.117b
SECTION E.4 NSPS

Emissions Unit Description:

(o) One (1) diesel generator, identified as EU037, constructed in 2006, with a maximum power output rate of 3017.25 HP (2,250 kW), and exhausting to stack SV015.

Under 40 CFR 60, Subpart III this is an affected unit. Under 40 CFR 63, subpart ZZZZ this is a new affected unit.

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

New Source Performance Standards (NSPS) Requirements [326 IAC 2-7-5(1)]


(a) Pursuant to 40 CFR 60.1, the Permittee shall comply with the provisions of 40 CFR Part 60, Subpart A – General Provisions, which are incorporated by reference as 326 IAC 12-1, for the emission unit(s) listed above, except as otherwise specified in 40 CFR Part 60, Subpart III.

(b) Pursuant to 40 CFR 60.4, the Permittee shall submit all required notifications and reports to:

Indiana Department of Environmental Management
Compliance and Enforcement Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

E.4.2 Stationary Compression Ignition Internal Combustion Engines NSPS [326 IAC 12][40 CFR Part 60, Subpart III]

The Permittee shall comply with the following provisions of 40 CFR Part 60, Subpart III (included as Attachment E to the operating permit), which are incorporated by reference as 326 IAC 12, for the emission unit(s) listed above:

1. 40 CFR 60.4200 (a)(2)(i) and (4)
2. 40 CFR 60.4204 (a)
3. 40 CFR 60.4206
4. 40 CFR 60.4207(a), (b)
5. 40 CFR 60.4208 (a)
6. 40 CFR 60.4211 (a), (b), (g)(3)
7. 40 CFR 60.4212
8. 40 CFR 60.4214 (a)
9. 40 CFR 60.4218
10. 40 CFR 60.4219
11. Table 1 to 40 CFR 60, Subpart III
12. Table 8 to 40 CFR 60, Subpart III

E.4.3 Preventive Maintenance Plan [326 IAC 2-7-5(12)]

A Preventive Maintenance Plan is required for these facilities. Section B - Preventive Maintenance Plan contains the Permittee's obligation with regard to the preventive maintenance plan required by this condition.
SECTION E.5 NESHAP

Emissions Unit Description:

(o) One (1) diesel generator, identified as EU037, constructed in 2006, with a maximum power output rate of 3017.25 HP (2,250 kW), and exhausting to stack SV015.

Under 40 CFR 60, Subpart III this is an affected unit. Under 40 CFR 63, subpart ZZZZ this is a new affected unit.

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

National Emission Standards for Hazardous Air Pollutants (NESHAP) Requirements [326 IAC 2-7-5(1)]


(a) Pursuant to 40 CFR 63.1 the Permittee shall comply with the provisions of 40 CFR Part 63, Subpart A – General Provisions, which are incorporated by reference as 326 IAC 20-1, for the emission unit(s) listed above, except as otherwise specified in 40 CFR Part 63, Subpart ZZZZ.

(b) Pursuant to 40 CFR 63.10, the Permittee shall submit all required notifications and reports to:

Indiana Department of Environmental Management
Compliance and Enforcement Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana  46204-2251

E.5.2 Stationary Reciprocating Internal Combustion Engines NESHAP [40 CFR Part 63, Subpart ZZZZ][326 IAC 20-82]

The Permittee shall comply with the following provisions of 40 CFR Part 63, Subpart ZZZZ (included as Attachment F to the operating permit), which are incorporated by reference as 326 IAC 20-82, for the emission unit(s) listed above:

(1) 40 CFR 63.6580
(2) 40 CFR 63.6585
(3) 40 CFR 63.6590 (a)(2)(iii), and (c)(1)
(4) 40 CFR 63.6595 (a)(6)
(5) 40 CFR 63.6665
(6) 40 CFR 63.6670
(7) 40 CFR 63.6675
SECTION E.6  NESHAP

Emission Unit Description:

(d) One (1) gasoline dispensing operation for plant vehicles, identified as T009, installed in 2006 and modified in 2016, with a 300 gallon capacity storage tank and an estimated annual throughput of 15,600 gallons per year.

Under NESHAP, 40 CFR 63, Subpart CCCCC, this unit is considered an affected facility.

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

National Emission Standards for Hazardous Air Pollutants (NESHAP) Requirements [326 IAC 2-7-5(1)]


(a) Pursuant to 40 CFR 63.1 the Permittee shall comply with the provisions of 40 CFR Part 63, Subpart A – General Provisions, which are incorporated by reference as 326 IAC 20-1, for the emission unit(s) listed above, except as otherwise specified in 40 CFR Part 63, Subpart CCCCC.

(b) Pursuant to 40 CFR 63.10, the Permittee shall submit all required notifications and reports to:

Indiana Department of Environmental Management
Compliance and Enforcement Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

E.6.2 Source Category: Gasoline Dispensing Facilities NESHAP [40 CFR Part 63, Subpart CCCCCC]

The Permittee shall comply with the following provisions of 40 CFR Part 63, Subpart CCCCCC (included as Attachment G to the operating permit), for the emission unit(s) listed above:

(1) 40 CFR 63.11110
(2) 40 CFR 63.11111 (a), (b), (e), (f), (h), (i), (j)
(3) 40 CFR 63.11112 (a) and (b)
(4) 40 CFR 63.11113 (a), (a)(1), (d), (d)(1), (e), and (e)(1)
(5) 40 CFR 63.11115
(6) 40 CFR 63.11116
(7) 40 CFR 63.11125 (d)
(8) 40 CFR 63.11126 (b)
(9) 40 CFR 63.11130
(10) 40 CFR 63.11131
(11) 40 CFR 63.11132
(12) Table 3 to Subpart CCCCCC of Part 63

E.6.3 Preventive Maintenance Plan [326 IAC 2-7-5(12)]

A Preventive Maintenance Plan is required for these facilities. Section B - Preventive Maintenance Plan contains the Permittee's obligation with regard to the preventive maintenance plan required by this condition.
SECTION E.7    NSPS

Emissions Unit Description:

(a) One (1) grain receiving and handling operation, consisting of the following:

(2) Conveying system, with a maximum throughput rate of 840 tons per hour, consisting of the following:

(B) Two (2) enclosed belt conveyors, identified as EU002b, constructed in 2016, with a maximum rated capacity of 840 tons per hour, total, controlled by dust collectors CE016, CE017, and CE018, and exhausting through stacks SV018, SV019, SV020, respectively.

Under 40 CFR 60, Subpart DD, this is an affected grain handling operation.

(3) Grain bins, with a maximum throughput rate of 840 tons per hour, consisting of the following:

(B) Two (2) grain bins, identified as EU003b, constructed in 2016, each with a maximum capacity of 683,855 bushels, controlled by dust collectors CE016, CE017, and CE018, and exhausting through stacks SV018, SV019, SV020, respectively.

Under 40 CFR 60, Subpart DD, this is an affected grain handling operation.

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

New Source Performance Standards (NSPS) Requirements [326 IAC 2-7-5(1)]


(a) Pursuant to 40 CFR 60.1, the Permittee shall comply with the provisions of 40 CFR Part 60, Subpart A – General Provisions, which are incorporated by reference as 326 IAC 12-1, for the emission unit(s) listed above, except as otherwise specified in 40 CFR Part 60, Subpart DD.

(b) Pursuant to 40 CFR 60.4, the Permittee shall submit all required notifications and reports to:

Indiana Department of Environmental Management
Compliance and Enforcement Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana  46204-2251

E.7.2 Grain Elevators NSPS [326 IAC 12][40 CFR Part 60, Subpart DD]

The Permittee shall comply with the following provisions of 40 CFR Part 60, Subpart DD (included as Attachment H to the operating permit), which are incorporated by reference as 326 IAC 12, for the emission unit(s) listed above:

(1) 40 CFR 60.300
(2) 40 CFR 60.301
(3) 40 CFR 60.302 (b), (c)(1) and (c)(2)
(4) 40 CFR 60.303
(5) 40 CFR 60.304

Compliance Determination Requirements [326 IAC 2-7-5(1)]

In order to document the compliance status with Condition E.7.2, the Permittee shall perform the testing required under 40 CFR 60, Subpart DD for one (1) dust collector from the group of dust collectors CE008 through CE010 utilizing methods as approved by the Commissioner, at least once every five (5) years from the date of the most recent valid compliance demonstration. The source will test the dust collector for which the longest period of time has passed since the last valid compliance test. Section C - Performance Testing contains the Permittee’s obligation with regard to the performance testing required by this condition.
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF AIR QUALITY  
COMPLIANCE AND ENFORCEMENT BRANCH  
PART 70 OPERATING PERMIT  
CERTIFICATION  

Source Name: POET Biorefining - Portland, LLC  
Source Address: 1542 South 200 West, Portland, Indiana 47371  
Part 70 Permit No.: T075-38211-00032  

This certification shall be included when submitting monitoring, testing reports/results or other documents as required by this permit.

Please check what document is being certified:

- [ ] Annual Compliance Certification Letter  
- [ ] Test Result (specify)  
- [ ] Report (specify)  
- [ ] Notification (specify)  
- [ ] Affidavit (specify)  
- [ ] Other (specify)  

I certify that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

Signature:  
Printed Name:  
Title/Position:  
Phone:  
Date:
This is an emergency as defined in 326 IAC 2-7-1(12)
- The Permittee must notify the Office of Air Quality (OAQ), within four (4) daytime business hours (1-800-451-6027 or 317-233-0178, ask for Compliance Section); and
- The Permittee must submit notice in writing or by facsimile within two (2) working days (Facsimile Number: 317-233-6865), and follow the other requirements of 326 IAC 2-7-16.

If any of the following are not applicable, mark N/A

Facility/Equipment/Operation:

Control Equipment:

Permit Condition or Operation Limitation in Permit:

Description of the Emergency:

Describe the cause of the Emergency:
If any of the following are not applicable, mark N/A

<table>
<thead>
<tr>
<th>Date/Time Emergency started:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date/Time Emergency was corrected:</td>
</tr>
<tr>
<td>Was the facility being properly operated at the time of the emergency?</td>
</tr>
<tr>
<td>Type of Pollutants Emitted: TSP, PM-10, SO₂, VOC, NOₓ, CO, Pb, other:</td>
</tr>
<tr>
<td>Estimated amount of pollutant(s) emitted during emergency:</td>
</tr>
<tr>
<td>Describe the steps taken to mitigate the problem:</td>
</tr>
<tr>
<td>Describe the corrective actions/response steps taken:</td>
</tr>
<tr>
<td>Describe the measures taken to minimize emissions:</td>
</tr>
</tbody>
</table>

If applicable, describe the reasons why continued operation of the facilities are necessary to prevent imminent injury to persons, severe damage to equipment, substantial loss of capital investment, or loss of product or raw materials of substantial economic value:

Form Completed by:______________________________

Title / Position: ________________________________

Date:________________________________________

Phone:_______________________________________
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
COMPLIANCE AND ENFORCEMENT BRANCH

Part 70 Quarterly Report

<table>
<thead>
<tr>
<th>Source Name:</th>
<th>POET Biorefining - Portland, LLC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Source Address:</td>
<td>1542 South 200 West, Portland, Indiana 47371</td>
</tr>
<tr>
<td>Part 70 Permit No.:</td>
<td>T075-38211-00032</td>
</tr>
<tr>
<td>Facility:</td>
<td>Scrubber (CE008)</td>
</tr>
<tr>
<td>Parameter:</td>
<td>Hours Vented To Atmosphere</td>
</tr>
<tr>
<td>Limit:</td>
<td>The scrubber (CE008) shall not vent to the atmosphere more than 500 hours per twelve (12) consecutive month period with compliance determined at the end of each month.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>QUARTER:</th>
<th>YEAR:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Month</th>
<th>Column 1</th>
<th>Column 2</th>
<th>Column 1 + Column 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>This Month (Hrs)</td>
<td>Previous 11 Months (Hrs)</td>
<td>12 Month Total (Hrs)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

☐ No deviation occurred in this quarter.

☐ Deviation/s occurred in this quarter.

Deviation has been reported on:

Submitted by: ________________________________
Title / Position: ________________________________
Signature: ________________________________
Date: ________________________________
Phone: ________________________________
Part 70 Quarterly Report

Source Name: POET Biorefining - Portland, LLC
Source Address: 1542 South 200 West, Portland, Indiana 47371
Part 70 Permit No.: T075-38211-00032
Facility: Four (4) Centrifuges (EU024)
Parameter: Hours Vented To Atmosphere
Limit: The Four (4) Centrifuges (EU024) shall not vent to the atmosphere more than 500 hours per twelve (12) consecutive month period with compliance determined at the end of each month.

<table>
<thead>
<tr>
<th>QUARTER:</th>
<th>YEAR:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Month</th>
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<th>Column 2</th>
<th>Column 1 + Column 2</th>
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<tr>
<td></td>
<td>This Month (Hrs)</td>
<td>Previous 11 Months (Hrs)</td>
<td>12 Month Total (Hrs)</td>
</tr>
</tbody>
</table>

- □ No deviation occurred in this quarter.
- □ Deviation/s occurred in this quarter.
  Deviation has been reported on:

Submitted by: ________________________________
Title / Position: ________________________________
Signature: ________________________________
Date: ________________________________
Phone: ________________________________
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
COMPLIANCE AND ENFORCEMENT BRANCH

Part 70 Quarterly Report

Source Name: POET Biorefining - Portland, LLC
Source Address: 1542 South 200 West, Portland, Indiana 47371
Part 70 Permit No.: T075-38211-00032
Facility: Ethanol Loading Rack EU036
Parameter: Combined total load-out of undenatured ethanol, denatured ethanol and E-85
Limit: Less than 107,756,000 gallons per twelve (12) consecutive month period with compliance determined at the end of each month.

<table>
<thead>
<tr>
<th>QUARTER:</th>
<th>YEAR:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Month</th>
<th>Column 1</th>
<th>Column 2</th>
<th>Column 1 + Column 2</th>
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<tbody>
<tr>
<td></td>
<td>This Month</td>
<td>Previous 11 Months</td>
<td>12 Month Total</td>
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<tr>
<td></td>
<td>(Gallons)</td>
<td>(Gallons)</td>
<td>(Gallons)</td>
</tr>
</tbody>
</table>

- □ No deviation occurred in this quarter.
- □ Deviation/s occurred in this quarter.
  Deviation has been reported on:

Submitted by: ____________________________
Title / Position: ____________________________
Signature: ____________________________
Date: ____________________________
Phone: ____________________________
Part 70 Quarterly Report

Source Name: POET Biorefining - Portland, LLC
Source Address: 1542 South 200 West, Portland, Indiana 47371
Part 70 Permit No.: T075-38211-00032
Facility: Ethanol Loading Rack EU036
Parameter: Total load-out of 100% denaturant
Limit: Less than 5,000,000 gallons per twelve (12) consecutive month period with compliance determined at the end of each month.

| QUARTER: __________________ | YEAR: __________________ |

<table>
<thead>
<tr>
<th>Month</th>
<th>Column 1 (Gallons)</th>
<th>Column 2 (Gallons)</th>
<th>Column 1 + Column 2 (Gallons)</th>
</tr>
</thead>
<tbody>
<tr>
<td>This Month</td>
<td></td>
<td>Previous 11 Months</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>12 Month Total</td>
</tr>
</tbody>
</table>

- □ No deviation occurred in this quarter.
- □ Deviation/s occurred in this quarter.
  Deviation has been reported on:

Submitted by: __________________________
Title / Position: _________________________
Signature: _______________________________
Date: _________________________________
Phone: _________________________________
Part 70 Quarterly Report

Source Name: POET Biorefining - Portland, LLC
Source Address: 1542 South 200 West, Portland, Indiana 47371
Part 70 Permit No.: T075-38211-00032
Facility: Diesel-fired Generator (EU037)
Parameter: Hours Operated
Limit: The generator (EU037) shall not operate more than 500 hours per twelve (12) consecutive month period with compliance determined at the end of each month.

<table>
<thead>
<tr>
<th>QUARTER</th>
<th>YEAR</th>
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</thead>
</table>

<table>
<thead>
<tr>
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<td>This Month (Hrs)</td>
<td>Previous 11 Months (Hrs)</td>
<td>12 Month Total (Hrs)</td>
</tr>
</tbody>
</table>

- [ ] No deviation occurred in this quarter.
- [ ] Deviation/s occurred in this quarter.
  Deviation has been reported on:

Submitted by: ________________________________
Title / Position: ________________________________
Signature: ________________________________
Date: ________________________________
Phone: ________________________________
This report shall be submitted quarterly based on a calendar year. Proper notice submittal under Section B - Emergency Provisions satisfies the reporting requirements of paragraph (a) of Section C - General Reporting. Any deviation from the requirements of this permit, the date(s) of each deviation, the probable cause of the deviation, and the response steps taken must be reported. A deviation required to be reported pursuant to an applicable requirement that exists independent of the permit, shall be reported according to the schedule stated in the applicable requirement and does not need to be included in this report. Additional pages may be attached if necessary. If no deviations occurred, please specify in the box marked "No deviations occurred this reporting period".

- NO DEVIATIONS OCCURRED THIS REPORTING PERIOD.
- THE FOLLOWING DEVIATIONS OCCURRED THIS REPORTING PERIOD

<table>
<thead>
<tr>
<th>Permit Requirement (specify permit condition #)</th>
<th>Date of Deviation</th>
<th>Duration of Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Deviations:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Probable Cause of Deviation:</td>
<td></td>
<td></td>
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<tr>
<td>Response Steps Taken:</td>
<td></td>
<td></td>
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<tr>
<td>Response Steps Taken:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Permit Requirement (specify permit condition #)</td>
<td></td>
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<tr>
<td>-----------------------------------------------</td>
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</tr>
<tr>
<td>Date of Deviation:</td>
<td>Duration of Deviation:</td>
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<td></td>
</tr>
<tr>
<td>Probable Cause of Deviation:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Response Steps Taken:</td>
<td></td>
<td></td>
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</tbody>
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</tr>
<tr>
<td>Probable Cause of Deviation:</td>
</tr>
<tr>
<td>Response Steps Taken:</td>
</tr>
</tbody>
</table>

Form Completed by: ____________________________
Title / Position: ____________________________
Date: ____________________________
Phone: ____________________________
Source Description and Location

Source Name: POET Biorefining - Portland, LLC
Source Location: 1542 South 200 West, Portland, Indiana, 47371
County: Jay
SIC Code: 2869 (Industrial Organic Chemicals, Not Elsewhere Classified)
2048 (Prepared Feeds and Feed Ingredients for Animals and Fowls, Except for Dogs and Cats)

Operation Permit No.: T075-38211-00032
Operation Permit Issuance Date: July, 27, 2017
Significant Source Modification No.: 075-41725-00032
Significant Permit Modification No.: 075-41904-00032
Permit Reviewer: Taylor Wade

Existing Approvals

The source was issued Part 70 Operating Permit Renewal No. T075-38211-00032 on July, 27, 2017. The source has since received the following approvals:

(a) Significant Source Modification No. 075-39174-00032, issued on March 2, 2018; and
(b) Significant Permit Modification No. 075-39233-00032, Issued on March 22, 2018.

County Attainment Status

The source is located in Jay County.

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Designation</th>
</tr>
</thead>
<tbody>
<tr>
<td>SO₂</td>
<td>Better than national standards.</td>
</tr>
<tr>
<td>CO</td>
<td>Unclassifiable or attainment effective November 15, 1990.</td>
</tr>
<tr>
<td>O₃</td>
<td>Unclassifiable or attainment effective July 20, 2012, for the 2008 8-hour ozone standard.¹</td>
</tr>
<tr>
<td>PM₂.₅</td>
<td>Unclassifiable or attainment effective April 5, 2005, for the annual PM₂.₅ standard.</td>
</tr>
<tr>
<td>PM₂.₅</td>
<td>Unclassifiable or attainment effective December 13, 2009, for the 24-hour PM₂.₅ standard.</td>
</tr>
<tr>
<td>PM₁₀</td>
<td>Unclassifiable effective November 15, 1990.</td>
</tr>
<tr>
<td>NO₂</td>
<td>Cannot be classified or better than national standards.</td>
</tr>
<tr>
<td>Pb</td>
<td>Unclassifiable or attainment effective December 31, 2011.</td>
</tr>
</tbody>
</table>

¹Unclassifiable or attainment effective October 18, 2000, for the 1-hour ozone standard which was revoked

(a) Ozone Standards

Volatile organic compounds (VOC) and Nitrogen Oxides (NOₓ) are regulated under the Clean Air Act (CAA) for the purposes of attaining and maintaining the National Ambient Air Quality Standards (NAAQS) for ozone. Therefore, VOC and NOₓ emissions are considered when evaluating the rule applicability relating to ozone. Jay County has been designated as attainment or unclassifiable for ozone. Therefore, VOC and NOₓ emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2.
(b) PM$_{2.5}$
Jay County has been classified as attainment for PM$_{2.5}$. Therefore, direct PM$_{2.5}$, SO$_2$, and NOx emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2.

(c) Other Criteria Pollutants
Jay County has been classified as attainment or unclassifiable in Indiana for all the other criteria pollutants. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2.

### Fugitive Emissions

The source includes a grain elevator, an ethanol production operation, and package boilers which support the ethanol plant with a total heat input rating of greater than 250 million British thermal units per hour (MMBtu/hr).

(1) EPA published a final rule in the Federal Register on May 1, 2007, that excluded ethanol production facilities that produce ethanol through natural fermentation, from the major source category “Chemical Process Plants”. Therefore, the fugitive emissions from ethanol production facilities are no longer counted toward determination of PSD, Emission Offset, and Part 70 Permit applicability.

(2) The grain elevator has an applicable New Source Performance Standard (Standards of Performance for Grain Elevators, Subpart DD) that was in effect on August 7, 1980; therefore its fugitive emissions are counted toward the determination of PSD applicability.

(3) The boilers, with a total heat input rating of greater than 250 MMBtu/hr are considered one of the 28 listed source categories, based on the EPA guidance for “nesting activities”. Therefore, any fugitive emissions from these boilers are counted toward PSD, Emission Offset, and Part 70 Permit applicability.

### Greenhouse Gas (GHG) Emissions

On June 23, 2014, in the case of *Utility Air Regulatory Group v. EPA*, cause no. 12-1146, (available at [http://www.supremecourt.gov/opinions/13pdf/12-1146_4q18.pdf](http://www.supremecourt.gov/opinions/13pdf/12-1146_4q18.pdf)) the United States Supreme Court ruled that the U.S. EPA does not have the authority to treat greenhouse gases (GHGs) as an air pollutant for the purpose of determining operating permit applicability or PSD Major source status. On July 24, 2014, the U.S. EPA issued a memorandum to the Regional Administrators outlining next steps in permitting decisions in light of the Supreme Court’s decision. U.S. EPA’s guidance states that U.S. EPA will no longer require PSD or Title V permits for sources “previously classified as ‘Major’ based solely on greenhouse gas emissions.”

The Indiana Environmental Rules Board adopted the GHG regulations required by U.S. EPA at 326 IAC 2-2-1(zz), pursuant to Ind. Code § 13-14-9-8(h) (Section 8 rulemaking). A rule, or part of a rule, adopted under Section 8 is automatically invalidated when the corresponding federal rule, or part of the rule, is invalidated. Due to the United States Supreme Court Ruling, IDEM, OAQ cannot consider GHG emissions to determine operating permit applicability or PSD applicability to a source or modification.

### Source Status - Existing Source

The table below summarizes the potential to emit of the entire source, prior to the proposed modification, after consideration of all enforceable limits established in the effective permits. If the control equipment
has been determined to be integral, the table reflects the potential to emit (PTE) after consideration of the
integral control device.

<table>
<thead>
<tr>
<th>Source-Wide Emissions Prior to Modification (ton/year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PM$^1$</td>
</tr>
<tr>
<td>Total PTE of Entire Source</td>
</tr>
<tr>
<td>Title V Major Source Thresholds</td>
</tr>
<tr>
<td>PSD Major Source Thresholds</td>
</tr>
</tbody>
</table>

1Under the Part 70 Permit program (40 CFR 70), PM$_{10}$ and PM$_{2.5}$, not particulate matter (PM), are each considered as
a “regulated air pollutant.”

2PM$_{2.5}$ listed is direct PM$_{2.5}$.

3Single highest source-wide HAP

*Fugitive HAP emissions are always included in the source-wide emissions.

(a) This existing source is not a major stationary source, under PSD (326 IAC 2-2), because no PSD
regulated pollutant is emitted at a rate of two hundred fifty (250) tons per year or more and it is
not one of the twenty-eight (28) listed source categories, as specified in 326 IAC 2-2-1(ff)(1).

(b) This existing source is not a major source of HAPs, as defined in 40 CFR 63.2, because HAPs
emissions are less than ten (10) tons per year for any single HAP and less than twenty-five (25)
tons per year of a combination of HAPs. Therefore, this source is an area source under Section
112 of the Clean Air Act (CAA).

(c) These emissions are based on the TSD of TV Significant Permit No.: T075-39233-00032, issued
on March 22, 2018.

### Description of Proposed Modification

The Office of Air Quality (OAQ) has reviewed an application, submitted by POET Biorefining - Portland,
on July 29, 2019, relating to the following changes:

1. The source is adding a denaturant loading rack to the ethanol loading system.
2. Increasing PM, PM$_{10}$, PM$_{2.5}$, VOC, methanol, Acrolein and total HAP limits of emissions from the
   RTO stack (SV009) to bring the limited emissions of this source to similar levels of other POET
   Biorefining sources. (no physical change)
3. Adding a total HAP emissions limit of the RTO stack (SV009)
4. Increasing the Acetaldehyde emission limit of the Scrubber
5. Correcting the loading rates of the Ethanol loading truck and rail racks (no physical change).
6. Correcting the maximum rating of the two (2) existing boilers to accurately reflect their
descriptions (there is no physical modification associated with this change).
7. Updating the emission descriptions of the Corn Oil process tanks and Slurry Tanks to clarify that
   they are not all controlled by the RTO (there is no physical modification associated with this
   change).
8. Increasing the VOC, Hexane and Total HAP emission limits of the Ethanol Loading system to
   allow for the loadout of 100% denaturant.
9. Changing the existing emergency generator to non-emergency operation and adding a usage
   limit.

The following is a list of the modified emission units and pollution control device(s):
(a) One (1) ethanol loading system, identified as EU036, constructed in 2006 and modified in 2007 and 2019. This unit is controlled by enclosed flare CE015, which is fueled by natural gas and has a pilot gas flare heat input capacity of 54,000 Btu/hr, and exhausts through stack SV016, consisting of the following components:

1. Two (2) truck loading racks, identified as EU036a and EU036b, each with a maximum throughput of 43,200 gallons/hr (86,400 gal/hr total) when loading ethanol and 39,000 gal/hr when loading 100% denaturant.

2. One (1) rail loading rack, identified as EU036c, with a maximum throughput of 72,000 gallons of ethanol per hour.

Enforcement Issues

There are no pending enforcement actions related to this modification.

Emission Calculations

See Appendix A of this Technical Support Document for detailed emission calculations.

Permit Level Determination – Part 70 Modification to an Existing Source

Pursuant to 326 IAC 2-1.1-1(12), Potential to Emit is defined as “the maximum capacity of a stationary source or emission unit to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or type or amount of material combusted, stored, or processed shall be treated as part of its design if the limitation is enforceable by the U. S. EPA, IDEM, or the appropriate local air pollution control agency.”

The following table is used to determine the appropriate permit level under 326 IAC 2-7-10.5. This table reflects the PTE before controls. If the control equipment has been determined to be integral, the table reflects the potential to emit (PTE) after consideration of the integral control device.

<table>
<thead>
<tr>
<th>Process / Emission Unit</th>
<th>PM</th>
<th>PM$_{10}$</th>
<th>PM$_{2.5}$</th>
<th>SO$_2$</th>
<th>NO$_x$</th>
<th>VOC</th>
<th>CO</th>
<th>Single HAP$^2$</th>
<th>Total HAPs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Denaturant Loading Rack</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>1518.55</td>
<td>0.00</td>
<td>261.18 (Hexane)</td>
<td>530.89</td>
</tr>
<tr>
<td>Increase in Tank T002</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.02</td>
<td>0.00</td>
<td>7.17E-03 (Hexane)</td>
<td>1.11E-03</td>
</tr>
<tr>
<td>Increase in Tank T005</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.57</td>
<td>0.00</td>
<td>7.17E-03 (Hexane)</td>
<td>3.34E-02</td>
</tr>
<tr>
<td>Total PTE Before Controls of the New Emission Units:</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>1519.15</td>
<td>0.00</td>
<td>261.19 (Hexane)</td>
<td>530.92</td>
</tr>
</tbody>
</table>

$^1$PM$_{2.5}$ listed is direct PM$_{2.5}$.

$^2$Single highest HAP.

Appendix A of this TSD reflects the detailed potential emissions of the modification.

(a) Approval to Construct
Pursuant to 326 IAC 2-7-10.5(g)(4), a Significant Source Modification is required because this modification has the potential to emit VOC at greater than or equal to twenty-five (25) tons per year.

Pursuant to 326 IAC 2-7-10.5(g)(6), a Significant Source Modification is required because this modification has a potential to emit greater than or equal to ten (10) tons per year of a single HAP and twenty-five (25) tons per year of any combination of HAPs.

(b) Approval to Operate

Pursuant to 326 IAC 2-7-12(d)(1), this change to the permit is being made through a Significant Permit Modification because this modification does not qualify as a Minor Permit Modification or as an Administrative Amendment.

### Permit Level Determination – PSD

The table below summarizes the potential to emit of the modification, reflecting all limits, of the emission units. Any control equipment is considered federally enforceable only after issuance of the Part 70 source and permit modification, and only to the extent that the effect of the control equipment is made practically enforceable in the permit. If the control equipment has been determined to be integral, the table reflects the potential to emit (PTE) after consideration of the integral control device.

<table>
<thead>
<tr>
<th>Process / Emission Unit</th>
<th>PM</th>
<th>PM_{10}</th>
<th>PM_{2.5}^{1}</th>
<th>SO_2</th>
<th>NO_x</th>
<th>VOC</th>
<th>CO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Denaturant Loading Rack</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.44</td>
<td>0.00</td>
</tr>
<tr>
<td>Increase in Tank T002</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.02</td>
<td>0.00</td>
</tr>
<tr>
<td>Increase in Tank T005</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.57</td>
<td>0.00</td>
</tr>
<tr>
<td><strong>Total for Modification</strong></td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>1.03</td>
<td>0.00</td>
</tr>
<tr>
<td>PSD Major Source Thresholds</td>
<td>250</td>
<td>250</td>
<td>250</td>
<td>250</td>
<td>250</td>
<td>250</td>
<td>250</td>
</tr>
</tbody>
</table>

^{1}PM_{2.5} listed is direct PM_{2.5}.

The source opted to take limit(s) in order to render the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) not applicable to this modification. See Technical Support Document (TSD) State Rule Applicability - Entire Source section, 326 IAC 2-2 (PSD) and 326 IAC 2-3 (Emission Offset) for more information regarding the limit(s).

(a) This modification to an existing minor PSD stationary source is not major because the emissions increase of each PSD regulated pollutant is less than the PSD major source threshold. Therefore, pursuant to 326 IAC 2-2, the PSD requirements do not apply.

### PTE of the Entire Source After Issuance of the Part 70 Modification

The table below summarizes the after issuance source-wide potential to emit, reflecting all limits, of the emission units. Any control equipment is considered federally enforceable only after issuance of the Part 70 source and permit modification, and only to the extent that the effect of the control equipment is made practically enforceable in the permit. If the control equipment has been determined to be integral, the table reflects the potential to emit (PTE) after consideration of the integral control device.
### Source-Wide Emissions After Issuance (ton/year)

<table>
<thead>
<tr>
<th>Source</th>
<th>PM1</th>
<th>PM10</th>
<th>PM2.5</th>
<th>SO2</th>
<th>NOx</th>
<th>VOC</th>
<th>CO</th>
<th>Single HAP</th>
<th>Total HAPs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total PTE of Entire Source Including Fugitives*</td>
<td>229.17</td>
<td>239.60</td>
<td>240.71</td>
<td>54.79</td>
<td>195.31</td>
<td>200.06</td>
<td>217.70</td>
<td>9.89</td>
<td>22.15</td>
</tr>
<tr>
<td>Title V Major Source Thresholds</td>
<td>NA</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>--</td>
<td>25</td>
</tr>
<tr>
<td>PSD Major Source Thresholds</td>
<td>250</td>
<td>250</td>
<td>250</td>
<td>250</td>
<td>250</td>
<td>250</td>
<td>250</td>
<td>--</td>
<td>--</td>
</tr>
</tbody>
</table>

*Under the Part 70 Permit program (40 CFR 70), PM10 and PM2.5, not particulate matter (PM), are each considered as a "regulated air pollutant."
2PM2.5 listed is direct PM2.5.
3Single highest source-wide HAP

*Fugitive HAP emissions are always included in the source-wide emissions.

The source opted to take limit(s) in order to render the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) not applicable to this source and to render the source an area source of HAP emissions under Section 112 of the Clean Air Act (CAA). See Technical Support Document (TSD) State Rule Applicability - Entire Source section, and 326 IAC 20 (Hazardous Air Pollutants) for more information regarding the limit(s).

(a) This existing minor PSD stationary source will continue to be minor under 326 IAC 2-2 because the emissions of each PSD regulated pollutant will continue to be less than the PSD major source thresholds.

(b) This existing area source of HAP will continue to be an area source of HAP, as defined in 40 CFR 63.2, because HAP emissions will continue to be less than ten (10) tons per year for any single HAP and less than twenty-five (25) tons per year of a combination of HAPs. Therefore, this source is an area source under Section 112 of the Clean Air Act (CAA).

### Federal Rule Applicability Determination

Due to the modification at this source, federal rule applicability has been reviewed as follows:

**New Source Performance Standards (NSPS):**

(a) The new denaturant loading rack is subject to the New Source Performance Standards for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry for Which Construction, Reconstruction, or Modification Commenced After November 7, 2006, 40 CFR 60, Subpart VVa and 326 IAC 12, because ethanol is listed as a chemical produced by affected facilities in 40 CFR 60.489. The unit subject to this rule includes the following:

(1) One (1) ethanol loading system, identified as EU036, consisting of two (2) racks for trucks, one (1) rack for railcars, constructed in 2006 and modified in 2007, and one (1) denaturant loading rack, approved for construction in 2019, with a maximum throughput rate of 86,400 gallons of ethanol per hour when loading trucks, 72,000 gallons of ethanol per hour when loading railcars, and 39,000 gallons of denaturant per hour. This unit is controlled by enclosed flare CE015, which is fueled by natural gas and has a pilot gas flare heat input capacity of 54,000 Btu/hr, and exhausts through stack SV016.

The unit is subject to the following portions of Subpart VVa.

(1) 40 CFR 60.480(a), (b), (c), (d), and (f)
(2) 40 CFR 60.481a
(3) 40 CFR 60.482-1a
(4) 40 CFR 60.482-2a
(5) 40 CFR 60.482-3a
(6) 40 CFR 60.482-4a
(7) 40 CFR 60.482-5a
(8) 40 CFR 60.482-6a
(9) 40 CFR 60.482-7a
(10) 40 CFR 60.482-8a
(11) 40 CFR 60.482-9a
(12) 40 CFR 60.482-10a
(13) 40 CFR 60.482-11a
(14) 40 CFR 60.483-1a
(15) 40 CFR 60.483-2a
(16) 40 CFR 60.484a
(17) 40 CFR 60.485a
(18) 40 CFR 60.486a
(19) 40 CFR 60.487a
(20) 40 CFR 60.488a
(21) 40 CFR 60.489a

The requirements of 40 CFR Part 60, Subpart A – General Provisions, which are incorporated as 326 IAC 12-1, apply to the unit except as otherwise specified in 40 CFR 60, Subpart VVa.

(b) The diesel generator (EU037) is subject to the New Source Performance Standards for Stationary Compression Ignition Internal Combustion, 40 CFR 60, Subpart IIII and 326 IAC 12, because it was constructed after July 11, 2005 and was manufactured after April 1, 2006. Construction commenced in 2006. This unit was considered an emergency generator prior to this modification and the applicable requirements to this subpart are being revised to reflect non-emergency usage. This unit has a displacement of <30 liters per cylinder. The unit subject to this rule includes the following:

One (1) diesel generator, identified as EU037, constructed in 2006, with a maximum power output rate of 3017.25 HP (2,250 kW), and exhausting to stack SV015.

The generator is subject to the following portions of Subpart IIII.

(1) 40 CFR 60.4200 (a)(2)(i) and (4)
(2) 40 CFR 60.4204 (a)
(3) 40 CFR 60.4206
(4) 40 CFR 60.4207(a), (b)
(5) 40 CFR 60.4208 (a)
(6) 40 CFR 60.4211 (a), (b),(g)(3),
(7) 40 CFR 60.4212
(8) 40 CFR 60.4214 (a)
(9) 40 CFR 60.4218
(10) 40 CFR 60.4219
(11) Table 1 to 40 CFR 60, Subpart III
(12) Table 8 to 40 CFR 60, Subpart IIII

The requirements of 40 CFR Part 60, Subpart A – General Provisions, which are incorporated as 326 IAC 12-1, apply to the unit except as otherwise specified in 40 CFR 60, Subpart IIII.

(c) There are no other New Source Performance Standards (40 CFR Part 60) and 326 IAC 12 included in the permit for this proposed modification.
National Emission Standards for Hazardous Air Pollutants (NESHAP):

(d) The requirements of the National Emission Standards for Hazardous Air Pollutants (NESHAPs) for Gasoline Terminals and Pipeline Breakout Stations, 40 CFR 63, Subpart R and 326 IAC 20-10 are not included in the permit for the new denaturant loading rack, since the source is not a major source of HAPs.

(e) The requirements of the National Emission Standards for Hazardous Air Pollutants (NESHAPs) for Petroleum Refineries, 40 CFR 63, Subpart CC and 326 IAC 20-16 are not included in the permit for new denaturant loading rack, since the source is not a major source of HAPs.

(f) The diesel generator (EU037) is subject to the National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines, 40 CFR 63, Subpart ZZZZ, which is incorporated by reference as 326 IAC 20-82. because this unit is a stationary reciprocating internal combustion engine (RICE) at an area source of HAPs. This unit was previously considered an emergency generator. The source would like to have the option of running the generator up to 500 hours per year for peak shaving purposes. Because of this, the generator can not be considered "emergency" under 40 CFR 63.6675.

EU037 is subject to the following portions of Subpart ZZZZ:

(1) 40 CFR 63.6580
(2) 40 CFR 63.6585
(3) 40 CFR 63.6590 (a)(2)(iii), and (c)(1)
(4) 40 CFR 63.6595 (a)(6)
(5) 40 CFR 63.6665
(6) 40 CFR 63.6670
(7) 40 CFR 63.6675

The requirements of 40 CFR Part 63, Subpart A – General Provisions, which are incorporated as 326 IAC 20-1, apply to the generator except as otherwise specified in 40 CFR 63, Subpart ZZZZ.

(g) The requirements of the National Emission Standards for Hazardous Air Pollutants (NESHAPs) for Source Category: Gasoline Distribution Bulk Terminals, Bulk Plants, and Pipeline Facilities, 40 CFR 63, Subpart BBBBBB are not included in the permit for the denaturant loading racks (EU036), since natural gasoline (denaturant) does not meet the industry standards to be considered gasoline for the purposes of the rule. Per §63.11100, Gasoline means any petroleum distillate or petroleum distillate/alcohol blend having a Reid vapor pressure of 27.6 kilopascals or greater, which is used as a fuel for internal combustion engines. Natural gas is not directly used as fuel for internal combustion engines, and typically does not have a RVP greater than 27.6 kpa. This determination was made by the EPA Region 7 in 2017 during discussions between POET, Iowa Department of Natural Resources, and EPA.

(h) There are no other National Emission Standards for Hazardous Air Pollutants under 40 CFR 63, 326 IAC 14 and 326 IAC 20 included for this proposed modification.

Compliance Assurance Monitoring (CAM):

(a) Pursuant to 40 CFR 64.2, Compliance Assurance Monitoring (CAM) is applicable to each pollutant-specific emission unit that meets the following criteria:

(1) has a potential to emit before controls equal to or greater than the major source threshold for the regulated pollutant involved;

(2) is subject to an emission limitation or standard for that pollutant (or a surrogate thereof); and
(3) uses a control device, as defined in 40 CFR 64.1, to comply with that emission limitation or standard.

(b) Pursuant to 40 CFR 64.2(b)(1)(i), emission limitations or standards proposed after November 15, 1990 pursuant to a NSPS or NESHAP under Section 111 or 112 of the Clean Air Act are exempt from the requirements of CAM. Therefore, an evaluation was not conducted for any emission limitations or standards proposed after November 15, 1990 pursuant to a NSPS or NESHAP under Section 111 or 112 of the Clean Air Act.

The following table is used to identify the applicability of CAM to new and modified emission unit and each emission limitation or standard for a specified pollutant based on the criteria specified under 40 CFR 64.2:

<table>
<thead>
<tr>
<th>Emission Unit/Pollutant</th>
<th>Control Device</th>
<th>Applicable Emission Limitation</th>
<th>Uncontrolled PTE (tons/year)</th>
<th>Controlled PTE (tons/year)</th>
<th>CAM Applicable (Y/N)</th>
<th>Large Unit (Y/N)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Denaturant Loading Rack (VOC)</td>
<td></td>
<td>326 IAC 2-2</td>
<td>&gt;100</td>
<td>&lt;100</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td>Denaturant Loading Rack (HAPs) (total and single)</td>
<td></td>
<td>Area Source Limits</td>
<td>≥25</td>
<td>&lt;25</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td>Denaturant Loading Rack (HAPs)(Acetaldehyde)</td>
<td></td>
<td>Area Source Limits</td>
<td>&lt;10</td>
<td>&lt;10</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>Denaturant Loading Rack (HAPs)(Benzene)</td>
<td></td>
<td>Area Source Limits</td>
<td>≥10</td>
<td>&lt;10</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td>Denaturant Loading Rack (HAPs)(Cumene)</td>
<td></td>
<td>Area Source Limits</td>
<td>≥10</td>
<td>&lt;10</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td>Denaturant Loading Rack (HAPs)(Ethylbenzene)</td>
<td></td>
<td>Area Source Limits</td>
<td>≥10</td>
<td>&lt;10</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td>Denaturant Loading Rack (HAPs)(Hexane)</td>
<td></td>
<td>Area Source Limits</td>
<td>≥10</td>
<td>&lt;10</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td>Denaturant Loading Rack (HAPs)(Methanol)</td>
<td></td>
<td>Area Source Limits</td>
<td>&lt;10</td>
<td>&lt;10</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>Denaturant Loading Rack (HAPs)(Toluene)</td>
<td></td>
<td>Area Source Limits</td>
<td>≥10</td>
<td>&lt;10</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td>Denaturant Loading Rack (HAPs)(Xylenes)</td>
<td></td>
<td>Area Source Limits</td>
<td>≥10</td>
<td>&lt;10</td>
<td>Y</td>
<td>N</td>
</tr>
</tbody>
</table>

Uncontrolled PTE (tpy) and controlled PTE (tpy) are evaluated against the Major Source Threshold for each pollutant. Major Source Threshold for criteria pollutants (PM10, PM2.5, SO2, NOX, VOC and CO) is 100 tpy, for a single HAP ten (10) tpy, and for total HAPs twenty-five (25) tpy.

Under the Part 70 Permit program (40 CFR 70), PM is not a regulated pollutant.

Controls: BH = Baghouse, C = Cyclone, DC = Dust Collection System, RTO = Regenerative or Recuperative Thermal Oxidizer, WS = Wet Scrubber, ESP = Electrostatic Precipitator

Emission units without air pollution controls are not subject to CAM. Therefore, they are not listed.

Based on this evaluation, the requirements of 40 CFR Part 64, CAM, are applicable to the denaturant loading rack, which is considered as an "other unit," for VOC and HAPs upon issuance of the Part 70 Permit Renewal. A CAM plan must be submitted as part of the Part 70 Operating Permit Renewal application.

State Rule Applicability - Entire Source

Due to this modification, state rule applicability has been reviewed as follows:

326 IAC 2-2 (PSD) and 326 IAC 2-3 (Emission Offset)

PSD and Emission Offset applicability is discussed under the Permit Level Determination – PSD and Emission Offset section of this document.
PSD/EO Minor Source Limits

In order to render the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) not applicable, the Permittee shall comply with the following:

(a) Unless operating under Alternative Operating Scenario No. 1 (AOS1) or No. 2 (AOS2):

1. The scrubber (CE008) and RTO (CE009) shall control emissions from the fermentation and distillation processes.

2. The RTO (CE009) shall control emissions from the DDGS dryers (EU025 and EU026).

3. The RTO (CE009) shall control emissions from the set of four centrifuges (EU024).

The emissions from the RTO (CE009) stack exhaust (SV009) shall be limited as follows:

4. PM emissions shall not exceed 33.1 lbs/hr.

5. PM10 emissions shall not exceed 33.1 lbs/hr.

6. PM2.5 emissions shall not exceed 33.1 lbs/hr.

7. VOC emissions shall not exceed 30.8 lbs/hr.

8. CO emissions shall not exceed 41.95 lbs/hr.

(b) Alternative Operating Scenario No. 1 (AOS1)

When the Scrubber (CE008) is not operating, the Permittee shall comply with the following:

1. The RTO (CE009) shall control emissions from the fermentation and distillation processes.

2. The RTO (CE009) shall control emissions from the DDGS dryers (EU025 and EU026).

3. The RTO (CE009) shall control emissions from the set of four centrifuges (EU024).

The emissions from the RTO (CE009) stack exhaust (SV009) shall be limited as follows:

4. PM emissions shall not exceed 33.1 lbs/hr.

5. PM10 emissions shall not exceed 33.1 lbs/hr.

6. PM2.5 emissions shall not exceed 33.1 lbs/hr.

7. VOC emissions shall not exceed 30.8 lbs/hr.

8. CO emissions shall not exceed 41.95 lbs/hr.

(c) Alternative Operating Scenario No. 2 (AOS2)

When the RTO (CE009) is not operating, the Permittee shall comply with the following:
(1) The Scrubber (CE008) shall control emissions from the fermentation and distillation processes and exhaust to the RTO bypass stack exhaust (SV008) shall be limited as follows:

(A) VOC emissions shall not exceed 79.39 lbs/hr.

Compliance with these limits, combined with the potential to emit PM, PM10, PM2.5, VOC from all other emission units at this source, shall limit the source-wide total potential to emit of PM, PM10, PM2.5, VOC to less than 250 tons per twelve (12) consecutive month period, each, and shall render the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) not applicable.

326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants (HAP))
The provisions of 326 IAC 2-4.1 apply to any owner or operator who constructs or reconstructs a major source of hazardous air pollutants (HAP), as defined in 40 CFR 63.41, after July 27, 1997, unless the major source has been specifically regulated under or exempted from regulation under a NESHAP that was issued pursuant to Section 112(d), 112(h), or 112(j) of the Clean Air Act (CAA) and incorporated under 40 CFR 63. On and after June 29, 1998, 326 IAC 2-4.1 is intended to implement the requirements of Section 112(g)(2)(B) of the Clean Air Act (CAA).

The operation of this source will emit less than ten (10) tons per year for a single HAP and less than twenty-five (25) tons per year for a combination of HAPs. Therefore, 326 IAC 2-4.1 does not apply.

326 IAC 2-7-6(5) (Annual Compliance Certification)
The U.S. EPA Federal Register 79 FR 54978 notice does not exempt Title V Permittees from the requirements of 40 CFR 70.6(c)(5)(iv) or 326 IAC 2-7-6(5)(D), but the submittal of the Title V annual compliance certification to IDEM satisfies the requirement to submit the Title V annual compliance certifications to EPA. IDEM does not intend to revise any permits since the requirements of 40 CFR 70.6(c)(5)(iv) or 326 IAC 2-7-6(5)(D) still apply, but Permittees can note on their Title V annual compliance certifications that submission to IDEM has satisfied reporting to EPA per Federal Register 79 FR 54978. This only applies to Title V Permittees and Title V compliance certifications.

326 IAC 20 (Hazardous Air Pollutants)
In order to render the source an area source of HAP emissions under Section 112 of the Clean Air Act (CAA), the Permittee shall comply with the following:

(a) Unless operating under Alternative Operating Scenario No. 1 (AOS1) or No. 2 (AOS2):

(1) Acetaldehyde emissions shall not exceed 1.27 lbs/hr.
(2) Methanol emissions shall not exceed 1.0 lbs/hr.
(3) Acrolein emissions shall not exceed 1.09 lbs/hr.
(4) Formaldehyde emissions shall not exceed 1.0 lb/hr
(5) Total HAP emissions shall not exceed 2.50 lbs/hr.
(b) Alternative Operating Scenario No. 1 (AOS1)

When the Scrubber (CE008) is not operating, the Permittee shall comply with the following:

(1) Acetaldehyde emissions shall not exceed 1.27 lbs/hr.
(2) Methanol emissions shall not exceed 1.0 lbs/hr.
(3) Acrolein emissions shall not exceed 1.09 lbs/hr.

(4) Formaldehyde emissions shall not exceed 1.0 lb/hr

(5) Total HAP emissions shall not exceed 2.50 lbs/hr.

(c) Alternative Operating Scenario No. 2 (AOS2)

When the RTO (CE009) is not operating, the Permittee shall comply with the following:

(1) The Scrubber (CE008) shall control emissions from the fermentation and distillation processes and exhaust to the RTO bypass stack exhaust (SV008) shall be limited as follows:

(A) Acetaldehyde emissions shall not exceed 9.0 lbs/hr.

(d) Benzene emissions from the ethanol loading rack (EU036), exhausting to stack SV016 shall not exceed 0.062 lbs/kgal.

(e) Cumene emissions from the ethanol loading rack (EU036), exhausting to stack SV016 shall not exceed 0.062 lbs/kgal.

(f) Ethylbenzene emissions from the ethanol loading rack (EU036), exhausting to stack SV016 shall not exceed 0.062 lbs/kgal.

(g) Hexane Emissions from the ethanol loading rack (EU036), exhausting to stack SV016 shall not exceed 0.062 lb/kgal.

(h) Toluene emissions from the ethanol loading rack (EU036), exhausting to stack SV016 shall not exceed 0.062 lbs/kgal.

(i) Xylene emissions from the ethanol loading rack (EU036), exhausting to stack SV016 shall not exceed 0.062 lbs/kgal.

(j) Total HAP emissions from the ethanol loading rack (EU036), exhausting to stack SV016 shall not exceed 0.062 lb/kgal.

Compliance with these limits, combined with the potential to emit HAP from all other emission units at the source, shall limit the source-wide potential to emit single HAP to less than 10 tons per twelve (12) consecutive month period and the source-wide potential to emit total HAPs to less than 25 tons per twelve (12) consecutive month period, and shall render the source an area source of HAP emissions under Section 112 of the Clean Air Act (CAA).

<table>
<thead>
<tr>
<th>State Rule Applicability – Individual Facilities</th>
</tr>
</thead>
</table>

Due to this modification, state rule applicability has been reviewed as follows:

**Denaturant Loading Rack**

326 IAC 8-1-6 (VOC Rules: General Reduction Requirements for New Facilities)

This denaturant loading rack was constructed after January 1, 1980, and its unlimited VOC potential emissions are equal to or greater than twenty-five (25) tons per year and the denaturant loading rack is not regulated by other rules in 326 IAC 8. The source has opted to limit the potential to emit VOC from the denaturant loading rack to less than twenty-five (25) tons per twelve (12) consecutive month period in
In order to render the requirements of 326 IAC 8-1-6 not applicable. Therefore, the unit is not subject to the requirements of 326 IAC 8-1-6.

In order to render the requirements of 326 IAC 8-1-6 not applicable, Permittee shall comply with the following:

1. The combined total loadout of denaturant from loading rack EU036 shall not exceed 5,000,000 gallons per twelve (12) consecutive month period with compliance determined at the end of each month.

2. VOC emissions from the ethanol loading system (EU036) shall not exceed 8.89 lbs/kgal.

Compliance Determination and Monitoring Requirements

Permits issued under 326 IAC 2-7 are required to assure that sources can demonstrate compliance with all applicable state and federal rules on a continuous basis. All state and federal rules contain compliance provisions; however, these provisions do not always fulfill the requirement for a continuous demonstration. When this occurs, IDEM, OAQ, in conjunction with the source, must develop specific conditions to satisfy 326 IAC 2-7-5. As a result, Compliance Determination Requirements are included in the permit. The Compliance Determination Requirements in Section D of the permit are those conditions that are found directly within state and federal rules and the violation of which serves as grounds for enforcement action.

If the Compliance Determination Requirements are not sufficient to demonstrate continuous compliance, they will be supplemented with Compliance Monitoring Requirements, also in Section D of the permit. Unlike Compliance Determination Requirements, failure to meet Compliance Monitoring conditions would serve as a trigger for corrective actions and not grounds for enforcement action. However, a violation in relation to a compliance monitoring condition will arise through a source’s failure to take the appropriate corrective actions within a specific time period.

(a) The Compliance Determination Requirements applicable to this modification are as follows:

Testing Requirements:

Summary of Testing Requirements

<table>
<thead>
<tr>
<th>Emission Unit</th>
<th>Control Device</th>
<th>Timeframe for Testing or Date of Initial Valid Demonstration</th>
<th>Pollutant/Parameter</th>
<th>Frequency of Testing</th>
<th>Authority</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanol Loading System (EU036)</td>
<td>Flare (CE015)</td>
<td>Not later than 180 days after startup of denaturant loading rack</td>
<td>VOC, Benzene, Cumene, Ethylbenzene, Hexane, Toluene, Xylene</td>
<td>Every 5 years</td>
<td>326 IAC 2-7-5(1)</td>
</tr>
</tbody>
</table>

(b) There are no new Compliance Monitoring Requirements applicable to this proposed modification. The Permittee will continue to comply with the existing requirements.

Proposed Changes

As part of this permit approval, the permit may contain new or different permit conditions and some conditions from previously issued permits/approvals may have been corrected, changed, or removed. These corrections, changes, and removals may include Title I changes.

The following changes listed below are due to the proposed modification. Deleted language appears as strikethrough text and new language appears as bold text (these changes may include Title I changes):
(1) The unit description of the ethanol loading system (EU036) has been amended to include the denaturant rack and updated throughputs of the existing truck and rail racks.

(2) Emission limits in Section D.2.1 have been modified.

(3) Updated language in Section D.2.1(c)(4) and added reporting form to permit.

(3) Existing emission limits of the ethanol loading system (EU036) have been modified in section D.5 of the permit and new limits for denaturant loading have been added to the section.

(4) The description of the existing boilers have been updated to reflect the correct maximum heat input rate of the units.

(5) The description of the Corn oil tanks (EU040-EU044) has been updated to reflect that the tanks vent to the atmosphere and not to the thermal oxidizer (CE009)

(6) The description of the Slurry Tank (EU011) has been updated to reflect that the unit exhausts to the atmosphere.

(7) Added Section D.6 for the requirements for the now non-emergency generator.

(8) Revised the applicable requirements of 40 CFR 60, Subpart III, as listed in section E.4.

(9) Revised the applicable requirements of 40 CFR 63, Subpart ZZZZ, as listed in section E.5.

Additional Changes

IDEM, OAQ made additional changes to the permit as described below in order to update the language to match the most current version of the applicable rule, to eliminate redundancy within the permit, and to provide clarification regarding the requirements of these conditions.

These permit changes include model updates to standard permit language that are applicable to this source,

(1) IDEM, OAQ has made model updates to standard permit language in the Sections B.9 and B.19 of the permit to update the U.S EPA Region 5, instead of Region V.

A.2 Emission Units and Pollution Control Equipment Summary [326 IAC 2-7-4(c)(3)[326 IAC 2-7-5(14)]

This stationary source consists of the following emission units and pollution control devices:

(j) Two (2) natural gas fired boilers, identified as EU027 and EU028, constructed in 2006, each with a maximum heat input rate of 443 MMBtu/hr each, with emissions exhausting to stacks SV013 and SV014, respectively.

(n) One (1) ethanol loading system, identified as EU036, consisting of two (2) racks for trucks and one (1) rack for railcars constructed in 2006 and modified in 2007, with a maximum throughput rate of 39,000 gallons per hour when loading trucks, and 144,000 gallons per hour when loading railcars. This unit is controlled by enclosed flare CE015, which is fueled by natural gas and has a pilot gas flare heat input capacity of 54,000 Btu/hr, and exhausts through stack SV016.

One (1) ethanol loading system, identified as EU036, constructed in 2006 and modified in 2007 and 2019. This unit is controlled by enclosed flare CE015, which is fueled by natural
gas and has a pilot gas flare heat input capacity of 54,000 Btu/hr, and exhausts through stack SV016. Consisting of the following components:

1. Two (2) truck loading racks, identified as EU036a and EU036b, each with a maximum throughput of 43,200 gallons/hr (86,400 gal/hr total) when loading ethanol and 39,000 gal/hr when loading 100% denaturant.

2. One (1) rail loading rack, identified as EU036c, with a maximum throughput of 72,000 gallons of ethanol per hour.

Under NSPS, Subpart VVa, equipment (as defined in 40 CFR 60.481a) within a process unit is an affected facility.

A.4 Insignificant Activities [326 IAC 2-7-1(21)[326 IAC 2-7-4(c)][326 IAC 2-7-5(14)]

This stationary source also includes the following insignificant activities which are not specifically regulated, as defined in 326 IAC 2-7-1(21):

(f) Other emission units, not regulated by a NESHAP, with PM10, NOx, and SO2 emissions less than five (5) pounds per hour or twenty-five (25) pounds per day, CO emissions less than twenty-five (25) pounds per day, VOC emissions less than three (3) pounds per hour or fifteen (15) pounds per day, lead emissions less than six-tenths (0.6) tons per year or three and twenty-nine hundredths (3.29) pounds per day, and emitting greater than one (1) pound per day but less than five (5) pounds per day or one (1) ton per year of a single HAP, or emitting greater than one (1) pound per day but less than twelve and five tenths (12.5) pounds per day or two and five tenths (2.5) ton per year of any combination of HAPs:

1. One (1) diesel storage tank, identified as T006, constructed in 2006, with a maximum storage capacity less than 2,000 gallons of diesel fuel.

2. One (1) thin stillage tank, identified as T007, constructed in 2006, with a maximum storage capacity of 500,000 gallons of thin stillage.

3. One (1) syrup tank, identified as T008, constructed in 2006, with a maximum storage capacity of 61,000 gallons of syrup.

4. Five (5) process tanks, identified as EU040 through EU044, constructed in 2012, used for pH adjustment and used to accept corn oil and defatted syrup process streams from the centrifuges. Their exhaust leads to the thermal oxidizer CE009 and stack SV009. Tanks EU040 through EU042 exhaust to the thermal oxidizer CE009, while tanks EU043 and EU044 exhaust to the atmosphere.

5. Two (2) large oil storage tanks, identified as EU045 and EU046 constructed in 2012, each with a maximum storage capacity of 30,000 gallons, each with a maximum true vapor pressure less than 15.0 kPa, used for storage of corn oil prior to loading into trucks for sale.

6. One (1) slurry tank, identified as EU011, constructed in 2006, and exhausting to the atmosphere.

B.9 Annual Compliance Certification [326 IAC 2-7-6(5)]

(a) The Permittee shall annually submit a compliance certification report which addresses the status of the source’s compliance with the terms and conditions contained in this permit, including emission limitations, standards, or work practices. All certifications shall
cover the time period from January 1 to December 31 of the previous year, and shall be submitted no later than July 1 of each year to:

Indiana Department of Environmental Management
Compliance and Enforcement Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

and

United States Environmental Protection Agency, Region V
Air and Radiation Division, Air Enforcement Branch - Indiana (AE-17J)
77 West Jackson Boulevard
Chicago, Illinois 60604-3590

B.19 Operational Flexibility [326 IAC 2-7-20][326 IAC 2-7-10.5]

(a) The Permittee may make any change or changes at the source that are described in 326 IAC 2-7-20(b) or (c) without a prior permit revision, if each of the following conditions is met:

(1) The changes are not modifications under any provision of Title I of the Clean Air Act;

(2) Any preconstruction approval required by 326 IAC 2-7-10.5 has been obtained;

(3) The changes do not result in emissions which exceed the limitations provided in this permit (whether expressed herein as a rate of emissions or in terms of total emissions);

(4) The Permittee notifies the:

Indiana Department of Environmental Management
Permit Administration and Support Section, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

and

United States Environmental Protection Agency, Region V
Air and Radiation Division, Regulation Development Branch - Indiana (AR-18J)
77 West Jackson Boulevard
Chicago, Illinois 60604-3590

D.2.1 PSD and HAP Minor Limits [326 IAC 2-2][326 IAC 2-4.1]

In order to render the requirements of 326 IAC 2-2 (PSD) and 326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants (HAP)) not applicable, the Permittee shall comply with the following:

(a) Unless operating under Alternative Operating Scenario No. 1 (AOS1) or No. 2 (AOS2):

(1) The scrubber (CE008) and RTO (CE009) shall control emissions from the fermentation and distillation processes.

(2) The RTO (CE009) shall control emissions from the DDGS dryers (EU025 and EU026).
The RTO (CE009) shall control emissions from the set of four centrifuges (EU024).

The emissions from the RTO (CE009) stack exhaust (SV009) shall be limited as follows:

4. PM emissions shall not exceed 24.24 33.1 lbs/hr.
5. PM10 emissions shall not exceed 27.97 33.1 lbs/hr.
6. PM2.5 emissions shall not exceed 29.55 33.1 lbs/hr.
7. VOC emissions shall not exceed 27.40 30.8 lbs/hr.
8. CO emissions shall not exceed 41.95 lbs/hr.
9. Acetaldehyde emissions shall not exceed 1.27 lbs/hr.
10. Methanol emissions shall not exceed 0.22 1.0 lbs/hr.
11. Acrolein emissions shall not exceed 0.24 1.09 lbs/hr.
12. Formaldehyde emissions shall not exceed 1.0 lb/hr.
13. Total HAP emissions shall not exceed 2.50 lb/hr.

Alternative Operating Scenario No. 1 (AOS1)

When the Scrubber (CE008) is not operating, the Permittee shall comply with the following:

1. The RTO (CE009) shall control emissions from the fermentation and distillation processes.
2. The RTO (CE009) shall control emissions from the DDGS dryers (EU025 and EU026).
3. The RTO (CE009) shall control emissions from the set of four centrifuges (EU024).

The emissions from the RTO (CE009) stack exhaust (SV009) shall be limited as follows:

4. PM emissions shall not exceed 24.24 33.1 lbs/hr.
5. PM10 emissions shall not exceed 27.97 33.1 lbs/hr.
6. PM2.5 emissions shall not exceed 29.55 33.1 lbs/hr.
7. VOC emissions shall not exceed 27.40 30.8 lbs/hr.
8. CO emissions shall not exceed 41.95 lbs/hr.
9. Acetaldehyde emissions shall not exceed 1.27 lbs/hr.
10. Methanol emissions shall not exceed 0.22 1.0 lbs/hr.
11. Acrolein emissions shall not exceed 0.24 1.09 lbs/hr.
(12) **Formaldehyde emissions shall not exceed 1.0 lb/hr**

(13) **Total HAP emissions shall not exceed 2.50 lb/hr.**

(c) **Alternative Operating Scenario No. 2 (AOS2)**

When the RTO (CE009) is not operating, the Permittee shall comply with the following:

(1) The Scrubber (CE008) shall control emissions from the fermentation and distillation processes and exhaust to the RTO bypass stack exhaust (SV008) shall be limited as follows:

   (A) VOC emissions shall not exceed 79.39 lbs/hr.

   (B) Acetaldehyde emissions shall not exceed 5.5 9.00 lbs/hr.

(2) The scrubber (CE008) shall not vent to the atmosphere (RTO bypass stack SV008) more than 500 hours per twelve (12) consecutive month period with compliance determined at the end of each month.

(3) The DDGS dryers (EU25 and EU26) shall not be in operation.

(4) The set of four centrifuges (EU024) shall vent to atmosphere through SV017. The time the set of four centrifuges vent to atmosphere shall not exceed 500 hours per year twelve (12) consecutive month period with compliance determined at the end of each month.

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D.2.3 **VOC BACT [326 IAC 8-1-6]**

Pursuant to 326 IAC 8-1-6 (VOC BACT), the Permittee shall comply with the following when using a feedstock other than whole kernel corn, or in combination with whole kernel corn, to produce a meal that is then used in the production of fuel grade ethanol:

(f) The VOC emissions shall not exceed 27-40 30.8 lbs/hr when the scrubber and RTO are controlling emissions or when the RTO only is controlling emissions.

D.2.6 **VOC and HAP Control**

(a) Unless operating under AOS1 or AOS2:

   In order to assure compliance with Condition D.2.1(a):

   (1) the regenerative thermal oxidizer (RTO) CE009 and the scrubber CE008 shall be in operation and control emissions from the fermentation and distillation processes at all times that these processes are in operation.

   (2) the regenerative thermal oxidizer (RTO) CE009 shall be in operation and control emissions from the DDGS dryers (EU25 and EU26) at all times that the dryers are in operation.

   (3) the regenerative thermal oxidizer (RTO) CE009 shall be in operation and control emissions from the set of four centrifuges (EU024) at all times that the set of four whole stillage centrifuges are in operation.

(b) When operating under AOS1: (Scrubber Downtime)

   In order to assure compliance with D.2.1(b), the RTO CE009 shall be in operation and control emissions from the fermentation and distillation processes, DDGS dryers, and the set up four (4) centrifuges (EU024) at all times that these processes are in operation.
When operating under AOS2: (RTO Downtime)
In order to assure compliance with D.2.1(c), the scrubber CE008 shall be in operation and control emissions from the fermentation and distillation processes at all times that these processes are in operation.

SECTION D.3  EMISSIONS UNIT OPERATION CONDITIONS – Boilers

Emissions Unit Description:

(j) Two (2) natural gas fired boilers, identified as EU027 and EU028, constructed in 2006, each with a maximum heat input rate of 143\text{146} MMBtu/hr each, with emissions exhausting to stacks SV013 and SV014, respectively.

Under NSPS, 40 CFR 60, Subpart Db, these units are considered affected facilities

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

SECTION D.5  EMISSIONS UNIT OPERATION CONDITIONS

Ethanol Loading Racks

Emissions Unit Description:

(n) One (1) ethanol loading system, identified as EU036, consisting of two (2) racks for trucks and one (1) rack for railcars constructed in 2006 and modified in 2007, with a maximum throughput rate of 39,000 gallons per hour when loading trucks, and 144,000 gallons per hour when loading railcars. This unit is controlled by enclosed flare CE015, which is fueled by natural gas and has a pilot gas flare heat input capacity of 54,000 Btu/hr, and exhausts through stack SV016.

One (1) ethanol loading system, identified as EU036, constructed in 2006 and modified in 2007 and 2019. This unit is controlled by enclosed flare CE015, which is fueled by natural gas and has a pilot gas flare heat input capacity of 54,000 Btu/hr, and exhausts through stack SV016., consisting of the following components:

1. Two (2) truck loading racks, identified as EU036a and EU036b, each with a maximum throughput of 43,200 gallons/hr (86,400 gal/hr total) when loading ethanol and 39,000 gal/hr when loading 100% denaturant.

2. One (1) rail loading rack, identified as EU036c, with a maximum throughput of 72,000 gallons of ethanol per hour.

Under NSPS, Subpart VVa, equipment (as defined in 40 CFR 60.481a) within a process unit is an affected facility.

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.5.1 PSD and HAP Minor Limits [326 IAC 2-2][326 IAC 2-4.1][40 CFR 63]

Pursuant to 326 IAC 2-7-5 (Part 70), the Permittee shall comply with the following emission limits for the ethanol loading racks:

(a) The combined total load-out of undenatured ethanol, denatured ethanol and E-85 from loading rack EU036 shall not exceed 107,756,000 gallons per twelve (12) consecutive month period with compliance determined at the end of each month.
(b) The Permittee shall use flare CE015 to control the emissions from the ethanol loading rack (EU036).

(c) CO emissions from flare CE015 shall not exceed 0.084 lbs/kgal.

(d) NOx emissions from flare CE015 shall not exceed 0.0334 lbs/kgal.

(e) The VOC emissions from enclosed flare CE015 shall not exceed 7.24 0.118 lb/kgal lbs/hr.

(f) The VOC emissions from enclosed flare CE015 shall not exceed 0.178 lb/kgal, when loading 100% denaturant.

(g) Benzene emissions from the ethanol loading rack (EU036), exhausting to stack SV016 shall not exceed 0.062 lbs/kgal.

(h) Cumene emissions from the ethanol loading rack (EU036), exhausting to stack SV016 shall not exceed 0.062 lbs/kgal.

(i) Ethylbenzene emissions from the ethanol loading rack (EU036), exhausting to stack SV016 shall not exceed 0.062 lbs/kgal.

(j) Hexane emissions from the ethanol loading rack (EU036), exhausting to stack SV016 shall not exceed 0.062 lb/kgal lbs/hr.

(k) Toluene emissions from the ethanol loading rack (EU036), exhausting to stack SV016 shall not exceed 0.062 lbs/kgal.

(l) Xylene emissions from the ethanol loading rack (EU036), exhausting to stack SV016 shall not exceed 0.062 lbs/kgal.

(m) Total HAP emissions from the ethanol loading rack (EU036), exhausting to stack SV016, shall not exceed 1.193 0.062 lb/kgal lbs/hr.

(n) The ethanol loading rack shall utilize submerged loading method when loading trucks and railcars.

(o) The railcars and trucks shall not use vapor balance services.

(p) The flare CE015 shall be designed as a smokeless flare.

Compliance with these limits, in conjunction with the potential to emit VOC, CO, and NOx from all other emission units at this source, shall limit the source-wide total potential to emit of VOC, CO, and NOx to less than two hundred fifty (250) tons per twelve (12) consecutive month period.

Compliance with these limits, combined with the potential to emit HAPs from all other emission units at this source, shall limit the source-wide total potential to emit of any single HAP to less than ten (10) tons per twelve (12) consecutive month period, total HAPs to less than twenty-five (25) tons per twelve (12) consecutive month period, and shall render the requirements of 326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants (HAP) not applicable, and this source is an area source of HAP emissions under Section 112 of the Clean Air Act (CAA).

D.5.2 VOC Emissions [326 IAC 8-5-6]

Pursuant to 326 IAC 8-5-6 (Fuel Grade Ethanol Production at Dry Mills), the Permittee shall comply with the following when using whole kernel corn to produce a meal that is then used in the production of fuel grade ethanol:
(a) The VOC emissions from the ethanol loading rack (EU036) shall be collected and controlled by enclosed flare CE015.

(b) The overall control efficiency for the vapor collection system and enclosed flare CE015 (including the capture efficiency and destruction efficiency) shall be at least 98%.

D.5.3 VOC BACT [326 IAC 8-1-6]

Pursuant to 326 IAC 8-1-6 (VOC BACT), the Permittee shall comply with the following when using a feedstock other than whole kernel corn, or in combination with whole kernel corn, to produce a meal that is then used in the production of fuel grade ethanol:

(a) The VOC emissions from the ethanol loading rack shall be collected and controlled by an enclosed flare.

(b) The overall control efficiency for the vapor collection system and enclosed flare (including the capture efficiency and destruction efficiency) shall be at least 98%.

(c) The VOC emissions from the ethanol loadout operation shall not exceed \(7.24 \times 14.54\) lb/hr.

D.5.4 VOC Emission Limitation [326 IAC 8-1-6]

In order to render the requirements of 326 IAC 8-1-6 (New Facilities; General Reduction Requirements) not applicable, the Permittee shall comply with the following:

(a) The total load-out of 100% denaturant from loading rack EU036 shall not exceed 5,000,000 gallons per twelve (12) consecutive month period with compliance determined at the end of each month.

(b) VOC emissions from the loading of 100% denaturant shall not exceed 8.89 lbs/kgal.

Compliance with these limits, shall limit the potential to emit of VOC to less than twenty-five (25) tons per twelve (12) consecutive month period from the loading of 100% denaturant and shall render the requirements of 326 IAC 8-1-6 not applicable.

D.5.45 Preventive Maintenance Plan [326 IAC 2-7-5(12)]

A Preventive Maintenance Plan is required for these facilities and any control devices. Section B - Preventive Maintenance Plan contains the Permittee's obligation with regard to the preventive maintenance plan required by this condition.

D.5.56 VOC Control

In order to assure compliance with Conditions D.5.1, D.5.2, and D.5.3, enclosed flare CE015 shall be in operation and control emissions from the ethanol loading rack (EU036) at all times when this unit is in operation.

D.5.67 Testing Requirements [326 IAC 2-1.1-11]

Only Whole Kernel Corn Feedstock

(a) In order to demonstrate compliance with Conditions D.5.1, D.5.2, and D.5.3, the Permittee shall perform VOC (including emission rate, destruction efficiency, and capture efficiency), CO, NOx and hexane testing for enclosed flare CE015 utilizing methods as approved by the Commissioner.
Feedstock Other than Only Whole Kernel Corn

(b) Within sixty (60) days of utilizing a non-whole corn kernel for which testing has not previously been conducted, in order to demonstrate compliance with Conditions D.5.1, D.5.2, and D.5.3, the Permittee shall perform VOC (including emission rate, destruction efficiency, and capture efficiency), CO, NOx and hexane testing of the enclosed flare CE015 utilizing methods as approved by the Commissioner.

(c) These tests shall be repeated at least once every five (5) years from the date of the most recent valid compliance demonstration. Testing shall be conducted in accordance with 326 IAC 3-6 (Source Sampling Procedures). Section C - Performance Testing contains the Permittee’s obligation with regard to the performance testing required by this condition.

Compliance Monitoring Requirements  [326 IAC 2-7-5(1)][326 IAC 2-7-6(1)]

D.5.78 Flare Pilot Flame [326 IAC 8-5-6][40 CFR 64]

In order to ensure compliance with Conditions D.5.1, D.5.2, and D.5.3, the Permittee shall monitor the presence of a flare pilot flame for flare CE015 using a thermocouple or any other equivalent device to detect the presence of a flame when ethanol loading rack EU036 is in operation. If a condition exists which should result in a response step, the Permittee shall take a reasonable response. Section C - Response to Excursions or Exceedances contains the Permittee’s obligation with regard to the response steps required by this condition. Failure to take response steps shall be considered a deviation from this permit.

Record Keeping and Reporting Requirement  [326 IAC 2-8-4(3)][326 IAC 2-8-16]

D.5.89 Record Keeping Requirements

(a) To document the compliance status with Condition D.5.1(a), the Permittee shall maintain monthly records of the total amount of undenatured ethanol, denatured ethanol and E-85 loaded out from loading rack EU036.

(b) To document the compliance status with Condition D.5.1(b), the Permittee shall maintain monthly records of the total amount of 100% denaturant loaded out from loading rack EU036.

(bc) To document the compliance status with Condition D.5.7, the Permittee shall maintain records of temperature or other parameters sufficient to demonstrate the presence of a pilot flame when loading rack EU036 is in operation.

(ed) Section C - General Record Keeping Requirements contains the Permittee’s obligation with regard to the recordkeeping requirements of this requirement.

D.5.910 Reporting Requirements

A quarterly summary of the information to document the compliance status with Conditions D.5.1(a) and D.5.2(b) shall be submitted not later than thirty (30) days following the end of the calendar quarter. The report submitted by the Permittee does require a certification that meets the requirements of 326 IAC 2-7-6(1) by a "responsible official" as defined by 326 IAC 2-7-1(35). Section C - General Reporting Requirements contains the Permittee’s obligations with regard to the reporting required by this condition.

SECTION D.6 EMISSIONS UNIT OPERATION CONDITIONS

Diesel-Fired Generator

Emissions Unit Description:
(o) One (1) diesel generator, identified as EU037, constructed in 2006, with a maximum power output rate of 3017.25 HP (2,250 kW), and exhausting to stack SV015.

Under 40 CFR 60, Subpart III this is an affected unit. Under 40 CFR 63, subpart ZZZZ this is a new affected unit.

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.6.1 PSD Minor Limits [326 IAC 2-2]

In order to render the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) not applicable, the Permittee shall comply with the following:

(1) The diesel-fired generator (EU037) shall not operate more than five hundred (500) hours per twelve (12) consecutive month period with compliance determined at the end of each month.

(2) CO emissions from EU037 shall not exceed 0.0055 lb/HP-hr.

(3) NOx emissions from EU037 shall not exceed 0.024 lb/HP-hr.

Compliance with these limits, combined with the potential to emit NOx and CO from all other emission units at this source, shall limit the source-wide total potential to emit of NOx and CO to less than two-hundred fifty (250) tons per twelve (12) consecutive month period, each and shall render the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) not applicable.

D.6.2 Preventive Maintenance Plan [326 IAC 2-7-5(12)]

A Preventive Maintenance Plan is required for these facilities and any control devices. Section B - Preventive Maintenance Plan contains the Permittee’s obligation with regard to the preventive maintenance plan required by this condition.

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-19]

D.6.3 Record Keeping Requirements

(a) To document the compliance status with Condition D.6.1, the Permittee shall maintain monthly records of the total hours generator (EU037) operated.

(b) Section C - General Record Keeping Requirements contains the Permittee’s obligation with regard to the records required by this condition.

D.6.4 Reporting Requirements

A quarterly summary of the information to document the compliance status with D.6.1 shall be submitted not later than thirty (30) days after the end of the quarter being reported. Section C - General Reporting contains the Permittee’s obligation with regard to the reporting required by this condition.

The report submitted by the Permittee does require a certification that meets the requirements of 326 IAC 2-7-6(1) by a “responsible official,” as defined by 326 IAC 2-7-1(35).
**Emissions Unit Description:**

(e) One (1) fermentation process, constructed in 2006, modified in 2016, and approved in 2018 for modification to increase the maximum production rate from 60,000 to 69,000 gallons of beer per hour, controlled by scrubber CE008 and regenerative thermal oxidizer (RTO) CE009, with emissions exhausted through SV009. During scrubber downtime, emissions from the fermentation process are controlled by the RTO with emissions exhausted through stack SV009. During RTO downtime, emissions from the fermentation process are controlled by the scrubber and exhausted through RTO bypass stack SV008. This process consists of the following:

1. Five (5) fermenters, identified as EU012 through EU016, constructed in 2006.
2. One (1) fermenter, identified as EU047, constructed in 2016.
3. One (1) fermenter, identified as EU048, approved in 2018 for construction.
4. One (1) yeast propagation tank, identified as EU017, constructed in 2006.
5. One (1) beer well, identified as EU018, constructed in 2006.

(g) One (1) distillation process, constructed in 2006, modified in 2016, and approved in 2018 for modification to increase the maximum input rate from 60,000 to 69,000 gallons of beer per hour, with a maximum production rate of 12,000 gallons of ethanol per hour, controlled by scrubber CE008 and regenerative thermal oxidizer (RTO) CE009, with emissions exhausted through stack SV009. During scrubber downtime, emissions from the distillation process are controlled by the RTO with emissions exhausted through stack SV009. During RTO downtime, emissions from the distillation process are controlled by the scrubber and exhausted through RTO bypass stack SV008.

1. One (1) beer stripper, identified as EU019, constructed in 2006.
2. One (1) rectifier column, identified as EU020, constructed in 2006.
3. One (1) side stripper, identified as EU021, constructed in 2006.
4. One (1) set of three (3) molecular sieves, identified as EU022, constructed in 2006.
5. One (1) set of four (4) evaporators, identified as EU023, constructed in 2006.

(n) One (1) ethanol loading system, identified as EU036, consisting of two (2) racks for trucks and one (1) rack for railcars constructed in 2006 and modified in 2007, with a maximum throughput rate of 39,000 gallons per hour when loading trucks and 144,000 gallons per hour when loading railcars. This unit is controlled by enclosed flare CE015, which is fueled by natural gas and has a pilot gas flare heat input capacity of 54,000 Btu/hr, and exhausts through stack SV016.

One (1) ethanol loading system, identified as EU036, constructed in 2006 and modified in 2007 and 2019. This unit is controlled by enclosed flare CE015, which is fueled by natural gas and has a pilot gas flare heat input capacity of 54,000 Btu/hr, and exhausts through stack SV016, consisting of the following components:

1. Two (2) truck loading racks, identified as EU036a and EU036b, each with a maximum throughput of 43,200 gallons/hr (86,400 gal/hr total) when loading ethanol and 39,000 gal/hr when loading 100% denaturant.
(2) One (1) rail loading rack, identified as EU036c, with a maximum throughput of 72,000 gallons of ethanol per hour.

Under 40 CFR 60, Subpart VVa, these are considered process units, and the pumps, compressors, pressure relief devices, sampling connection systems, open-ended valves or lines, valves, and flanges or other connectors in VOC service of these process units are considered to be affected facilities.

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

SECTION E.4 NSPS

Emissions Unit Description:

(o) One (1) diesel generator, identified as EU037, constructed in 2006, with a maximum power output rate of 3017.25 HP (2,250 kW), and exhausting to stack SV015.

Under 40 CFR 60, Subpart III this is an affected unit. Under 40 CFR 63, subpart ZZZZ this is a new affected unit.

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

***

E.4.2 Stationary Compression Ignition Internal Combustion Engines NSPS [326 IAC 12][40 CFR Part 60, Subpart III]

The Permittee shall comply with the following provisions of 40 CFR Part 60, Subpart III (included as Attachment E to the operating permit), which are incorporated by reference as 326 IAC 12, for the emission unit(s) listed above:

(1) 40 CFR 60.4200 (a)(2)(i) and (c4)
(2) 40 CFR 60.42054 (ba)
(3) 40 CFR 60.4206
(4) 40 CFR 60.4207(a), (b), and (c)
(5) 40 CFR 60.4208 (a)
(6) 40 CFR 60.4209
(7) 40 CFR 60.4211 (a), (b), (g)(3) (c)(f)(1), (f)(2)(i), (f)(3)
(8) 40 CFR 60.4212
(9) 40 CFR 60.4214 (b) and (c)(a)
(10) 40 CFR 60.4218
(11) 40 CFR 60.4219
(12) Table 1 to 40 CFR 60, Subpart III
(13) Table 8 to 40 CFR 60, Subpart III

SECTION E.5 NESHAP

Emissions Unit Description:

(o) One (1) diesel generator, identified as EU037, constructed in 2006, with a maximum power output rate of 3017.25 HP (2,250 kW), and exhausting to stack SV015.

Under 40 CFR 60, Subpart III this is an affected unit. Under 40 CFR 63, subpart ZZZZ this is a new affected unit.
E.5.2 Stationary Reciprocating Internal Combustion Engines NESHAP [40 CFR Part 63, Subpart ZZZZ][326 IAC 20-82]

The Permittee shall comply with the following provisions of 40 CFR Part 63, Subpart ZZZZ (included as Attachment F to the operating permit), which are incorporated by reference as 326 IAC 20-82, for the emission unit(s) listed above:

1. 40 CFR 63.6580
2. 40 CFR 63.6585 (a), (c), and (d)
3. 40 CFR 63.6590 (a)(2)(iii), and (c)(1)
4. 40 CFR 63.6595 (a)(6), (b)
5. 40 CFR 63.6665
6. 40 CFR 63.6670
7. 40 CFR 63.6675

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
COMPLIANCE AND ENFORCEMENT BRANCH

Part 70 Quarterly Report

Source Name: POET Biorefining - Portland, LLC
Source Address: 1542 South 200 West, Portland, Indiana 47371
Part 70 Permit No.: T075-38211-00032
Facility: Ethanol Loading Rack EU036
Parameter: Total load-out of 100% denaturant
Limit: Less than 5,000,000 gallons per twelve (12) consecutive month period with compliance determined at the end of each month.

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
COMPLIANCE AND ENFORCEMENT BRANCH

Part 70 Quarterly Report

Source Name: POET Biorefining - Portland, LLC
Source Address: 1542 South 200 West, Portland, Indiana 47371
Part 70 Permit No.: T075-38211-00032
Facility: Four (4) Centrifuges (EU024)
Parameter: Hours Vented To Atmosphere
Limit: The Four (4) Centrifuges (EU024) shall not vent to the atmosphere more than 500 hours per twelve (12) consecutive month period with compliance determined at the end of each month.
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
COMPLIANCE AND ENFORCEMENT BRANCH

Part 70 Quarterly Report

Source Name: POET Biorefining - Portland, LLC
Source Address: 1542 South 200 West, Portland, Indiana 47371
Part 70 Permit No.: T075-38211-00032
Facility: Diesel-fired Generator (EU037)
Parameter: Hours Operated
Limit: The generator (EU037) shall not operate more than 500 hours per twelve (12) consecutive month period with compliance determined at the end of each month.

Conclusion and Recommendation

Unless otherwise stated, information used in this review was derived from the application and additional information submitted by the applicant. An application for the purposes of this review was received on July 29, 2019.

The construction of this proposed modification shall be subject to the conditions of the attached proposed Part 70 Significant Source Modification No. 075-41725-00032. The operation of this proposed modification shall be subject to the conditions of the attached proposed Significant Permit Modification No. 075-41904-00032.

The staff recommends to the Commissioner that the Part 70 Significant Source Modification and Significant Permit Modification be approved.

IDEM Contact

(a) If you have any questions regarding this permit, please contact Taylor Wade, Indiana Department Environmental Management, Office of Air Quality, Permits Branch, 100 North Senate Avenue, MC 61-53 IGCN 1003, Indianapolis, Indiana 46204-2251, or by telephone at (317) 233-0868 or (800) 451-6027, and ask for Taylor Wade or (317) 233-0868.

(b) A copy of the findings is available on the Internet at: http://www.in.gov/ai/appfiles/idem-caats/

(c) For additional information about air permits and how the public and interested parties can participate, refer to the IDEM Air Permits page on the Internet at: http://www.in.gov/idem/airquality/2356.htm; and the Citizens’ Guide to IDEM on the Internet at: http://www.in.gov/idem/6900.htm.
## Appendix A: Emission Calculations

### Project Parameters

**Company Name:** POET Biorefining - Portland, LLC  
**Address:** 1542 South 200 West, Portland, IN 47371  
**Significant Source Modification No.:** 075-41725-00032  
**Significant Permit Modification No.:** 075-41904-00032  
**Reviewer:** Taylor Wade

<table>
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<tr>
<th>Receiving</th>
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<th>Proposed</th>
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<tr>
<td>Annual Grain Receiving</td>
<td>37,453,184 bshel/yr</td>
<td>37,453,184 bshel/yr</td>
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<td>Denaturant Delivery (actual):</td>
<td>7,756,000 gal/yr</td>
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<td>Grain Receiving Capacity</td>
<td>30,000 bushel/hr</td>
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<tr>
<td>Grain Receiving Capacity</td>
<td>840 ton/hr</td>
<td>840 ton/hr</td>
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<tr>
<td>Annual Grain Receiving</td>
<td>1,048,689 (1) ton/yr</td>
<td>1,048,689.149 ton/yr</td>
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<tr>
<td>Grain Density:</td>
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<td>56 lb/bushel</td>
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<tr>
<td>Gallons Ethanol Produced per Bushel of Corn:</td>
<td>2.67 gal/bu</td>
<td>2.67 gal/bu</td>
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<table>
<thead>
<tr>
<th>Production</th>
<th>Current</th>
<th>Proposed</th>
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<tr>
<td>Total Production in Gallons Anhydrous Ethanol Produced per Year:</td>
<td>100,000,000 gal/yr</td>
<td>100,000,000 gal/yr</td>
</tr>
</tbody>
</table>

### E-85 Operation:

| Gallons E-85 Produced: | 10,400,000 (2) gal/yr | 10,400,000 gal/yr |
| Denaturant Throughput: | 3,120,000 (3) gal/yr | 3120000 gal/yr |
| Gallons Anhydrous Ethanol Loaded out in E-85 Service: | 7,280,000 (2) gal/yr | 7280000 gal/yr |

### Normal Denatured Ethanol Operation:

| Gallons Denatured Ethanol Produced: | 97,356,000 gal/yr | 97,356,000 gal/yr |
| Denaturant Throughput: | 4,636,000 (4) gal/yr | 4636000 gal/yr |
| Gallons Anhydrous Ethanol Loaded out in Denatured Service: | 92,720,000 (2) gal/yr | 92720000 gal/yr |

**Transloaded denaturant:** 0  
*New Proposed* 5,000,000 gal/yr

### Undenatured Ethanol Production Limit

| Combined Undenatured Ethanol, Denatured Ethanol & E-85 Loadout Rate | 107,750,000 (1) gal/yr | 107,750,000 gal/yr |

### DDGS Production

<table>
<thead>
<tr>
<th>Current</th>
<th>Proposed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hourly DDGS Production</td>
<td>33.28 ton/hr</td>
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<tr>
<td>Annual DDGS Production</td>
<td>291,536 (1) ton/yr</td>
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<tr>
<td>Percent Grain Throughput that becomes DDGS</td>
<td>27.8% (5)</td>
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</table>

### Storage Tanks

| 190 or 200 Proof Ethanol Tank (T001) | 100,000,000 gal/yr | 100000000 gal/yr |
| Denaturant Storage Tank (T002) | 5,144,601 (4) gal/yr | 5144600.69 gal/yr |
| Denatured Ethanol or 200 Proof Ethanol Storage Tank (T003) | 50,000,000 (7) gal/yr | 50000000 gal/yr |
| Denatured Ethanol or 200 Proof Ethanol Storage Tank (T004) | 50,000,000 (7) gal/yr | 50000000 gal/yr |
| Denaturant Storage Tank (T005) | 2,611,399 (6) gal/yr | 2611399.31 gal/yr |

---

(1) Current permit limit.  
(2) Assume maximum 4 MMGY of combined production is E-85.  
(3) E-85 can be blended anywhere between 70% to 83% undenatured ethanol, depending on atmospheric conditions. Assume denaturant is 30% of E-85 product.  
(4) Assume denaturant is 5% of denatured alcohol product.  
(5) Conservative estimate based on operating facilities  
(6) Assumed worst case scenario of denaturant throughput divided through tanks T002 and T005 based on tank capacities  
(7) T003 and T004 half of the denatured ethanol throughput is assumed to pass through each tank.
### Project Parameters

**Company Name:** POET Biorefining - Portland, LLC  
**Address:** 1542 South 200 West, Portland, IN 47371  
**Significant Source Modification No.:** 875-41725-00012  
**Significant Permit Modification No.:** 875-41904-00032  
**Reviewer:** Taylor Wade

#### Control Equipment

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<th>Stack/Vent</th>
<th>Control Equipment</th>
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<th>Capacity</th>
<th>Units</th>
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<td>EU001</td>
<td>Grain Receiving</td>
<td>1,947.5 MCF</td>
<td>BHP</td>
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<td>CE001</td>
<td>Grain Dryer</td>
<td>799 MCF</td>
<td>BHP</td>
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<td>CE002</td>
<td>Storage Silo</td>
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<td>CE004</td>
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<td>CE005</td>
<td>Plantation #2</td>
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<td>Generator #1</td>
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<td>CE008</td>
<td>Generator #2</td>
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<td>CE009</td>
<td>Generator #3</td>
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<td>EU010</td>
<td>Conveyors</td>
<td>840 ton/hr</td>
<td>TSP/PM10/PM2.5</td>
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<td>EU011</td>
<td>Side Stripper #1</td>
<td>840 ton/hr</td>
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<td>EU012</td>
<td>Yeast Propagation Tank #1</td>
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<td>Storage Bins</td>
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<td>Gasoline Storage Tank</td>
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#### Pollutants

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<td>NOX, SOX, VOC</td>
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#### Fugitive Source

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<tr>
<td>Grain Receiving</td>
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<td>BHP</td>
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<tr>
<td>DDGS Loading</td>
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<td>BHP</td>
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<td>Fugitive Leaks</td>
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<td>Cooling Towers</td>
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<td>Paved Roads</td>
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<tr>
<td>ONLINE Trenching</td>
<td>50</td>
<td>m</td>
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## Emission Calculations

### Appendix A: Uncontrolled Potential to Emit

**Company Name:** POET Biorefining - Portland, LLC  
**Address:** 1542 South 200 West, Portland, IN 47371  
**Significant Source Modification No.:** 075-41725-00032  
**Significant Permit Modification No.:** 075-41904-00032  
**Reviewer:** Taylor Wade

### Emission Calculations

<table>
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<tr>
<th>Emission Point</th>
<th>Description</th>
<th>PM ton/yr</th>
<th>PM10 ton/yr</th>
<th>PM2.5 ton/yr</th>
<th>SO2 ton/yr</th>
<th>NOx ton/yr</th>
<th>VOC ton/yr</th>
<th>CO ton/yr</th>
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<tr>
<td>SV001</td>
<td>Grain Receiving (EU001), Conveyors (EU002a), Storage Bins (EU003a), and DDGS Loadout Operations (EU032-EU035, EU049)</td>
<td>352.15</td>
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<td>SV002</td>
<td>Corn Scaler/Transfer Conveyors (EU004), Surge Bin (EU005)</td>
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<td>SV008</td>
<td>Scrubber Exhaust Vent / RTO By-pass Stack* (EU012-EU023) RTO Downtime</td>
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<td>RTO Stack &amp; DDGS Dryers (EU025 &amp; EU026)</td>
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<td>Ethanol Loading System (Truck and Rail) (EU036) and Flare (CE015)</td>
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<td>EU038 &amp; EU039</td>
<td>Corn Oil Centrifuges</td>
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Notes:
- Insignificant Activities
  - **T01** 190 or 200 Proof Ethanol Tank 0.43
  - **T02** Denaturant Storage Tank 1.43
  - **T03** Denatured Ethanol or 200 Proof Ethanol Storage Tank 0.35
  - **T04** Denatured Ethanol or 200 Proof Ethanol Storage Tank 0.35
  - **T05** Denaturant Storage Tank 1.43
  - **T09** Gasoline Dispensing Operation 0.21
  - **EU011** Slurry Tank 0.20
  - **EU040** Corn Oil / Defatted Syrup Process Tank 5.08E-03
  - **EU041** Corn Oil / Defatted Syrup Process Tank 3.03E-03
  - **EU042** Corn Oil / Defatted Syrup Process Tank 1.98E-03
  - **EU043** Corn Oil / Defatted Syrup Process Tank 1.30E-03
  - **EU044** Corn Oil / Defatted Syrup Process Tank 5.65E-04
  - **EU045** Corn Oil / Defatted Syrup Storage Tank 1.70E-04
  - **EU046** Corn Oil / Defatted Syrup Storage Tank 1.70E-04

- Fugitive Insignificant Activities
  - **F002** Fugitive Emissions From DDGS Loadout 12.54 | 4.23 | 0.72
  - **F003** Truck Traffic | 11.56 | 2.31 | 0.57
  - **F004** Equipment Leaks 132.81
  - **F005** Cooling Tower 8.22 | 8.22 | 8.22
  - **F008** Rail Car Venting 0.48

- **Sub-Total (Fugitive Insignificant Activities)** 32.32 | 14.76 | 9.51 | 0.00 | 0.00 | 133.29 | 0.00

Note: The source can only produce either wet cake or DDGS at one time and the worse case scenario is to assume 100% DDGS production. Therefore, wet cake production.
# Emission Calculations

## Controlled Potential to Emit

### Company Name:
POET Biorefining - Portland, LLC

### Address:
1542 South 200 West, Portland, IN 47371

### Significant Source Modification No.:
075-41725-00032

### Significant Permit Modification No.:
075-41904-00032

### Reviewer:
Taylor Wade

## Emission Calculations

### Controlled Potential to Emit

**Company Name:** POET Biorefining - Portland, LLC  
**Address:** 1542 South 200 West, Portland, IN 47371  
**Significant Source Modification No.:** 075-41725-00032  
**Significant Permit Modification No.:** 075-41904-00032  
**Reviewer:** Taylor Wade

### Emission Calculations

#### Emission Point

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<tr>
<th>Emission Point</th>
<th>Description</th>
<th>PM ton/yr</th>
<th>PM2.5 ton/yr</th>
<th>PM10 ton/yr</th>
<th>SO2 ton/yr</th>
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<th>VOC ton/yr</th>
<th>CO ton/yr</th>
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<td>SV001</td>
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<td>EU038 &amp; EU039</td>
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### Total Emissions for PSD & Part 70

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<th>SO2 ton/yr</th>
<th>NOx ton/yr</th>
<th>VOC ton/yr</th>
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### Insignificant Activities

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### Fugitive Insignificant Activities

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### Sub-Total (Insignificant Activities)

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<th>VOC ton/yr</th>
<th>CO ton/yr</th>
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<td>Sub-Total (Fugitive Insignificant Activities)</td>
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### Total Source

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<td>Total Source</td>
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<td>77.88</td>
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<td>304.87</td>
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Note: The source can only produce either wet cake or DDGS at one time and the worse case scenario is to assume 100% DDGS production. Therefore,
### Limited Potential to Emit (tons/yr)

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**Total Limited Emissions**: 229.17 | 239.60 | 240.71 | 195.31 | 54.79 | 200.06 | 217.70

* RTO By-pass is limited to operate 500 hours per year.

Note: lb/hr limits are only shown for those units that have a corresponding permit limit.
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**Appendix A: Emissions Calculations**

**HAP Emissions Summary**

**Company Name:** POET Biorefining - Portland, LLC  
**Address:** 1542 South 200 West, Portland, IN 47371  
**Significant Source Modification No.:** 075-41725-00032  
**Significant Permit Modification No.:** 075-41904-00032  
**Reviewer:** Taylor Wade
## Appendix A: Emissions Calculations
### HAP Emissions Summary

**Company Name:** POET Biorefining - Portland, LLC  
**Address:** 1542 South 200 West, Portland, IN 47371  
**Significant Source Modification No.:** 075-41725-00032  
**Significant Permit Modification No.:** 075-41904-00032  
**Reviewer:** Taylor Wade

### Appendix A: Emissions Calculations
#### HAP Emissions Summary

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<th>Dibromochloromethane</th>
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#### Fugitive Insignificant Activities

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**Total:** 3.00E+00

### Controlled Potential to Emit (tons/yr)

- SV001
- SV002
- SV003
- SV004
- SV005
- SV006
- SV007
- SV008
- SV009
- SV010
- SV011
- SV012
- SV013 & SV014
- SV015
- SV016
- EU024
- EU028 & EU029
- F001
- T001
- T002
- T003
- T004
- T005
- T006
- EU040
- EU041
- EU042
- EU043
- EU044
- EU045
- EU046
- T007
- T008
- T009
- T010
- T011
- T012
- T013
- T014
- T015
- T016
- EU040
- EU041
- EU042
- EU043
- EU044
- EU045
- EU046
- P003
- P004
- P005
- P006

**Total HAP Emissions:** 3.00E+00
## Appendix A: Emissions Calculations
### HAP Emissions Summary

**Company Name:** POET Biorefining - Portland, LLC  
**Address:** 1542 South 200 West, Portland, IN 47371  
**Significant Source Modification No.:** 075-41725-00032  
**Significant Permit Modification No.:** 075-41904-00032  
**Reviewer:** Taylor Wade

### Emissions Calculations

#### HAP Emissions Summary

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<td>Corn Oil / Defatted Syrup Storage Tank (EU040)</td>
<td>0.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F001</td>
<td>Uncaptured Grain Receiving</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.00</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td></td>
<td>9.89</td>
<td>5.44E-05</td>
<td>9.04E-06</td>
<td>9.04E-06</td>
<td>9.04E-06</td>
<td>1.13E-04</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>22.15</td>
</tr>
</tbody>
</table>

*Includes in RTO Stack Emissions except 500 hour limited by-pass.

Shaded cells indicate a limit has been taken on the pollutant for that unit.

**Highest Single HAP =** 9.89 tons/year  
**Acetaldehyde**

**Combined HAPs =** 22.15 tons/year
# Appendix A: Emissions Calculations

## Modification Summary

**Company Name:** POET Biorefining - Portland, LLC  
**Address:** 1542 South 200 West, Portland, IN 47371  
**Significant Source Modification No.:** 075-41725-00032  
**Significant Permit Modification No.:** 075-41904-00032  
**Reviewer:** Taylor Wade

<table>
<thead>
<tr>
<th>Emission Unit</th>
<th>PM</th>
<th>PM10</th>
<th>PM2.5</th>
<th>SO2</th>
<th>NOx</th>
<th>VOC</th>
<th>CO</th>
<th>Total HAPs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Denaturant Loadout (EU036)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1518.55</td>
<td>-</td>
</tr>
<tr>
<td>Increase Due to Denaturant Throughput</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1519.15</td>
</tr>
<tr>
<td>PTE of Tank T002 before Denaturant loadout</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1.41</td>
<td>- 8.17E-02</td>
</tr>
<tr>
<td>PTE of Tank T002 after Denaturant loadout</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1.43</td>
<td>- 8.28E-02</td>
</tr>
<tr>
<td>Increase in Tank 002</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0.02</td>
<td>- 1.11E-03</td>
</tr>
<tr>
<td>PTE of Tank T005 before Denaturant loadout</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0.86</td>
<td>- 4.94E-02</td>
</tr>
<tr>
<td>PTE of Tank T005 after Denaturant loadout</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1.43</td>
<td>- 8.28E-02</td>
</tr>
<tr>
<td>Increase in Tank 005</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0.57</td>
<td>- 3.34E-02</td>
</tr>
</tbody>
</table>

*Grain receiving is subject to NSPS DD, therefore uncaptured particulate emissions are counted toward PSD applicability.

**Fugitive emissions that do not count towards PSD applicability.
Appendix A: Emission Calculations
PM, PM10, NOx, SOx, VOC, CO and HAP Emissions
From the RTO controlling the Fermenters, Distillation System, and DDGS Dryers

Company Name: POET Biorefining - Portland, LLC
Address: 1542 South 200 West, Portland, IN 47371
Significant Source Modification No.: 075-41725-00032
Significant Permit Modification No.: 075-41904-00032
Reviewer: Taylor Wade

1. Process Description:
Emission point SV009 includes the emissions from the fermentation system, the distillation system, and the DDGS dryers. The fermentation system and distillation system vent to a scrubber which then exhausts into the regenerative thermal oxidizer (RTO). The DDGS dryers vent directly to the RTO. The RTO exhausts through stack SV009. The RTO is scheduled to operate 8760 hr/yr, however by permit it is allowed to be by-passed per The Alternative Operating Scenarios.

2. Potential to Emit (PTE) from fermentation, distillation and dryers:

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Emission Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>SO2</td>
<td>0.0006</td>
</tr>
</tbody>
</table>

AP-42 emission factors from Section 1.4 were converted to lb/MMBtu assuming a heating value of 1020 Btu/ft³ for natural gas.

<table>
<thead>
<tr>
<th>Unit</th>
<th>Rated Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dryers</td>
<td>120 MMBTU/Hr</td>
</tr>
<tr>
<td>RTO</td>
<td>30 MMBTU/Hr</td>
</tr>
</tbody>
</table>

Stack Test Data

<table>
<thead>
<tr>
<th>Test Results</th>
<th>Portland Stack Test - 2/5/2008 - SV009 (RTO - Normal Operations)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Run 1</td>
<td>Run 2</td>
</tr>
<tr>
<td>lb/hr</td>
<td>lb/hr</td>
</tr>
<tr>
<td>Nox</td>
<td>7.26</td>
</tr>
<tr>
<td>Process Rate</td>
<td>Run1</td>
</tr>
<tr>
<td>gpm</td>
<td>740</td>
</tr>
<tr>
<td>Beerfeed</td>
<td></td>
</tr>
<tr>
<td>Test Results</td>
<td>Portland Stack Test - 4/2013 - SV009 (RTO - Normal Operations)</td>
</tr>
<tr>
<td>Run 1</td>
<td>Run 2</td>
</tr>
<tr>
<td>lb/hr</td>
<td>lb/hr</td>
</tr>
<tr>
<td>VOC</td>
<td>11.39</td>
</tr>
<tr>
<td>Acetaldehyde</td>
<td>0.11</td>
</tr>
<tr>
<td>Process Rate</td>
<td>Run1</td>
</tr>
<tr>
<td>gpm</td>
<td>800</td>
</tr>
<tr>
<td>Beerfeed</td>
<td></td>
</tr>
<tr>
<td>Test Results</td>
<td>Portland Stack Test - 11/2016 - SV009 (RTO - Normal Operations)</td>
</tr>
<tr>
<td>Run 1</td>
<td>Run 2</td>
</tr>
<tr>
<td>lb/hr</td>
<td>lb/hr</td>
</tr>
<tr>
<td>PM</td>
<td>4.96</td>
</tr>
<tr>
<td>Process Rate</td>
<td>Run1</td>
</tr>
<tr>
<td>gpm</td>
<td>954.9</td>
</tr>
<tr>
<td>Beerfeed</td>
<td></td>
</tr>
</tbody>
</table>
Appendix A: Emission Calculations
PM, PM10, NOx, SOx, VOC, CO and HAP Emissions
From the RTO controlling the Fermenters, Distillation System, and DDGS Dryers

Company Name: POET Biorefining - Portland, LLC
Address: 1542 South 200 West, Portland, IN 47371
Significant Source Modification No.: 075-41725-00032
Significant Permit Modification No.: 075-41904-00032

Test Results Run 1 Run 2 Run 3 Average
lb/hr lb/hr lb/hr lb/hr
CO 23.18 23.28 23.18 23.21
Acrolein 0.08 0.09 0.09 0.09
Methanol 0.07 0.07 0.07 0.07
Formaldehyde 0.15 0.29 0.22 0.20
Process Rate Run1 Run 2 Run 3 Average
gpm gpm gpm gpm
Beerfeed 954.9 955.1 953.7 955

Total Emissions from the RTO Stack during Normal Operation

Controlled pound per hour emission factors are from stack test data, except for SO2. The emission factors are calculated by increasing the test results for each pollutant based on the proposed beerfeed and applying a safety factor.

<table>
<thead>
<tr>
<th>Uncontrolled</th>
<th>lbs/hr</th>
<th>TPY</th>
</tr>
</thead>
<tbody>
<tr>
<td>VOC</td>
<td>1372.80</td>
<td>5750.05</td>
</tr>
<tr>
<td>HAPs</td>
<td>33.94</td>
<td>148.67</td>
</tr>
<tr>
<td>NOx</td>
<td>17.13</td>
<td>75.01</td>
</tr>
<tr>
<td>CO</td>
<td>419.49</td>
<td>1837.36</td>
</tr>
<tr>
<td>PM</td>
<td>83.91</td>
<td>367.52</td>
</tr>
<tr>
<td>PM10</td>
<td>83.91</td>
<td>367.52</td>
</tr>
<tr>
<td>PM2.5</td>
<td>83.91</td>
<td>367.52</td>
</tr>
<tr>
<td>SO2</td>
<td>0.13</td>
<td>0.58</td>
</tr>
<tr>
<td>Acetaldehyde</td>
<td>12.46</td>
<td>54.57</td>
</tr>
<tr>
<td>Acrolein</td>
<td>5.22</td>
<td>22.87</td>
</tr>
<tr>
<td>Methanol</td>
<td>4.22</td>
<td>18.47</td>
</tr>
<tr>
<td>Formaldehyde</td>
<td>12.05</td>
<td>52.77</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Controlled</th>
<th>Existing</th>
<th>Proposed</th>
</tr>
</thead>
<tbody>
<tr>
<td>lbs/hr</td>
<td>TPY</td>
<td>lbs/hr</td>
</tr>
<tr>
<td>VOC</td>
<td>26.26</td>
<td>115.00</td>
</tr>
<tr>
<td>NOx</td>
<td>17.13</td>
<td>75.01</td>
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<tr>
<td>CO</td>
<td>41.95</td>
<td>183.74</td>
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<tr>
<td>PM</td>
<td>8.39</td>
<td>36.75</td>
</tr>
<tr>
<td>PM10</td>
<td>8.39</td>
<td>36.75</td>
</tr>
<tr>
<td>PM2.5</td>
<td>8.39</td>
<td>36.75</td>
</tr>
<tr>
<td>SO2</td>
<td>0.13</td>
<td>0.58</td>
</tr>
<tr>
<td>Acetaldehyde</td>
<td>0.37</td>
<td>1.64</td>
</tr>
<tr>
<td>Acrolein</td>
<td>0.16</td>
<td>0.69</td>
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<tr>
<td>Methanol</td>
<td>0.13</td>
<td>0.55</td>
</tr>
<tr>
<td>Formaldehyde</td>
<td>0.36</td>
<td>1.58</td>
</tr>
<tr>
<td>HAPs</td>
<td>1.02</td>
<td>4.46</td>
</tr>
</tbody>
</table>

= new proposed limit
## Emission Calculations

### From the Dryers and RTO Combustion

**Company Name:** POET Biorefining - Portland, LLC  
**Address:** 1542 South 200 West, Portland, IN 47371  
**Significant Source Modification No.:** 075-41725-00032  
**Significant Permit Modification No.:** 075-41904-00032  
**Reviewer:** Taylor Wade

#### 1. Process Description:

POET Biorefining - Portland will operate two DDG dryers. Each dryer will be 60 MMBtu/hr and be fired on natural gas. There is no back-up fuel. The dryer exhaust is directed to the RTO at all times the dryers are operating. The RTO has an estimated HAP control efficiency of 97%.

#### 2. Potential to Emit (PTE) Combustion HAPs from the dryers:

<table>
<thead>
<tr>
<th>HAP Pollutant</th>
<th>Emission Factor (lb/MMSCF)</th>
<th>Potential to Emit Emissions (lb/hr)</th>
<th>Potential to Emit Emissions (ton/yr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benzene</td>
<td>2.10E-03</td>
<td>2.47E-04</td>
<td>1.98E-03</td>
</tr>
<tr>
<td>Formamide</td>
<td>7.50E-02</td>
<td>9.26E-03</td>
<td>7.41E-03</td>
</tr>
<tr>
<td>Hexane</td>
<td>1.83E+00</td>
<td>2.12E-01</td>
<td>9.26E-01</td>
</tr>
<tr>
<td>Naphthalene</td>
<td>6.10E-04</td>
<td>7.18E-05</td>
<td>3.14E-04</td>
</tr>
<tr>
<td>Toluene</td>
<td>3.40E-03</td>
<td>4.06E-04</td>
<td>1.75E-03</td>
</tr>
<tr>
<td>Arsenic</td>
<td>2.00E-04</td>
<td>2.35E-05</td>
<td>1.08E-03</td>
</tr>
<tr>
<td>Beryllium</td>
<td>1.20E-05</td>
<td>1.41E-05</td>
<td>6.35E-03</td>
</tr>
<tr>
<td>Chromium</td>
<td>1.00E-03</td>
<td>1.20E-04</td>
<td>5.35E-04</td>
</tr>
<tr>
<td>Cobalt</td>
<td>2.00E-04</td>
<td>2.47E-04</td>
<td>1.10E-03</td>
</tr>
<tr>
<td>Lead</td>
<td>5.00E-04</td>
<td>5.88E-05</td>
<td>2.71E-04</td>
</tr>
<tr>
<td>Manganese</td>
<td>3.00E-04</td>
<td>3.60E-05</td>
<td>1.62E-04</td>
</tr>
<tr>
<td>Mercury</td>
<td>3.00E-04</td>
<td>3.60E-05</td>
<td>1.62E-04</td>
</tr>
<tr>
<td>Nickel</td>
<td>2.10E-04</td>
<td>2.47E-04</td>
<td>1.10E-03</td>
</tr>
<tr>
<td>Selenium</td>
<td>2.40E-05</td>
<td>2.82E-05</td>
<td>1.24E-04</td>
</tr>
</tbody>
</table>

1 - Emission factor is from AP-42, 5th Edition, Section 1.4, 7/98

### Total Combustion HAPs from Dryers and RTO

<table>
<thead>
<tr>
<th>HAP Pollutant</th>
<th>CAS</th>
<th>Potential to Emit Emissions (lb/hr)</th>
<th>Potential to Emit Emissions (ton/yr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benzene</td>
<td>77-04-2</td>
<td>1.09E-04</td>
<td>4.72E-04</td>
</tr>
<tr>
<td>Formamide</td>
<td>50-00-0</td>
<td>1.10E-02</td>
<td>4.83E-02</td>
</tr>
<tr>
<td>Hexane</td>
<td>156-23-1</td>
<td>2.66E-01</td>
<td>1.10E-00</td>
</tr>
<tr>
<td>Naphthalene</td>
<td>91-20-3</td>
<td>8.98E-05</td>
<td>3.98E-04</td>
</tr>
<tr>
<td>Toluene</td>
<td>108-88-3</td>
<td>5.09E-04</td>
<td>2.19E-03</td>
</tr>
<tr>
<td>Arsenic</td>
<td>7440-38-2</td>
<td>2.94E-05</td>
<td>1.34E-04</td>
</tr>
<tr>
<td>Beryllium</td>
<td>7440-41-7</td>
<td>1.76E-05</td>
<td>7.76E-04</td>
</tr>
<tr>
<td>Chromium</td>
<td>7440-43-7</td>
<td>1.62E-04</td>
<td>7.09E-04</td>
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<tr>
<td>Cobalt</td>
<td>7440-47-3</td>
<td>2.06E-04</td>
<td>9.02E-04</td>
</tr>
<tr>
<td>Lead</td>
<td>NA</td>
<td>7.35E-05</td>
<td>3.22E-04</td>
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<tr>
<td>Manganese</td>
<td>7439-98-6</td>
<td>3.56E-05</td>
<td>1.55E-04</td>
</tr>
<tr>
<td>Mercury</td>
<td>7439-97-6</td>
<td>1.82E-05</td>
<td>8.17E-04</td>
</tr>
<tr>
<td>Nickel</td>
<td>7440-02-0</td>
<td>3.56E-05</td>
<td>1.55E-04</td>
</tr>
<tr>
<td>Selenium</td>
<td>7782-49-2</td>
<td>1.53E-06</td>
<td>6.76E-05</td>
</tr>
</tbody>
</table>

1 - Emission factor is from AP-42, 5th Edition, Section 1.4, 7/98
Appendix A: Emission Calculations

VOC and HAP Emissions
From the Distillation and Fermentation Scrubber / RTO Bypass (Stack SV008)

Company Name: POET Biorefining - Portland, LLC
Address: 1542 South 200 West, Portland, IN 47371
Significant Source Modification No.: 075-41725-00032
Significant Permit Modification No.: 075-41904-00032
Reviewer: Taylor Wade

The RTO must occasionally be temporarily shut down for unscheduled maintenance or other operational reasons. In this event, the DDGS dryers will be shut down, however, the fermentation tanks and distillation systems will continue to be operated in normal mode. The emissions from these sources will be vented to the scrubber stack (RTO by-pass stack) SV008. The emissions will be controlled by the wet scrubber, CE008. This operating scenario is limited to 500 hours per year.

Scrubber VOC Control Efficiency = 95.00%
Scrubber HAP Control Efficiency= 50.00%
Proposed beerfeed¹ = 1150 gpm
Yearly operation limit = 500 hours
EF safety factor = 1.50

1 ton = 2000 lb
1 year = 8760 hours

Test Results Run 1 Run 2 Run 3 Average
lb/hr lb/hr lb/hr lb/hr
VOC 14.28 13.17 13.87 13.77
Acetaldehyde 1.54 1.5 1.63 1.56
Acrolein 0.01 0.01 0.01 0.01
Methanol 0.01 0.01 0.01 0.01
Formaldehyde 0.004 0.004 0.004 0.004

Process Rate Run1 Run 2 Run 3 Average
barrels per day barrels per day barrels per day barrels per day
Beerfeed 955 955 955 955

The following table presents the total emissions from the RTO Bypass Stack:

Total Emissions from the RTO Bypass Stack

Controlled pound per hour emission factors are from stack test data. The emission factors are calculated by increasing the test results for each pollutant based on the proposed beerfeed and applying a safety factor.

PTE Before Control

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>lbs/hr</th>
<th>TPY</th>
</tr>
</thead>
<tbody>
<tr>
<td>VOC</td>
<td>497.57</td>
<td>124.39</td>
</tr>
<tr>
<td>Acetaldehyde</td>
<td>56.24</td>
<td>14.06</td>
</tr>
<tr>
<td>Acrolein</td>
<td>0.36</td>
<td>0.09</td>
</tr>
<tr>
<td>Methanol</td>
<td>0.36</td>
<td>0.09</td>
</tr>
<tr>
<td>Formaldehyde</td>
<td>0.14</td>
<td>0.04</td>
</tr>
<tr>
<td>Total HAPs</td>
<td>57.10</td>
<td>14.28</td>
</tr>
</tbody>
</table>

PTE After Control

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Existing Permit Limits</th>
<th>Proposed Limited PTE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>lbs/hr</td>
<td>TPY</td>
</tr>
<tr>
<td>VOC</td>
<td>24.88</td>
<td>0.70</td>
</tr>
<tr>
<td>Acetaldehyde</td>
<td>2.61</td>
<td>0.70</td>
</tr>
<tr>
<td>Acrolein</td>
<td>0.02</td>
<td>0.00</td>
</tr>
<tr>
<td>Methanol</td>
<td>0.02</td>
<td>0.00</td>
</tr>
<tr>
<td>Formaldehyde</td>
<td>0.01</td>
<td>0.00</td>
</tr>
<tr>
<td>Total HAPs</td>
<td>2.68</td>
<td>0.71</td>
</tr>
</tbody>
</table>

Note:

PTE After Control VOC and acetaldehyde emission rates based on performance test conducted March 2009.

Methodology:
PTE Before Control (lb/hr) = PTE Before Control (lb/hr) / 100% - Control Efficiency
PTE Before Control (ton/yr) = PTE Before Control x 500 hours / 2,000 lbs
PTE After Control (lb/hr) = Emission Rate based on performance tests performed at this facility x Ratio of Beerfeed Increase x Safety Factor
PTE After Control (ton/yr) = PTE After Control (lb/hr) x 500 hours / 2,000 lbs
Limited PTE (lb/hr) = lb/hr emission rate chosen by source
Limited (ton/yr) = Limited PTE (lb/hr) x 500 hours / 2,000 lbs
### Appendix A: Emission Calculations

#### PM/PM10/PM2.5 and VOC Emissions - From the DDGS Cooler (EU029)

**Company Name:** POET Biorefining - Portland, LLC  
**Address:** 1542 South 200 West, Portland, IN 47371  
**Significant Source Modification No.:** 075-41725-00032  
**Significant Permit Modification No.:** 075-41904-00032  
**Reviewer:** Taylor Wade

#### 1. Potential to Emit PM/PM10/PM2.5:

<table>
<thead>
<tr>
<th>Baghouse ID</th>
<th>Process Description</th>
<th>Control Device</th>
<th>Outlet Grain Loading (gr/dscf)</th>
<th>Maximum Air Flow Rate (scfm)</th>
<th>Control Efficiency (lb/hr)</th>
<th>PTE of PM after Control (ton/yr)</th>
<th>PTE of PM2.5 after Control (ton/yr)</th>
<th>PTE of PM10 after Control (ton/yr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE010</td>
<td>DDGS Cooler Baghouse CE010</td>
<td>0.005</td>
<td>23,800</td>
<td>1.020</td>
<td>4.47</td>
<td>1.02</td>
<td>4.47</td>
<td>1.02</td>
</tr>
</tbody>
</table>

**Limited:** 2.89 12.66 3.34 14.63 3.53 15.46

*Assume all PM emissions equal PM10 emissions.  
**Assume controlled PM2.5 emissions equal PM/PM10 emissions.

#### Methodology

**Potential to Emit (PTE) after Control**

\[ \text{PTE after Control (tons/yr)} = \frac{\text{Outlet Grain Loading (gr/dscf)} \times \text{Max. Air Flow Rate (scfm)} \times 60 \text{ mins/hr} \times 1}{7000 \text{ lb/gr}} \times 200 \text{ hr/yr} \times 1 \text{ ton/2000 lbs} \]

**PTE before Control**

\[ \text{PTE before Control (tons/yr)} = \frac{\text{PTE after Control (tons/yr)}}{1 - \text{Control Efficiency}} \]

#### 2. Potential to Emit VOC:

**Proposed Beerfeed = 1,150 GPM**  
**Hours of Operation = 8760 hrs/yr**  
**Safety Factor = 1.5**  
**Number of fluid beds = 1**

**Conversion:**  
2000 lbs = 1 ton  
8760 hrs = 1 yr

<table>
<thead>
<tr>
<th>Test Results</th>
<th>Run 1</th>
<th>Run 2</th>
<th>Run 3</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>VOC</td>
<td>1.63</td>
<td>2.79</td>
<td>2.5</td>
<td>2.35</td>
</tr>
<tr>
<td>Acetaldehyde</td>
<td>0.47</td>
<td>0.25</td>
<td>0.37</td>
<td>0.33</td>
</tr>
<tr>
<td>Acrolein</td>
<td>0.02</td>
<td>0.04</td>
<td>0.02</td>
<td>0.02</td>
</tr>
<tr>
<td>Methanol</td>
<td>0.02</td>
<td>0.02</td>
<td>0.02</td>
<td>0.02</td>
</tr>
<tr>
<td>Formaldehyde</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
</tr>
</tbody>
</table>

**Process Rate**

<table>
<thead>
<tr>
<th>gpm</th>
<th>gpm</th>
<th>gpm</th>
<th>gpm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beerfeed</td>
<td>954.7</td>
<td>955.1</td>
<td>955.1</td>
</tr>
</tbody>
</table>

**Controlled Potential to Emit (To RTO/8760 hrs/yr)**

<table>
<thead>
<tr>
<th>gpm/hr</th>
<th>gpm</th>
</tr>
</thead>
<tbody>
<tr>
<td>VOC</td>
<td>3.67</td>
</tr>
<tr>
<td>Acetaldehyde</td>
<td>2.05</td>
</tr>
<tr>
<td>Acrolein</td>
<td>0.04</td>
</tr>
<tr>
<td>Methanol</td>
<td>0.04</td>
</tr>
<tr>
<td>Formaldehyde</td>
<td>0.04</td>
</tr>
<tr>
<td>HAPs</td>
<td>0.56</td>
</tr>
</tbody>
</table>

**Uncontrolled Potential to Emit (To RTO/8760 hrs/yr)**

<table>
<thead>
<tr>
<th>gpm/hr</th>
<th>gpm</th>
</tr>
</thead>
<tbody>
<tr>
<td>VOC</td>
<td>4.17</td>
</tr>
<tr>
<td>Acetaldehyde</td>
<td>2.60</td>
</tr>
<tr>
<td>Acrolein</td>
<td>0.08</td>
</tr>
<tr>
<td>Methanol</td>
<td>0.08</td>
</tr>
<tr>
<td>Formaldehyde</td>
<td>0.08</td>
</tr>
<tr>
<td>HAPs</td>
<td>0.95</td>
</tr>
</tbody>
</table>

**Controlled Potential to Emit (To RTO)**

<table>
<thead>
<tr>
<th>lb/hr</th>
<th>lb/yr</th>
</tr>
</thead>
<tbody>
<tr>
<td>VOC</td>
<td>0.07</td>
</tr>
<tr>
<td>Acetaldehyde</td>
<td>0.07</td>
</tr>
<tr>
<td>Acrolein</td>
<td>0.02</td>
</tr>
<tr>
<td>Methanol</td>
<td>0.02</td>
</tr>
<tr>
<td>Formaldehyde</td>
<td>0.02</td>
</tr>
<tr>
<td>HAPs</td>
<td>0.24</td>
</tr>
</tbody>
</table>

**Existing Permit Limits**

<table>
<thead>
<tr>
<th>lb/hr</th>
<th>lb/yr</th>
</tr>
</thead>
<tbody>
<tr>
<td>VOC</td>
<td>5.00</td>
</tr>
<tr>
<td>Acetaldehyde</td>
<td>2.56</td>
</tr>
<tr>
<td>Acrolein</td>
<td>0.18</td>
</tr>
<tr>
<td>Methanol</td>
<td>0.18</td>
</tr>
<tr>
<td>Formaldehyde</td>
<td>0.18</td>
</tr>
<tr>
<td>HAPs</td>
<td>1.00</td>
</tr>
</tbody>
</table>

#### Methodology

**PTE after Control (tons/yr)** = Emission Rate after Control (lb/hr) x 8760 hr/yr x 1 ton/2000 lbs

Note: The Permittee has the option of routing the DDGS cooler baghouse exhaust to the DDGS Dryers, identified as EU025 and EU026, which exhaust to the RTO (CE009).

The DDGS cooler is also a source of VOC and HAPs emissions because the DDGS retains a small quantity of ethanol after drying. This ethanol is emitted from the cooler stack. During normal operations, the DDGS cooler exhaust is routed to the chimneys as combustion air or to the RTO. During RTO malfunction or downtime, the fluid bed exhaust is vented to atmosphere through SV010. This alternative operating scenario is limited to 200 hours per year.

**Portland - 11/2016 - Fluid Bed Cooler**
### Particulate Emissions

#### From the Grain Receiving and Handling Operations

**Company Name:** POET Biorefining - Portland, LLC  
**Address:** 1542 South 200 West, Portland, IN 47371  
**Significant Source Modification No.:** 075-41725-00032  
**Significant Permit Modification No.:** 075-41904-00032  
**Reviewer:** Taylor Wade

### 1. Potential to Emit PM/PM10/PM2.5 - Captured Emissions:

<table>
<thead>
<tr>
<th>Baghouse ID</th>
<th>Process Description</th>
<th>Control Device</th>
<th>Outlet Grain Loading** (gr/dscf)</th>
<th>Maximum Air Flow Rate (scfm)</th>
<th>PTE of PM/PM10 after Control* (lbs/hr)</th>
<th>PTE of PM2.5 after Control* (lbs/hr)</th>
<th>Control Efficiency (%)</th>
<th>PTE of PM/PM10 before Control (tons/yr)</th>
<th>PTE of PM2.5 before Control (tons/yr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE001</td>
<td>Grain Receiving (EU001), Conveyors (EU002a), Storage Bins (EU003a), and DDGS Loadout Operations (EU032-EU035, EU049)</td>
<td>Baghouse</td>
<td>0.004 23,450 0.80 3.52 0.14 3.52 99% 352 80.4 352.2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CE002</td>
<td>Corn Scalper (EU004), Surge Bin (EU005)</td>
<td>Baghouse</td>
<td>0.004 2,500 0.09 0.38 0.01 0.38 99% 38 8.6 37.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CE003</td>
<td>Hammermill #1 (EU006)</td>
<td>Baghouse</td>
<td>0.004 12,000 0.41 1.80 0.07 1.80 99% 180 41.1 180.2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CE004</td>
<td>Hammermill #2 (EU007)</td>
<td>Baghouse</td>
<td>0.004 12,000 0.41 1.80 0.07 1.80 99% 180 41.1 180.2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CE005</td>
<td>Hammermill #3 (EU008)</td>
<td>Baghouse</td>
<td>0.004 12,000 0.41 1.80 0.07 1.80 99% 180 41.1 180.2</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>CE006</td>
<td>Hammermill #4 (EU009)</td>
<td>Baghouse</td>
<td>0.004 12,000 0.41 1.80 0.07 1.80 99% 180 41.1 180.2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CE007</td>
<td>Hammermill #5 (EU010)</td>
<td>Baghouse</td>
<td>0.004 12,000 0.41 1.80 0.07 1.80 99% 180 41.1 180.2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CE016</td>
<td>Conveyors (EU002b), Storage Bins (EU003b) Dust Collector</td>
<td>Baghouse</td>
<td>0.005 1,200 0.05 0.23 0.01 0.23 99% 23 5.1 22.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CE017</td>
<td>Conveyors (EU002b), Storage Bins (EU003b) Dust Collector</td>
<td>Baghouse</td>
<td>0.005 1,200 0.05 0.23 0.01 0.23 99% 23 5.1 22.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CE018</td>
<td>Conveyors (EU002b), Storage Bins (EU003b) Dust Collector</td>
<td>Baghouse</td>
<td>0.005 1,200 0.05 0.23 0.01 0.23 99% 23 5.1 22.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CE011</td>
<td>DDGS Silo Loading (EU030)</td>
<td>Baghouse</td>
<td>0.004 4,000 0.14 0.60 0.02 0.60 99% 60 13.7 60.1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CE012</td>
<td>DDGS Silo Bypass (EU031)</td>
<td>Baghouse</td>
<td>0.004 4,000 0.14 0.60 0.02 0.60 99% 60 13.7 60.1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>14.8 0.6 14.8 11.9 1478.4 337.5 1478.4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Assume all PM emissions equal PM10 emissions.  
**Outlet Grain Loading values were supplied by source.

**Methodology**

\[ \text{PTE of PM/PM10 after Control} = \text{Outlet Grain Loading} \times \text{Max. Air Flow Rate} \times 60 \text{ mins/hr} \times 1/7000 \text{ lb/gr} \]

\[ \text{PTE of PM/PM10 before Control} = \text{PTE of PM/PM10 after Control} \times (1-\text{Control Efficiency}) \]

\[ \text{PTE of PM2.5} = \text{PTE of PM/PM10} \times 0.17 \] (per AP-42 Table 9.9.1-1 Reference 40)

### 2. Potential to Emit PM/PM10 - Fugitive Emissions from Grain Receiving and DDGS Loadout:

<table>
<thead>
<tr>
<th>Unit ID</th>
<th>Unit Description</th>
<th>Annual Throughput Limit (tons/yr)</th>
<th>Uncontrolled PM Emission Factor (lbs/ton)</th>
<th>Uncontrolled PM10 Emission Factor (lbs/ton)</th>
<th>Uncontrolled PM2.5 Emission Factor (lbs/ton)</th>
<th>Uncontrolled PM2.5 Emissions (tons/yr)</th>
<th>Capture Efficiency %</th>
<th>Controlled PM Emissions (tons/yr)</th>
<th>Controlled PM10 Emissions (tons/yr)</th>
<th>Controlled PM2.5 Emissions (tons/yr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>F001</td>
<td>Uncaptured Emissions from Grain Receiving*</td>
<td>1,048,689</td>
<td>0.180</td>
<td>0.0500</td>
<td>0.0100</td>
<td>94.38</td>
<td>30.04</td>
<td>5.24</td>
<td>90.00%</td>
<td>9.44</td>
</tr>
<tr>
<td>F002</td>
<td>Fugitive Emissions From DDGS Loadout</td>
<td>291,536</td>
<td>0.086</td>
<td>0.0200</td>
<td>0.0050</td>
<td>12.64</td>
<td>4.23</td>
<td>0.72</td>
<td>0.00%</td>
<td>12.58</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\[ \text{Controlled PM/PM10/PM2.5 Emissions (tons/yr)} = \text{Annual Throughput Limit (tons/yr)} \times \text{Uncontrolled Emission Factor for (PM/PM10/PM2.5)(lbs/ton)} \times (1-\text{Capture Efficiency}%) \times 1 \text{ ton/2000 lbs} \]

*Grain receiving is subject to NSPS DD, therefore uncaptured particulate emissions are counted toward PSD applicability. Grain handling operations are subject to NSPS DD, however there are no fugitives because the emissions from these units are 100% captured.

**Methodology**

Note: Emission factors are from AP-42, Chapter 9.9.1 - Grain Elevators, Table 9.9.1-1 Grain Receiving and Grain Shipping (04/03) - Assume all the grain receiving and loadout is by truck, which is the worst case scenario. Assume PM2.5 emissions equal PM10 emissions.

*Grain receiving is subject to NSPS DD, therefore uncaptured particulate emissions are counted toward PSD applicability. Grain handling operations are subject to NSPS DD, however there are no fugitives because the emissions from these units are 100% captured.
Appendix A: Emission Calculations
Natural Gas Combustion Only
MMBtu/hr >100
Boilers

Company Name: POET Biorefining - Portland, LLC
Address: 1542 South 200 West, Portland, IN 47371
Significant Source Modification No.: 075-41725-00032
Significant Permit Modification No.: 075-41904-00032
Reviewer: Taylor Wade

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>PM*</th>
<th>PM10**</th>
<th>PM2.5*</th>
<th>SO2</th>
<th>NOx**</th>
<th>VOC</th>
<th>CO**</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emission Factor in lb/MMCF</td>
<td>1.9</td>
<td>7.6</td>
<td>7.6</td>
<td>0.6</td>
<td>80.0</td>
<td>5.5</td>
<td>20.0</td>
</tr>
<tr>
<td>Emission Factor in lb/MMCF (test data)</td>
<td>32.7</td>
<td>7.3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Potential Emission in tons/yr</td>
<td>2.38</td>
<td>9.53</td>
<td>9.53</td>
<td>0.75</td>
<td>100.31</td>
<td>6.90</td>
<td>25.08</td>
</tr>
</tbody>
</table>

*PM emission factor is filterable PM only. PM10 emission factor is condensable and filterable PM10 combined. PM2.5 emission factor is equal to PM10.

**All Emission Factors except for NOx and CO are from AP-42 Chapter 1 Table 1-4.1 for natural gas combustion. The source used manufacturer’s certified emission factors for the low NOx burners in the previous FESOP permit. The manufacturer’s emission factors are less than the AP-42 values and have been verified by performance testing (Test Date: February 5, 2008). These boilers have a combined heat input greater than 250 MMBtu/hr, and are considered one of the 28 listed source categories, based on the EPA guidance for “nesting activities”. Therefore more conservative values will be used for the boilers.

Methodology

All emission factors are based on normal firing.

Emission Factors are based on normal firing.

Combined Heat Input Capacity for Boiler #1 & Boiler #2

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Emission Factor in lb/MMCF</th>
<th>Potential Emission in tons/yr</th>
</tr>
</thead>
<tbody>
<tr>
<td>PM*</td>
<td>1.9</td>
<td>2.38</td>
</tr>
<tr>
<td>PM10**</td>
<td>7.6</td>
<td>9.53</td>
</tr>
<tr>
<td>PM2.5*</td>
<td>7.6</td>
<td>9.53</td>
</tr>
<tr>
<td>SO2</td>
<td>0.6</td>
<td>0.75</td>
</tr>
<tr>
<td>NOx**</td>
<td>80.0</td>
<td>100.31</td>
</tr>
<tr>
<td>VOC</td>
<td>5.5</td>
<td>6.90</td>
</tr>
<tr>
<td>CO**</td>
<td>20.0</td>
<td>25.08</td>
</tr>
</tbody>
</table>

Potential Throughput (MMCF/hr) = 

\[
\text{Throughput (MMCF/hr)} \times 8,760 \text{ hrs/yr} \times 1 \text{ MMCF/1,020 MMBtu} 
\]

Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton

HAP emissions calculations.

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Emission Factor in lb/MMCF</th>
<th>Potential Emission in tons/yr</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benzene</td>
<td>2.1E-03</td>
<td>2.63E-03</td>
</tr>
<tr>
<td>Dichlorobenzene</td>
<td>1.2E-03</td>
<td>1.50E-03</td>
</tr>
<tr>
<td>Formaldehyde</td>
<td>7.5E-02</td>
<td>9.40E-02</td>
</tr>
<tr>
<td>Hexane</td>
<td>1.8E+00</td>
<td>2.28E+00</td>
</tr>
<tr>
<td>Toluene</td>
<td>3.4E-03</td>
<td>4.26E-03</td>
</tr>
<tr>
<td>Lead</td>
<td>5.0E-04</td>
<td>6.27E-04</td>
</tr>
<tr>
<td>Cadmium</td>
<td>1.1E-03</td>
<td>1.38E-03</td>
</tr>
<tr>
<td>Chromium</td>
<td>1.4E-03</td>
<td>1.76E-03</td>
</tr>
<tr>
<td>Manganese</td>
<td>3.8E-04</td>
<td>4.76E-04</td>
</tr>
<tr>
<td>Nickel</td>
<td>2.1E-03</td>
<td>2.63E-03</td>
</tr>
</tbody>
</table>

Total HAPs: 2.37

Methodology is the same as above

The five highest organic and metal HAPs emission factors are provided above.

Additional HAPs emission factors are available in AP-42, Chapter 1.4.
Attachment B: Emission Calculations

VOC Emission Calculations - Ethanol/E85 Load-out Racks (EU036) and Flare (CE015)

Company Name: POET Biorefining - Portland, LLC
Address City IN Zip: 1542 South 200 West, Portland, IN 47371
Significant Source Modification No.: 075-41725-00032
Significant Permit Modification No.: 075-41904-00032
Reviewer: Taylor Wade

Emission Factors: AP-42, Section 5.2, June 2008

Denatured ethanol (95% to 98% ethanol) and E85 (70% to 85% ethanol) will be shipped by either truck loading rack or railcar loading rack. Railcars will be dedicated fleets, but the trucks may be used to carry gasoline prior to filling with ethanol. Both railcars and trucks will be filled by submerged loading process. Both loadout operations will be controlled by a flare (CE015), 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. Denatured ethanol loadout would result in greater emissions and these calculations conservatively assume that all ethanol loaded out is denatured ethanol.

Uncertified denaturant will be brought into the facility by railcar, certify, and loaded out via truck at a max limit of 5MMGY.

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:

\[ L = 12.46 \times \left( \frac{S \times P \times M}{T} \right) \]

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) based on TANKs 4.0.9d from December 2016 for Forte Wayne, IN
- \( M \) = molecular weight of vapors
- \( T \) = temperature of the bulk liquid loaded (degree R)

<table>
<thead>
<tr>
<th>Previous Stored Liquid</th>
<th>( S )</th>
<th>( P ) (psia)</th>
<th>( M ) (lbs/mole lbs)</th>
<th>( T ) (degree R)</th>
<th>( L ) (lbs/kgal)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gasoline (dedicated vapor balance)</td>
<td>1.0</td>
<td>5.58</td>
<td>66.00</td>
<td>516</td>
<td>8.89</td>
</tr>
<tr>
<td>Gasoline (clean cargo)</td>
<td>0.5</td>
<td>5.58</td>
<td>66.00</td>
<td>516</td>
<td>4.44</td>
</tr>
<tr>
<td>E-85 Ethanol (dedicated normal)</td>
<td>0.6</td>
<td>2.16</td>
<td>56.02</td>
<td>516</td>
<td>1.75</td>
</tr>
<tr>
<td>E-85 Ethanol (clean cargo)</td>
<td>0.5</td>
<td>2.16</td>
<td>56.02</td>
<td>516</td>
<td>1.46</td>
</tr>
<tr>
<td>Denatured Ethanol (dedicated normal)</td>
<td>0.6</td>
<td>0.85</td>
<td>49.34</td>
<td>516</td>
<td>0.68</td>
</tr>
<tr>
<td>Denatured Ethanol (clean cargo)</td>
<td>0.6</td>
<td>0.85</td>
<td>49.34</td>
<td>516</td>
<td>0.57</td>
</tr>
<tr>
<td>Undenatured Ethanol (dedicated normal)</td>
<td>0.6</td>
<td>0.75</td>
<td>46.07</td>
<td>516</td>
<td>0.50</td>
</tr>
<tr>
<td>Undenatured Ethanol (clean cargo)</td>
<td>0.5</td>
<td>0.75</td>
<td>46.07</td>
<td>516</td>
<td>0.42</td>
</tr>
<tr>
<td>Denaturant</td>
<td>1.0</td>
<td>5.58</td>
<td>66.00</td>
<td>516</td>
<td>8.89</td>
</tr>
</tbody>
</table>

Denaturant Content
- Denatured Ethanol = 5% Denaturant = 95%
- E85 = 30%
- Undenatured Ethanol = 0%

Source-Specific Emission Factors

The emission factor for loading denatured ethanol to rail which previously contained denatured ethanol
\[ = L \text{ (Denatured ethanol, normal)} \]
\[ = 0.68 \text{ Denatured Ethanol to Rail} \]

The emission factor for loading E-85 to rail which previously contained denatured ethanol or E-85
\[ = L \text{ (Denatured ethanol, normal)} \]
\[ = 1.75 \text{ E-85 to Rail} \]

The emission factor for loading denatured ethanol to rail which previously contained denatured ethanol
\[ = L \text{ (Denatured ethanol, dedicated vapor balance)} - L \text{ (Denatured ethanol, clean cargo)} + L \text{ (Undenatured ethanol, clean cargo)} \]
\[ = 0.50 \text{ Undenatured Ethanol to Rail} \]

The emission factor for loading denatured ethanol to trucks which stored gasoline previously
\[ = L \text{ (gasoline, dedicated vapor balance)} - L \text{ (gasoline, clean cargo)} + L \text{ (E-85, clean cargo)} \]
\[ = 5.01 \text{ Denatured Ethanol to Truck} \]

The emission factor for loading E-85 to trucks which stored gasoline previously
\[ = L \text{ (gasoline, dedicated vapor balance)} - L \text{ (gasoline, clean cargo)} + L \text{ (E-85, clean cargo)} \]
\[ = 5.90 \text{ E-85 to Truck} \]

The emission factor for loading undenatured ethanol to trucks which stored gasoline previously
\[ = L \text{ (gasoline, dedicated vapor balance)} - L \text{ (gasoline, clean cargo)} + L \text{ (Undenatured ethanol, clean cargo)} \]
\[ = 4.86 \text{ Undenatured Ethanol to Truck} \]

The emission factor for loading denaturant to truck which previously contained denaturant
\[ = L \text{ (Denatured ethanol, normal)} \]
\[ = 8.89 \text{ Denaturant to Truck} \]
Attachment B: Emission Calculations

VOC Emission Calculations - Ethanol/E85 Load-out Racks (EU036) and Flare (CE015)

Company Name: POET Biorefining - Portland, LLC
Address City IN Zip: 1542 South 200 West, Portland, IN 47371
Significant Source Modification No.: 075-41725-00032
Significant Permit Modification No.: 075-41904-00032
Reviewer: Taylor Wade

1. Throughputs:

<table>
<thead>
<tr>
<th>Throughputs:</th>
<th>Truck and Rail Combined (MMgal/yr)</th>
<th>Ethanol Loading Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Denatured and Undenatured Ethanol (anticipated)</td>
<td>97.36</td>
<td>112.76</td>
</tr>
<tr>
<td>E-85 (anticipated)</td>
<td>10.40</td>
<td>86,400</td>
</tr>
<tr>
<td>Denaturant</td>
<td>5.0</td>
<td>39,000</td>
</tr>
</tbody>
</table>

Total Combined: 112,756,000

2. Hourly Potential to Emit (Annual Unlimited):

<table>
<thead>
<tr>
<th>Loading Capacity</th>
<th>Uncontrolled Emission Factor</th>
<th>Emissions Uncontrolled (lb/hr)</th>
<th>Emissions Uncontrolled (ton/yr)</th>
<th>Control Efficiency</th>
<th>Emissions Controlled (lb/hr)</th>
<th>Emissions Controlled (ton/yr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Denatured Ethanol loaded out via truck:</td>
<td>86.4</td>
<td>0.01</td>
<td>433.12</td>
<td>1897.05</td>
<td>98%</td>
<td>8.66</td>
</tr>
<tr>
<td>Denatured Ethanol loaded out via rail:</td>
<td>72</td>
<td>0.68</td>
<td>49.08</td>
<td>214.97</td>
<td>98%</td>
<td>0.98</td>
</tr>
<tr>
<td>Undenatured ethanol loaded out via truck:</td>
<td>86.4</td>
<td>4.86</td>
<td>420.01</td>
<td>1839.65</td>
<td>98%</td>
<td>8.40</td>
</tr>
<tr>
<td>Undenatured ethanol loaded out via rail:</td>
<td>72</td>
<td>0.50</td>
<td>35.97</td>
<td>157.57</td>
<td>98%</td>
<td>0.72</td>
</tr>
<tr>
<td>E85 loaded out via truck:</td>
<td>86.4</td>
<td>5.90</td>
<td>510.18</td>
<td>2234.59</td>
<td>98%</td>
<td>10.20</td>
</tr>
<tr>
<td>E85 loaded out via rail:</td>
<td>72</td>
<td>1.75</td>
<td>126.14</td>
<td>552.51</td>
<td>98%</td>
<td>2.52</td>
</tr>
<tr>
<td>Denaturant loaded out via truck</td>
<td>39</td>
<td>8.89</td>
<td>346.70</td>
<td>1518.55</td>
<td>98%</td>
<td>6.93</td>
</tr>
<tr>
<td>Denaturant loaded out via rail</td>
<td>0</td>
<td>8.89</td>
<td>0.00</td>
<td>0.00</td>
<td>98%</td>
<td>0.00</td>
</tr>
</tbody>
</table>

Total Emissions Uncontrolled: 727.93

Worst case scenario = 3188.35 Uncontrolled

Limited Emissions (Ethanol) = 107,756

3. Limited Annual Potential to Emit:

<table>
<thead>
<tr>
<th>Limited* Throughput</th>
<th>Uncontrolled Emission Factor</th>
<th>Limited* Emissions Uncontrolled (ton/yr)</th>
<th>Control Efficiency</th>
<th>Limited* Emissions Controlled (ton/yr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>All denatured ethanol loaded out via truck:</td>
<td>97,356</td>
<td>0.01</td>
<td>244.02</td>
<td>98%</td>
</tr>
<tr>
<td>All undenatured ethanol loaded out via truck:</td>
<td>97,356</td>
<td>0.68</td>
<td>33.18</td>
<td>98%</td>
</tr>
<tr>
<td>All E85 loaded out via truck:</td>
<td>10,400</td>
<td>0.50</td>
<td>24.32</td>
<td>98%</td>
</tr>
<tr>
<td>Denaturant loaded out via truck</td>
<td>5,000</td>
<td>8.89</td>
<td>22.22</td>
<td>98%</td>
</tr>
<tr>
<td>Denaturant loaded out via rail</td>
<td>0</td>
<td>8.89</td>
<td>0.00</td>
<td>98%</td>
</tr>
</tbody>
</table>

Worst case scenario = 296.95

Limited Emissions (Ethanol) = 107,756

* Total throughput is limited in order for HAP emission to be less than major source levels.

Emissions Uncontrolled (ton/yr) = Throughput (kgal/yr) x Emission Factor (lb/kgal) / 2000 lb/ton

Emissions Controlled (ton/yr) = Emissions Uncontrolled (ton/yr) x (1 - Control Efficiency)

Flare Control Efficiency = 98%
### Attachment B: Emission Calculations

**VOC Emission Calculations - Ethanol/E85 Load-out Racks (EU036) and Flare (CE015)**

**Company Name:** POET Biorefining - Portland, LLC  
**Address City IN Zip:** 1542 South 200 West, Portland, IN 47371  
**Significant Source Modification No.:** 075-41725-00032  
**Significant Permit Modification No.:** 075-41904-00032  
**Reviewer:** Taylor Wade

#### 4. Potential to Emit HAPs:

<table>
<thead>
<tr>
<th>HAP</th>
<th>Gasoline HAP Fraction</th>
<th>Denaturant HAP Fraction</th>
<th>Undenatured Ethanol HAP Fraction</th>
<th>Denaturant Ethanol to Rail</th>
<th>Undenatured Ethanol to Rail</th>
<th>E85 to Rail</th>
<th>Denaturant Ethanol to Truck</th>
<th>Undenatured Ethanol to Truck</th>
<th>E85 to Truck</th>
<th>Denaturant to Truck</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetaldehyde</td>
<td>0.00E+00</td>
<td>0.00E+00</td>
<td>4.00E-04</td>
<td>2.59E-04</td>
<td>4.91E-04</td>
<td>2.16E-04</td>
<td>4.09E-04</td>
<td>1.67E-04</td>
<td>4.03E-04</td>
<td>2.00E+00</td>
</tr>
<tr>
<td>Benzene</td>
<td>2.30E-02</td>
<td>2.20E-03</td>
<td>0.00E+00</td>
<td>1.25E-05</td>
<td>1.16E-03</td>
<td>1.02E-01</td>
<td>1.03E-01</td>
<td>1.12E-01</td>
<td>1.03E-01</td>
<td>1.03E-01</td>
</tr>
<tr>
<td>Cumene</td>
<td>1.00E-02</td>
<td>0.00E+00</td>
<td>0.00E+00</td>
<td>0.00E+00</td>
<td>0.00E+00</td>
<td>4.48E-02</td>
<td>4.48E-02</td>
<td>4.48E-02</td>
<td>4.48E-02</td>
<td>4.48E-02</td>
</tr>
<tr>
<td>Ethylbenzene</td>
<td>2.00E-02</td>
<td>0.00E+00</td>
<td>0.00E+00</td>
<td>0.00E+00</td>
<td>0.00E+00</td>
<td>8.98E-02</td>
<td>8.98E-02</td>
<td>8.98E-02</td>
<td>8.98E-02</td>
<td>8.98E-02</td>
</tr>
<tr>
<td>Hexane</td>
<td>7.00E-02</td>
<td>2.74E-03</td>
<td>0.00E+00</td>
<td>9.34E-03</td>
<td>1.56E-03</td>
<td>1.44E-01</td>
<td>3.11E-01</td>
<td>3.11E-01</td>
<td>3.11E-01</td>
<td>3.11E-01</td>
</tr>
<tr>
<td>Methanol</td>
<td>0.00E+00</td>
<td>0.00E+00</td>
<td>2.00E-04</td>
<td>1.02E-04</td>
<td>1.02E-04</td>
<td>8.98E-02</td>
<td>8.98E-02</td>
<td>8.98E-02</td>
<td>8.98E-02</td>
<td>8.98E-02</td>
</tr>
<tr>
<td>Toluene</td>
<td>1.50E-01</td>
<td>0.00E+00</td>
<td>0.00E+00</td>
<td>0.00E+00</td>
<td>0.00E+00</td>
<td>6.67E-01</td>
<td>6.67E-01</td>
<td>6.67E-01</td>
<td>6.67E-01</td>
<td>6.67E-01</td>
</tr>
<tr>
<td>Xylenes</td>
<td>1.50E-01</td>
<td>0.00E+00</td>
<td>0.00E+00</td>
<td>0.00E+00</td>
<td>0.00E+00</td>
<td>6.67E-01</td>
<td>6.67E-01</td>
<td>6.67E-01</td>
<td>6.67E-01</td>
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</tr>
<tr>
<td><strong>Total</strong></td>
<td>0.42</td>
<td>0.28</td>
<td>0.00</td>
<td>0.91</td>
<td>0.00</td>
<td>0.15</td>
<td>1.89</td>
<td>1.85</td>
<td>2.00</td>
<td>3.11</td>
</tr>
</tbody>
</table>

1 This is the highest HAP percentage for gasoline vapors as per the Flint Hills gasoline SDS, issue date of 12-03-2014. Assumed truck tanker hauled gasoline for prior load.

2 Based on the average weight fraction of the denaturant used at the plant (Markwest 2016 data)

3 Assumed weight fraction in 200 proof ethanol, based on testing done by POET in Feb and March 2016.

#### Hourly Potential to Emit Before Control

<table>
<thead>
<tr>
<th>HAP</th>
<th>Denatured Ethanol to Rail</th>
<th>Undenatured Ethanol to Rail</th>
<th>E85 to Rail</th>
<th>Denaturant Ethanol to Truck</th>
<th>Undenatured Ethanol to Truck</th>
<th>E85 to Truck</th>
<th>Worst Case</th>
<th>Unlimited PTE Before Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetaldehyde</td>
<td>0.02</td>
<td>0.04</td>
<td>0.02</td>
<td>0.01</td>
<td>0.04</td>
<td>0.00</td>
<td>0.07</td>
<td>0.31</td>
</tr>
<tr>
<td>Benzene</td>
<td>0.01</td>
<td>0.08</td>
<td>8.84</td>
<td>8.83</td>
<td>8.92</td>
<td>4.37</td>
<td>9.00</td>
<td>39.42</td>
</tr>
<tr>
<td>Cumene</td>
<td>0.00</td>
<td>0.00</td>
<td>3.84</td>
<td>3.84</td>
<td>3.84</td>
<td>1.73</td>
<td>3.64</td>
<td>16.92</td>
</tr>
<tr>
<td>Ethylbenzene</td>
<td>0.00</td>
<td>0.00</td>
<td>7.68</td>
<td>7.68</td>
<td>7.68</td>
<td>3.47</td>
<td>7.68</td>
<td>33.64</td>
</tr>
<tr>
<td>Hexane</td>
<td>0.07</td>
<td>0.11</td>
<td>27.56</td>
<td>28.88</td>
<td>37.25</td>
<td>59.63</td>
<td>88.83</td>
<td>388.19</td>
</tr>
<tr>
<td>Methanol</td>
<td>0.00</td>
<td>0.01</td>
<td>0.01</td>
<td>0.02</td>
<td>0.02</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Toluene</td>
<td>0.00</td>
<td>0.00</td>
<td>57.61</td>
<td>57.61</td>
<td>57.61</td>
<td>26.00</td>
<td>57.61</td>
<td>252.31</td>
</tr>
<tr>
<td>Xylenes</td>
<td>0.00</td>
<td>0.00</td>
<td>57.61</td>
<td>57.61</td>
<td>57.61</td>
<td>26.00</td>
<td>57.61</td>
<td>252.31</td>
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<tr>
<td><strong>Total</strong></td>
<td>0.71</td>
<td>0.14</td>
<td>163.16</td>
<td>162.47</td>
<td>172.95</td>
<td>121.21</td>
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<td>983.16</td>
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</table>

#### Hourly Potential to Emit After Control

<table>
<thead>
<tr>
<th>HAP</th>
<th>Denatured Ethanol to Rail</th>
<th>Undenatured Ethanol to Rail</th>
<th>E85 to Rail</th>
<th>Denaturant Ethanol to Truck</th>
<th>Undenatured Ethanol to Truck</th>
<th>E85 to Truck</th>
<th>After Control Emission Factor</th>
<th>Unlimited PTE After Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetaldehyde</td>
<td>0.18</td>
<td>0.18</td>
<td>0.18</td>
<td>0.18</td>
<td>0.18</td>
<td>0.09</td>
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<td>7.764</td>
</tr>
<tr>
<td>Benzene</td>
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<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>252.31</td>
</tr>
<tr>
<td>Cumene</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>252.31</td>
</tr>
<tr>
<td>Ethylbenzene</td>
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<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
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<td>252.31</td>
</tr>
<tr>
<td>Hexane</td>
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<td>0.21</td>
<td>0.55</td>
<td>0.54</td>
<td>0.75</td>
<td>1.19</td>
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<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>252.31</td>
</tr>
<tr>
<td>Toluene</td>
<td>0.00</td>
<td>0.00</td>
<td>1.15</td>
<td>1.15</td>
<td>1.15</td>
<td>0.52</td>
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<td>5.046</td>
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<tr>
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<td>1.15</td>
<td>1.15</td>
<td>0.52</td>
<td>1.15</td>
<td>5.046</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>0.01</td>
<td>0.21</td>
<td>3.26</td>
<td>3.25</td>
<td>3.46</td>
<td>2.42</td>
<td>4.36</td>
<td>19.113</td>
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</tbody>
</table>
Limited Annual Potential to Emit

<table>
<thead>
<tr>
<th>HAP</th>
<th>Denatured Ethanol to Rail</th>
<th>Undenatured Ethanol to Rail</th>
<th>E85 to Rail</th>
<th>Denatured Ethanol to Truck</th>
<th>Undenatured Ethanol to Truck</th>
<th>E85 to Truck</th>
<th>Denaturant to Truck</th>
<th>Limited Potential to Emit After Control</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ton/yr</td>
<td>ton/yr</td>
<td>ton/yr</td>
<td>ton/yr</td>
<td>ton/yr</td>
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<td>ton/yr</td>
<td>ton/yr</td>
</tr>
<tr>
<td>Acetaldehyde</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Benzene</td>
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<td>0.10</td>
<td>0.10</td>
<td>0.00</td>
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<td>0.00</td>
</tr>
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<td>Cumene</td>
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<td>0.04</td>
<td>0.04</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
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<td>0.00</td>
<td>0.09</td>
<td>0.09</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
</tr>
<tr>
<td>Hexane</td>
<td>0.00</td>
<td>0.00</td>
<td>0.01</td>
<td>0.31</td>
<td>0.30</td>
<td>0.04</td>
<td>0.08</td>
<td>0.08</td>
</tr>
<tr>
<td>Methanol</td>
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<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Toluene</td>
<td>0.00</td>
<td>0.00</td>
<td>0.65</td>
<td>0.65</td>
<td>0.65</td>
<td>0.07</td>
<td>0.03</td>
<td>0.03</td>
</tr>
<tr>
<td>Xylenes</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.65</td>
<td>0.65</td>
<td>0.07</td>
<td>0.03</td>
<td>0.03</td>
</tr>
<tr>
<td>Total</td>
<td>0.01</td>
<td>0.00</td>
<td>1.84</td>
<td>1.83</td>
<td>0.21</td>
<td>0.16</td>
<td>0.75</td>
<td>2.20</td>
</tr>
</tbody>
</table>

Methodology

HAP emissions are based on worst-case emission scenarios.

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 (gal/hr) / 1000 gal/kgal

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)

5. Flare Emissions from Combustion of VOC

from the Ethanol Loading Rack

Max Hourly Rate (Truck + Rail)

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>CO²</th>
<th>NOx²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emission Factor (lb/kgal)</td>
<td>0.084</td>
<td>0.0334</td>
</tr>
<tr>
<td>Potential to Emit in lb/hr</td>
<td>13.31</td>
<td>5.29</td>
</tr>
</tbody>
</table>

UNRESTRICTED Potential to Emit (TPY) 58.28 23.17
LIMITED Potential to Emit (TPY) 4.74 1.68

Emission factors for NOx and CO are based on the information provided by the flare manufacturer (John Zink Company).

For CO and NOx, unrestricted PTE is equal to the controlled PTE, as these pollutants are generated at the flare.

PM, PM₁₀, PM₂.₅, and SO₂ emission factors are negligible due to the smokeless design and minimal H₂S levels in the fuel. Potential emissions from natural gas for the pilot flame are estimated on the following page.

VOC emission calculations can be found above in loading rack calculations.
All trucks are assumed to have an empty weight of 15 tons and a full weight 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 limited potential to emit calculations that 100% of the ethanol and DDGS are trucked off-site. Also assume that 100% of the denaturant and grain is received by truck. Actual operations will result in some of the ethanol and DDGS being shipped off-site by rail.

Equation from AP-42 Section 13.2.1 Paved Roads, January 2011

\[ E = k(sL)^{0.91} \times (W)^{1.02} \times (1-P/4N) \]

(Used for annual uncontrolled emissions, but adjusted for precipitation.)

<table>
<thead>
<tr>
<th>Description</th>
<th>Variable</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>E</td>
<td>k</td>
<td>0.00054</td>
</tr>
<tr>
<td>k</td>
<td></td>
<td>0.0022</td>
</tr>
<tr>
<td>k</td>
<td></td>
<td>0.011</td>
</tr>
<tr>
<td>sL</td>
<td></td>
<td>1.1</td>
</tr>
<tr>
<td>W</td>
<td></td>
<td>27.4</td>
</tr>
<tr>
<td>P</td>
<td></td>
<td>120.00</td>
</tr>
<tr>
<td>N</td>
<td></td>
<td>365</td>
</tr>
</tbody>
</table>

Vehicle Information

Annual Limited Amounts and Quantity Transported per Truck values are linked to Project Parameters tab.

Fleet Emissions

Annual Uncontrolled E (lb/VMT) calculated from Equation 2 above.

Average Hourly Uncontrolled (lb/hr) = Annual Uncontrolled (ton/yr) / 8760 hr/yr x 2000 lb/ton

Annual Uncontrolled (ton/yr) = Annual Uncontrolled E x Annual VMT / 2000 lb/ton
Appendix A: Emission Calculations
Particulate Emissions
Cooling Tower

Company Name: POET Biorefining - Portland, LLC
Address: 1542 South 200 West, Portland, IN 47371

Significant Source Modification No.: 075-41725-00032
Significant Permit Modification No.: 075-41904-00032
Reviewer: Taylor Wade

Water circulation flow = 30,000 gallons per minute
Water circulation flow = 113,562 liters per minute
Drift loss = 0.005%
Drift loss = 5.7 liters per minute
Total Dissolved Solids in cooling tower = 2500 mg/l
Total Dissolved Solids in cooling tower = 2.5 g/l
PM-10 = Drift loss (l/min) x TDS (g/l)
g/min x 60 = 851.7 grams/hr
1 pound = 453.6 grams
Fugitive emissions= 1.9 lbs/hr
Fugitive emissions= 8.22 TPY
Appendix A: Emission Calculations

Diesel Generator

Company Name: POET Biorefining - Portland, LLC
Address: 1542 South 200 West, Portland, IN 47371
Significant Source Modification No.: 075-41725-00032
Significant Permit Modification No.: 075-41904-00032
Reviewer: Taylor Wade

One (1) diesel generator, identified as EU037, constructed in 2006, with a maximum power output rate of 3017.25 HP (2,250 kW), and exhausting to stack SV015. Under 40 CFR 60, Subpart IIII this is an affected unit. Under 40 CFR 63, subpart ZZZZ this is a new affected unit.

1. Process Description:

2. Potential to Emit (PTE) of Generator:

   - Generator Manufacturer: Caterpillar
   - Generator Model #: 3516B
   - Generator Size: 2250 kW
   - Conversion Factor: 1.341 HP/kW AP-42 Appendix A: Miscellaneous Data and Conversion Factors

   - Generator Size: 3017.25 HP
   - Unlimited Usage: 8760 hours/year
   - Limited Maximum Usage: 500 hours/year

Available Emission Factors

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Max Limits (EPA Tier 1)</th>
<th>AP-42 Emission Factors</th>
<th>AP-42 Emission</th>
</tr>
</thead>
<tbody>
<tr>
<td>TSP</td>
<td>0.54000 g/kW-hr</td>
<td>0.4256 g/kW-hr</td>
<td>0.0007 lb/HP-hr</td>
</tr>
<tr>
<td>PM10</td>
<td>0.54000 g/kW-hr</td>
<td>0.4256 g/kW-hr</td>
<td>0.0007 lb/HP-hr</td>
</tr>
<tr>
<td>PM2.5</td>
<td>0.54000 g/kW-hr</td>
<td>0.4256 g/kW-hr</td>
<td>0.0007 lb/HP-hr</td>
</tr>
<tr>
<td>NOx</td>
<td>9.20000 g/kW-hr</td>
<td>14.592 g/kW-hr</td>
<td>0.024 lb/HP-hr</td>
</tr>
<tr>
<td>SOx</td>
<td>0.42864 g/kW-hr</td>
<td>0.000705 lb/HP-hr</td>
<td></td>
</tr>
<tr>
<td>VOC</td>
<td>1.30000 g/kW-hr</td>
<td>0.000705 lb/HP-hr</td>
<td></td>
</tr>
<tr>
<td>CO</td>
<td>11.40000 g/kW-hr</td>
<td>0.00055 lb/HP-hr</td>
<td></td>
</tr>
</tbody>
</table>

Note: Conservatively assume that all TSP = PM10 = PM2.5

The sulfur content of the fuel used for the generator will be less than 0.5 wt%.

Emission Guarantees (Not to exceed data from Caterpillar)

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Unlimted PTE</th>
<th>Limited PTE based on 500 hours of operation ***</th>
</tr>
</thead>
<tbody>
<tr>
<td>PM</td>
<td>ton/year</td>
<td>ton/year</td>
</tr>
<tr>
<td>PM10</td>
<td>lb/HP-hr</td>
<td>lb/HP-hr</td>
</tr>
<tr>
<td>PM2.5</td>
<td>lb/HP-hr</td>
<td>lb/HP-hr</td>
</tr>
<tr>
<td>NOx</td>
<td>lb/HP-hr</td>
<td>lb/HP-hr</td>
</tr>
<tr>
<td>SOx</td>
<td>lb/HP-hr</td>
<td>lb/HP-hr</td>
</tr>
<tr>
<td>VOC</td>
<td>lb/HP-hr</td>
<td>lb/HP-hr</td>
</tr>
<tr>
<td>CO</td>
<td>lb/HP-hr</td>
<td>lb/HP-hr</td>
</tr>
</tbody>
</table>

** PTE for Generator is calculated using AP-42 Emission Factors (AP-42 Table 3.4-1) and 500 hrs/yr Methodology

PTE = Hours of operation (hours/year) x Generator size (HP) x Specific pollutant Emission Factor (lb/HP-hr) x 1 ton/2000 lbs
Appendix A: Emission Calculations

HAP Emissions
Emergency Diesel Generator

Company Name: POET Biorefining - Portland, LLC
Address: 1542 South 200 West, Portland, IN 47371
Significant Source Modification No.: 075-41725-00032
Significant Permit Modification No.: 075-41904-00032
Reviewer: Taylor Wade

1. Process Description:
The facility will be equipped with a 2250 kw electric generator. The primary purpose of the generator will be to provide electricity in the event of an emergency condition at the plant. The generator is for emergency use only and will not exceed 500 hours per 12-month rolling average year.

2. Potential to Emit (PTE) HAPs for Generator:

<table>
<thead>
<tr>
<th>HAP Pollutant</th>
<th>Emission Factor ¹ (lb/MMBtu)</th>
<th>Emission Factor ² (lb/HP-hr)</th>
<th>Potential to Emit Emissions (Uncontrolled) (lb/hr)</th>
<th>Potential to Emit Emissions (Limited) (ton/yr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetaldehyde</td>
<td>2.52E-05</td>
<td>1.76E-07</td>
<td>5.32E-04</td>
<td>1.33E-04</td>
</tr>
<tr>
<td>Acrolein</td>
<td>7.88E-06</td>
<td>5.52E-08</td>
<td>1.66E-04</td>
<td>4.16E-05</td>
</tr>
<tr>
<td>Benzene</td>
<td>7.76E-04</td>
<td>5.43E-06</td>
<td>1.64E-02</td>
<td>4.01E-03</td>
</tr>
<tr>
<td>Formaldehyde</td>
<td>7.89E-05</td>
<td>5.52E-07</td>
<td>1.67E-03</td>
<td>4.17E-04</td>
</tr>
<tr>
<td>Naphthalene</td>
<td>1.30E-04</td>
<td>9.10E-07</td>
<td>2.75E-03</td>
<td>6.86E-04</td>
</tr>
<tr>
<td>Toluene</td>
<td>2.81E-04</td>
<td>1.97E-06</td>
<td>5.93E-03</td>
<td>1.48E-03</td>
</tr>
<tr>
<td>Xylenes</td>
<td>1.93E-04</td>
<td>1.35E-06</td>
<td>4.08E-03</td>
<td>1.02E-03</td>
</tr>
</tbody>
</table>

¹ Emission factors are from AP-42 Section 3.4 Large Stationary Diesel and All Stationary Dual-fuel Engines.

**Emission factors in lb/hp-hr were calculated using emission factors in lb/MMBtu and a brake specific fuel consumption of 7,000 Btu / hp-hr (AP-42 Table 3.3-1).

Methodology

PTE (lb/hr) = Generator Size (HP) x Specific Pollutant Emission Factor (lb/HP-hr)
PTE (tons/yr) = Generator Size (HP) x Specific Pollutant Emission Factor (lb/HP-hr) x 1 ton/2000 lbs x 8760 hrs/yr
## Emission Calculations

### VOC and HAP Emissions From Equipment Leaks

**Company Name:** POET Biorefining - Portland, LLC  
**Address:** 1542 South 200 West, Portland, IN 47371  
**Significant Source Modification No.:** 075-41725-00032  
**Significant Permit Modification No.:** 075-41904-00032  
**Reviewer:** Taylor Wade

### 1. Fugitive VOC Emissions:

<table>
<thead>
<tr>
<th>Process Stream</th>
<th>Equipment Component Source</th>
<th>Product</th>
<th>Component Count*</th>
<th>Emission Factor** (lb/hr-yr)</th>
<th>Uncontrolled Rate (lb/yr)</th>
<th>Weight Emitted Water (lb/hr)</th>
<th>Controlled Rate (lb/yr)</th>
<th>TOC Weight Emitted Water (lb/hr)</th>
<th>HAP Fraction</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Valves</td>
<td>Light Liquid</td>
<td>44</td>
<td>0.01314</td>
<td>0.58</td>
<td>2.30</td>
<td>92.00%</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Valve</td>
<td>Gas/Vapor</td>
<td>0</td>
<td>0.00839</td>
<td>2.79</td>
<td>12.23</td>
<td>86.00%</td>
<td>0.39</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pump Seals</td>
<td>Light Liquid</td>
<td>8</td>
<td>0.04076</td>
<td>0.34</td>
<td>1.48</td>
<td>75.00%</td>
<td>0.08</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Compressors</td>
<td>Gas/Vapor</td>
<td>0</td>
<td>0.0516</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td>Distillation</td>
<td>Relied Valves</td>
<td>Gas/Vapor</td>
<td>12</td>
<td>0.2288</td>
<td>2.77</td>
<td>12.13</td>
<td>92.00%</td>
<td>0.22</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sampling Connections</td>
<td>All</td>
<td>0</td>
<td>0.033</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pump Seals</td>
<td>Light Liquid</td>
<td>10</td>
<td>0.04378</td>
<td>0.43</td>
<td>1.90</td>
<td>92.00%</td>
<td>0.11</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Compressors</td>
<td>Gas/Vapor</td>
<td>0</td>
<td>0.5016</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Relied Valves</td>
<td>Gas/Vapor</td>
<td>29</td>
<td>0.2288</td>
<td>6.54</td>
<td>26.63</td>
<td>92.00%</td>
<td>0.52</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sampling Connections</td>
<td>All</td>
<td>0</td>
<td>0.033</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pump Seals</td>
<td>Light Liquid</td>
<td>176</td>
<td>0.0089</td>
<td>1.57</td>
<td>6.66</td>
<td>88.00%</td>
<td>0.19</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Compressors</td>
<td>Gas/Vapor</td>
<td>0</td>
<td>0.5016</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Relied Valves</td>
<td>Gas/Vapor</td>
<td>4</td>
<td>0.2288</td>
<td>1.01</td>
<td>4.41</td>
<td>92.00%</td>
<td>0.18</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sampling Connections</td>
<td>All</td>
<td>0</td>
<td>0.033</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pump Seals</td>
<td>Light Liquid</td>
<td>106</td>
<td>0.04378</td>
<td>1.57</td>
<td>6.66</td>
<td>88.00%</td>
<td>0.19</td>
<td></td>
</tr>
</tbody>
</table>

### 2. Fugitive HAP Emissions:

**Methodology**  
* 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

**HAP Fraction**  
* Control effectiveness for equipment leak emissions, EPA-453/R-95-017 Table 2-1 and Table 5-2

**Fugitive HAP Emissions**  
Fugitive HAP Emissions (ton/yr) x HAP Fraction

<table>
<thead>
<tr>
<th>HAP</th>
<th>HAP Fraction</th>
<th>Fugitive HAP Emissions (ton/yr)</th>
<th>Fugitive HAP Emissions (ton/yr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetaldehyde</td>
<td></td>
<td>2.00E-04</td>
<td>3.87E-04</td>
</tr>
<tr>
<td>Methanol</td>
<td></td>
<td>2.00E-04</td>
<td>3.87E-04</td>
</tr>
<tr>
<td>Benzene</td>
<td></td>
<td>2.00E-04</td>
<td>4.84E-04</td>
</tr>
<tr>
<td>Carbon Disulfide</td>
<td></td>
<td>2.00E-04</td>
<td>3.87E-04</td>
</tr>
<tr>
<td>Cumene</td>
<td></td>
<td>1.00E-04</td>
<td>9.69E-02</td>
</tr>
<tr>
<td>n-Hexane</td>
<td></td>
<td>5.00E-02</td>
<td>9.69E-02</td>
</tr>
<tr>
<td>Toluene</td>
<td></td>
<td>5.00E-02</td>
<td>9.69E-02</td>
</tr>
<tr>
<td>Xylenes</td>
<td></td>
<td>5.00E-02</td>
<td>9.69E-02</td>
</tr>
</tbody>
</table>

**Total**  
3.92

---

* 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
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 were assumed to be uncontrolled only during RTO downtime.

Emission data from a performance test completed on May 29th, 2003 for the centrifuge stack at POET Research Center (aka Broin Enterprises Ethanol) was used to calculate the potential to emit from Portland. Speciated compounds with non-detect results were assumed to be emitted at the listed detection limit. Emissions were ratioed based on two factors, the average ethanol content of the whole stillage (0.05 wt% at PRC) vs. the maximum whole stillage content (0.10 wt%) and whole stillage feed rate to the centrifuges.

Speciated VOC data from POET Research Center, Scotland, SD on May 29th, 2003.

<table>
<thead>
<tr>
<th>Speciated Compounds</th>
<th>Run 1</th>
<th>Run 2</th>
<th>Run 3</th>
<th>Average</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanol</td>
<td>0.0073</td>
<td>0.0142</td>
<td>0.0093</td>
<td>0.019</td>
<td>6.59</td>
</tr>
<tr>
<td>Acetic Acid</td>
<td>0.0475</td>
<td>0.0438</td>
<td>0.0342</td>
<td>0.0418</td>
<td>8.76</td>
</tr>
<tr>
<td>Lactic Acid</td>
<td>0.0021</td>
<td>0.0022</td>
<td>0.0022</td>
<td>0.0022</td>
<td>10.01</td>
</tr>
<tr>
<td>Ethyl Acetate</td>
<td>0.0002</td>
<td>0.0002</td>
<td>0.0002</td>
<td>0.0002</td>
<td>7.51</td>
</tr>
<tr>
<td>2-Furaldehyde</td>
<td>0.0002</td>
<td>0.0002</td>
<td>0.0002</td>
<td>0.0002</td>
<td>9.68</td>
</tr>
<tr>
<td>Formic Acid</td>
<td>0.0042</td>
<td>0.0044</td>
<td>0.0045</td>
<td>0.0044</td>
<td>10.20</td>
</tr>
<tr>
<td>Glycol</td>
<td>0.0001</td>
<td>0.0019</td>
<td>0.0423</td>
<td>0.0414</td>
<td>10.50</td>
</tr>
<tr>
<td>Formaldehyde</td>
<td>0.0002</td>
<td>0.0002</td>
<td>0.0002</td>
<td>0.0002</td>
<td>6.84</td>
</tr>
<tr>
<td>Methanol</td>
<td>0.0004</td>
<td>0.0004</td>
<td>0.0004</td>
<td>0.0004</td>
<td>6.59</td>
</tr>
<tr>
<td>Acetaldehyde</td>
<td>0.0028</td>
<td>0.0023</td>
<td>0.0015</td>
<td>0.0022</td>
<td>6.59</td>
</tr>
<tr>
<td>Acrolein</td>
<td>0.0002</td>
<td>0.0002</td>
<td>0.0002</td>
<td>0.0002</td>
<td>7.00</td>
</tr>
<tr>
<td>Total VOC</td>
<td>0.1025</td>
<td>0.2050</td>
<td>0.0226</td>
<td>0.0226</td>
<td></td>
</tr>
<tr>
<td>Total HAP</td>
<td>0.0030</td>
<td>0.0060</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Process Rates

<table>
<thead>
<tr>
<th>Centrifuge</th>
<th>Run 1</th>
<th>Run 2</th>
<th>Run 3</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRC 601</td>
<td>42.33</td>
<td>42.66</td>
<td>42.39</td>
<td>42.46</td>
</tr>
<tr>
<td>PRC 603</td>
<td>42.17</td>
<td>42.63</td>
<td>42.56</td>
<td>42.45</td>
</tr>
<tr>
<td>Total</td>
<td>84.91</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. Potential to Emit for POET - Portland, LLC:

- 1,150 gallons liquid per minute through centrifuges
- 69,000 gallons liquid per hour through centrifuges
- 604,440,000 gallons liquid per year through centrifuges
- 500 Limited RTO Bypass Condition hours per year 1

<table>
<thead>
<tr>
<th>Uncontrolled Emissions</th>
<th>Controlled Emissions</th>
<th>Limited Emissions</th>
</tr>
</thead>
<tbody>
<tr>
<td>lb/hr</td>
<td>tpy</td>
<td>lb/hr</td>
</tr>
<tr>
<td>Total VOC</td>
<td>2.78</td>
<td>12.16</td>
</tr>
<tr>
<td>Formaldehyde</td>
<td>5.42E-03</td>
<td>0.02</td>
</tr>
<tr>
<td>Methanol</td>
<td>0.01</td>
<td>0.05</td>
</tr>
<tr>
<td>Acetaldehyde</td>
<td>0.06</td>
<td>0.26</td>
</tr>
<tr>
<td>Acrolein</td>
<td>0.01</td>
<td>0.02</td>
</tr>
<tr>
<td>Total HAP</td>
<td>0.08</td>
<td>0.36</td>
</tr>
</tbody>
</table>

Emissions Calculations

| Potential VOC Emission Rate | 2.78 lb/hr |
| Potential VOC Emission Rate | 12.16 tpy/year |
| VOC Controlled              | 0.24 ton/year  |
| Limited VOC Emission Rate   | 0.69 ton/year   |

1. The centrifuges are normally vented to the RTO.
Appendix A: Emission Calculations
Corn Oil Centrifuges

Company Name: POET Biorefining - Portland, LLC
Address: 1542 South 200 West, Portland, IN 47371
Significant Source Modification No.: 075-41725-00032
Significant Permit Modification No.: 075-41904-00032
Reviewer: Taylor Wade

Syrup from the thin stillage evaporators is pumped to two centrifuges that operate in series. The first centrifuge, EU038, has a maximum capacity of 150 gpm and achieve primary separation of the corn oil from the syrup. The second centrifuge, EU039, has a maximum capacity of 30 gpm and achieve final separation of the corn oil from the residual syrup. Corn oil has a vapor pressure of 0.000305 psia at 200F. As a very conservative assumption, emissions were calculated assuming that the syrup contained the same maximum concentration of residual ethanol and HAPs as the thin stillage.

The maximum VOC content was calculated using a "safety factor" of 1.5 was applied to the detected compounds (ethanol, acetaldehyde, and formaldehyde) and 50% of the detection limit was applied to non-detected compounds (methanol, and acrolein) to account for process variables.

### Analytical Results (Sample Collected 4-17-15, Ashton, IA)

<table>
<thead>
<tr>
<th>Species</th>
<th>Mx</th>
<th>Px</th>
<th>Emissions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>lb/mol</td>
<td>psia</td>
<td>Kx</td>
</tr>
<tr>
<td>Ethanol</td>
<td>46.1</td>
<td>0.003</td>
<td>0.00532</td>
</tr>
<tr>
<td>Acetaldehyde</td>
<td>44.1</td>
<td>0.001</td>
<td>0.000540</td>
</tr>
<tr>
<td>Methanol</td>
<td>32.0</td>
<td>0.004</td>
<td>0.000601</td>
</tr>
<tr>
<td>Formaldehyde</td>
<td>30.0</td>
<td>0.002</td>
<td>0.000614</td>
</tr>
<tr>
<td>Acrolein</td>
<td>56.1</td>
<td>0.000</td>
<td>0.000499</td>
</tr>
<tr>
<td>Water</td>
<td>18.0</td>
<td>394.995</td>
<td>0.001729</td>
</tr>
<tr>
<td>Proces Rates</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ethanol</td>
<td>8.19E-05</td>
<td>0.72</td>
<td>6.84E-05</td>
</tr>
<tr>
<td>Acetaldehyde</td>
<td>1.56E-05</td>
<td>0.14</td>
<td>4.50E-04</td>
</tr>
<tr>
<td>Methanol</td>
<td>1.03E-04</td>
<td>0.90</td>
<td>1.91E-04</td>
</tr>
<tr>
<td>Formaldehyde</td>
<td>4.37E-05</td>
<td>0.38</td>
<td>5.23E-06</td>
</tr>
<tr>
<td>Acrolein</td>
<td>1.19E-05</td>
<td>0.01</td>
<td>1.00E-06</td>
</tr>
<tr>
<td>Total VOC</td>
<td>2.5E-04</td>
<td>2.15</td>
<td>7.2E-04</td>
</tr>
<tr>
<td>Total HAP</td>
<td>1.5E-04</td>
<td>1.43</td>
<td>6.5E-04</td>
</tr>
</tbody>
</table>

Surface evaporation from centrifuge due to mixing.

$$Ex = B^* \left( M_x * K_x * A * Px * 3600 * H \right) / \left( R * T \right)$$

Where:
- $Ex$ = Emissions of VOC species
- $M_x$ = Molecular weight of VOC species X (lb/lbmole)
- $K_x$ = Gas Phase mass transfer coefficient of VOC species x (ft/sec)
- $A$ = Surface area of tank (ft$^2$)
- $T$ = Temperature of the liquid (R)
- $Px$ = Vapor pressure of VOC x (psia)
- $B$ = Batch Number
- $H$ = 0.02 hours
- $R$ = 10.73 minute.
- $T = 200.0 \degree F$
- $A = 3.14 \ ft^2$
- Used 2 ft Diameter for surface area as a conservative assumption for mixing surface.

Batch Size 234

Max flowrate
10,800 gal/hr
Appendix A: Emission Calculations
VOC and HAP Emissions
From Wet Cake Production

Company Name: POET Biorefining - Portland, LLC
Address: 1542 South 200 West, Portland, IN 47371
Significant Source Modification No.: 075-41725-00032
Significant Permit Modification No.: 075-41904-00032
Reviewer: Taylor Wade

1. Process Description:
Wet cake production, storage and loadout

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.

Capacity = 83.0 ton/hr maximum dryer feed rate

<table>
<thead>
<tr>
<th></th>
<th>VOC</th>
<th>Acetaldehyde</th>
<th>Methanol</th>
<th>Formaldehyde</th>
<th>Acrolein</th>
<th>Total HAPs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emission Factor*</td>
<td>0.00830</td>
<td>0.00010</td>
<td>0.000040</td>
<td>0.00020</td>
<td>0.000020</td>
<td></td>
</tr>
<tr>
<td>lb/hr</td>
<td>0.689</td>
<td>0.008</td>
<td>0.003</td>
<td>0.017</td>
<td>0.002</td>
<td></td>
</tr>
<tr>
<td>Ton/yr</td>
<td>3.02</td>
<td>0.04</td>
<td>0.01</td>
<td>0.07</td>
<td>0.01</td>
<td>0.13</td>
</tr>
</tbody>
</table>

* Emission Factors provided by the source based on the stack test results for DENCO, LLC in Morris, MN.

Methodology

PTE (tons/yr) = Max. Throughput Rate (tons/hr) x Emission Factor (lbs/ton) x 8760 hr/yr x 1 ton/2000 lbs
## VOC Emission Calculations - Tanks T001 - T005, & T009

<table>
<thead>
<tr>
<th>Tank</th>
<th>Contents 1</th>
<th>Annual Throughput (gal)</th>
<th>Capacity (gal)</th>
<th>No. of Turn Overs</th>
<th>lb/yr</th>
<th>lb/hr</th>
<th>Ton/year</th>
</tr>
</thead>
<tbody>
<tr>
<td>T001</td>
<td>190 or 200 Proof Ethanol Tank (T001)</td>
<td>100,000,000</td>
<td>250,000</td>
<td>51.0</td>
<td>2,817.29</td>
<td>0.33</td>
<td>1.43</td>
</tr>
<tr>
<td>T002</td>
<td>Denaturant Storage Tanks (T002)</td>
<td>12,756,000</td>
<td>2,000,000</td>
<td>53.9</td>
<td>691.94</td>
<td>0.08</td>
<td>0.35</td>
</tr>
<tr>
<td>T003</td>
<td>200 Proof Ethanol Storage Tank (T003)</td>
<td>107,756,000</td>
<td>2,000,000</td>
<td>53.9</td>
<td>691.94</td>
<td>0.08</td>
<td>0.35</td>
</tr>
<tr>
<td>T004</td>
<td>200 Proof Ethanol Storage Tank (T004)</td>
<td>107,756,000</td>
<td>2,000,000</td>
<td>53.9</td>
<td>691.94</td>
<td>0.08</td>
<td>0.35</td>
</tr>
<tr>
<td>T005</td>
<td>Denaturant Storage Tank (T005)</td>
<td>12,756,000</td>
<td>126,900</td>
<td>100.5</td>
<td>2,817.29</td>
<td>0.33</td>
<td>1.43</td>
</tr>
<tr>
<td>T009</td>
<td>Small Gasoline Tank</td>
<td>15,600</td>
<td>300</td>
<td>53.8</td>
<td>429.47</td>
<td>0.05</td>
<td>0.21</td>
</tr>
</tbody>
</table>

| Total  | 8,405.06 | 0.96 | 4.20 |

*Emissions were calculated using Tanks 4.0.9d software.*

Assume:
- 190-Proof Ethanol is 100% ethyl alcohol in TANKS calculations.
- Denaturant is 100% gasoline (RVP 15) in TANKS calculations.
- 200-Proof Ethanol is 100% ethyl alcohol in TANKS calculations.

### Emission Calculations - Tanks EU040 - EU046

<table>
<thead>
<tr>
<th>Emission Unit</th>
<th>Contents</th>
<th>Annual Throughput (gal)</th>
<th>Capacity (gal)</th>
<th>Avg. Capacity</th>
<th>No. of Turn Overs</th>
<th>lb/yr</th>
<th>lb/hr</th>
<th>Ton/year</th>
</tr>
</thead>
<tbody>
<tr>
<td>EU040 (T-552)</td>
<td>Defatted Syrup Tank</td>
<td>com oil / defatted syrup</td>
<td>10,956,000</td>
<td>1,000</td>
<td>135</td>
<td>76,956</td>
<td>18.19</td>
<td>1.16E-03</td>
</tr>
<tr>
<td>EU041 (T-553)</td>
<td>Emulsion Tank</td>
<td>com oil / defatted syrup</td>
<td>42,048,000</td>
<td>1,000</td>
<td>80</td>
<td>42,048</td>
<td>6.05</td>
<td>6.91E-04</td>
</tr>
<tr>
<td>EU042 (T-555)</td>
<td>Defatted Emulsion Tank</td>
<td>com oil / defatted syrup</td>
<td>26,280,000</td>
<td>500</td>
<td>50</td>
<td>52,560</td>
<td>3.78</td>
<td>4.32E-04</td>
</tr>
<tr>
<td>EU043 (T-556)</td>
<td>Oil Separation Tank</td>
<td>com oil / defatted syrup</td>
<td>15,768,000</td>
<td>2,350</td>
<td>30</td>
<td>6,710</td>
<td>2.59</td>
<td>2.96E-04</td>
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<tr>
<td>EU044 (T-557)</td>
<td>Oil Cellulose Tank</td>
<td>com oil / defatted syrup</td>
<td>7,884,500</td>
<td>200</td>
<td>15</td>
<td>39,420</td>
<td>1.13</td>
<td>1.29E-04</td>
</tr>
<tr>
<td>EU045 (T-561)</td>
<td>Oil Separation Tank #1</td>
<td>com oil / defatted syrup</td>
<td>2,628,000</td>
<td>30,000</td>
<td>15</td>
<td>263</td>
<td>3.34</td>
<td>3.88E-05</td>
</tr>
<tr>
<td>EU046 (T-562)</td>
<td>Oil Separation Tank #2</td>
<td>com oil / defatted syrup</td>
<td>2,628,000</td>
<td>30,000</td>
<td>15</td>
<td>263</td>
<td>3.34</td>
<td>3.88E-05</td>
</tr>
</tbody>
</table>

| Total  | 24.42 | 2.79E-03 | 1.22E-02 |

### VOC Emissions - Tanks EU040 - EU046

<table>
<thead>
<tr>
<th>Benzene</th>
<th>Hexane(-n)</th>
<th>Toluene</th>
<th>Acetaldehyde</th>
<th>Methanol</th>
<th>Formaldehyde</th>
<th>Acrolein</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>ton/yr</td>
<td>ton/yr</td>
<td>ton/yr</td>
<td>ton/yr</td>
<td>ton/yr</td>
<td>ton/yr</td>
<td>ton/yr</td>
<td>ton/yr</td>
</tr>
<tr>
<td>T001</td>
<td>3.58E-03</td>
<td>7.17E-02</td>
<td>7.17E-03</td>
<td>2.87E-04</td>
<td>3.02E-05</td>
<td>4.03E-05</td>
<td>2.01E-05</td>
</tr>
<tr>
<td>T002</td>
<td>3.58E-03</td>
<td>7.17E-02</td>
<td>7.17E-03</td>
<td>2.87E-04</td>
<td>3.02E-05</td>
<td>4.03E-05</td>
<td>2.01E-05</td>
</tr>
<tr>
<td>T003</td>
<td>3.58E-03</td>
<td>7.17E-02</td>
<td>7.17E-03</td>
<td>2.87E-04</td>
<td>3.02E-05</td>
<td>4.03E-05</td>
<td>2.01E-05</td>
</tr>
<tr>
<td>T004</td>
<td>3.58E-03</td>
<td>7.17E-02</td>
<td>7.17E-03</td>
<td>2.87E-04</td>
<td>3.02E-05</td>
<td>4.03E-05</td>
<td>2.01E-05</td>
</tr>
<tr>
<td>T005</td>
<td>3.58E-03</td>
<td>7.17E-02</td>
<td>7.17E-03</td>
<td>2.87E-04</td>
<td>3.02E-05</td>
<td>4.03E-05</td>
<td>2.01E-05</td>
</tr>
<tr>
<td>T009</td>
<td>3.58E-03</td>
<td>7.17E-02</td>
<td>7.17E-03</td>
<td>2.87E-04</td>
<td>3.02E-05</td>
<td>4.03E-05</td>
<td>2.01E-05</td>
</tr>
</tbody>
</table>

| Total   | 9.43E-03 | 1.89E-02 | 1.89E-02   | 8.41E-04 | 8.87E-05     | 1.18E-04| 5.88E-05|

Note: Ethanol contains very small concentrations of HAP compounds including acetaldehyde, acrolein, methanol, and formaldehyde.

### Total amount meeting definition of "gasoline" under 40 CFR 63.11100: 98,389 gal/day

### Gasoline Wt Fraction

<table>
<thead>
<tr>
<th>HAP</th>
<th>HAP Fraction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetaldehyde</td>
<td>2.00E-04</td>
</tr>
<tr>
<td>Acrolein</td>
<td>1.40E-05</td>
</tr>
<tr>
<td>Methanol</td>
<td>3.11E-05</td>
</tr>
<tr>
<td>Benzene</td>
<td>2.50E-03</td>
</tr>
<tr>
<td>Carbon Disulfide</td>
<td>2.00E-05</td>
</tr>
<tr>
<td>Guaiacol</td>
<td>5.00E-06</td>
</tr>
<tr>
<td>Ethylbenzene</td>
<td>5.00E-06</td>
</tr>
<tr>
<td>Formaldehyde</td>
<td>2.81E-06</td>
</tr>
<tr>
<td>n-Hexane</td>
<td>5.00E-06</td>
</tr>
<tr>
<td>Toluene</td>
<td>5.00E-03</td>
</tr>
<tr>
<td>Xylenes</td>
<td>5.00E-04</td>
</tr>
</tbody>
</table>

Total: 0.22
Appendix A: Emission Calculations
VOC Emission Calculations
Slurry Tank- EU011

Company Name: POET Biorefining - Portland, LLC
Address: 1542 South 200 West, Portland, IN 47371
Significant Source Modification No.: 075-41725-00032
Significant Permit Modification No.: 075-41904-00032
Reviewer: Taylor Wade

This page calculates VOC emissions from the slurry tank. The VOC emissions are based on testing at Poet Alexandria in 2012 and a 50% safety factor. HAP emissions from the slurry tank are included and are negligible. This stationary source is an insignificant activity which is not specifically regulated, as defined in 326 IAC 2-7-1(21).

Conversions
1 cubic foot = 7.48 gallons
1 day = 24 hours
1 year = 8760 hours
1 ton = 2000 pounds

Test results of Slurry Tank Vent POET Biorefining - Alexandria 2012

<table>
<thead>
<tr>
<th>Concentration (ppm, d)</th>
<th>Run 1</th>
<th>Run 2</th>
<th>Run 1</th>
<th>Run 2</th>
<th>Avg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetaldehyde</td>
<td>0.8</td>
<td>0.77</td>
<td>0.001</td>
<td>0.001</td>
<td>0.001</td>
</tr>
<tr>
<td>Acrolein</td>
<td>&lt;0.08</td>
<td>&lt;0.08</td>
<td>&lt;0.0001</td>
<td>&lt;0.0001</td>
<td>0.0001</td>
</tr>
<tr>
<td>Ethyl Acetate</td>
<td>0.31</td>
<td>0.31</td>
<td>0.0005</td>
<td>0</td>
<td>0.0005</td>
</tr>
<tr>
<td>Methanol</td>
<td>0.35</td>
<td>&lt;0.24</td>
<td>0.0002</td>
<td>&lt;0.0001</td>
<td>0.00002</td>
</tr>
<tr>
<td>Ethanol</td>
<td>34.1</td>
<td>30.51</td>
<td>0.03</td>
<td>0.03</td>
<td>0.03</td>
</tr>
<tr>
<td>2,3 Butanedine</td>
<td>&lt;0.04</td>
<td>&lt;0.04</td>
<td>&lt;0.0001</td>
<td>&lt;0.0001</td>
<td>0.0001</td>
</tr>
<tr>
<td>Isoamyl Alcohol</td>
<td>0.23</td>
<td>&lt;0.05</td>
<td>0.0004</td>
<td>&lt;0.0001</td>
<td>0.0002</td>
</tr>
<tr>
<td>Acetic Acid</td>
<td>&lt;0.10</td>
<td>&lt;0.10</td>
<td>&lt;0.0001</td>
<td>&lt;0.0001</td>
<td>0.0001</td>
</tr>
<tr>
<td>Furaldehyde</td>
<td>&lt;0.01</td>
<td>&lt;0.01</td>
<td>&lt;0.00002</td>
<td>&lt;0.00002</td>
<td>0.00002</td>
</tr>
<tr>
<td>Formaldehyde</td>
<td>0.17</td>
<td>0.16</td>
<td>0.0001</td>
<td>0.0001</td>
<td>0.0001</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>0.03</td>
<td>0.03</td>
<td>0.03</td>
</tr>
</tbody>
</table>

Slurry Tank - EU011

<table>
<thead>
<tr>
<th>Uncontrolled Emissions</th>
<th>lb/hr¹</th>
<th>ton/year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanol</td>
<td>0.045</td>
<td>0.197</td>
</tr>
<tr>
<td>Acetaldehyde</td>
<td>0.0015</td>
<td>0.0066</td>
</tr>
<tr>
<td>Total VOC</td>
<td>0.047</td>
<td>0.204</td>
</tr>
</tbody>
</table>

¹Based on testing at Poet Alexandria in 2012 and a 50% safety factor.
Appendix A: Emission Calculations
Particulate Emission Limitations for Manufacturing Processes (326 IAC 6-3-2)

Company Name: POET Biorefining - Portland, LLC
Address: 1542 South 200 West, Portland, IN 47371
Significant Source Modification No.: 075-41725-00032
Significant Permit Modification No.: 075-41904-00032
Reviewer: Taylor Wade

E = 4.10 \times P^{0.67} \quad \text{for} \quad P \leq 60,000 \text{ lb/hr}
E = 55 \times P^{0.11} - 40 \quad \text{for} \quad P > 60,000 \text{ lb/hr}

<table>
<thead>
<tr>
<th>PM Control Device</th>
<th>Process Description</th>
<th>Process Weight, P</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>P (lb/hr)</td>
</tr>
<tr>
<td>CE001</td>
<td>Grain Receiving (EU001), Conveyors (EU002), Storage Bins (EU003)</td>
<td>1,680,000</td>
</tr>
<tr>
<td>CE002</td>
<td>Corn Scalper (EU004), Surge Bin (EU005)</td>
<td>280,000</td>
</tr>
<tr>
<td>CE003</td>
<td>Hammermill #1 (EU006)</td>
<td>40,000</td>
</tr>
<tr>
<td>CE004</td>
<td>Hammermill #2 (EU007)</td>
<td>40,000</td>
</tr>
<tr>
<td>CE005</td>
<td>Hammermill #3 (EU008)</td>
<td>40,000</td>
</tr>
<tr>
<td>CE006</td>
<td>Hammermill #4 (EU009)</td>
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</tr>
<tr>
<td>CE007</td>
<td>Hammermill #5 (EU010)</td>
<td>40,000</td>
</tr>
<tr>
<td>CE008</td>
<td>Conveyors (EU002b), Storage Bins (EU003b)</td>
<td>1,680,000</td>
</tr>
<tr>
<td>CE009</td>
<td>Conveyors (EU002b), Storage Bins (EU003b)</td>
<td>1,680,000</td>
</tr>
<tr>
<td>CE010</td>
<td>Conveyors (EU002b), Storage Bins (EU003b)</td>
<td>1,680,000</td>
</tr>
<tr>
<td>CE011</td>
<td>DDGS Silo Loading (EU030)</td>
<td>66,600</td>
</tr>
<tr>
<td>CE012</td>
<td>DDGS Silo Bypass (EU031)</td>
<td>66,600</td>
</tr>
<tr>
<td>CE013 &amp; CE014 and CE009 &amp; CE010</td>
<td>RTO Stack &amp; DDGS Dryers (EU025 &amp; EU026)</td>
<td>170,000</td>
</tr>
<tr>
<td>CE010</td>
<td>DDG Fluid Bed Cooler (EU029)</td>
<td>66,600</td>
</tr>
</tbody>
</table>

(c) This rule shall not apply if a particulate matter limitation established in one of the following is more stringent than the particulate limitation established in this rule:
(1) 326 IAC 2-2-3, concerning prevention of significant deterioration (PSD) best available control technology (BACT) determinations contained in a permit;
(2) 326 IAC 2-3-3, concerning lowest achievable emission rate (LAER) determinations contained in a permit;
(3) 326 IAC 6.5 and 326 IAC 6.8, concerning particulate matter emissions;
(4) 326 IAC 11, concerning existing emission limitations for specific operations;
(5) 326 IAC 12, concerning new source performance standards; or
(6) 326 IAC 20, concerning national emission standards for hazardous air pollutants.
Appendix A: Emission Calculations

VOC Emissions

Railcar Venting for Repair

Company Name: POET Biorefining - Portland
Address City IN Zip: 1542 South 200 West, Portland, IN 47371
Significant Source Modification No.: 075-41725-00032
Significant Permit Modification No.: 075-41904-00032
Reviewer: Taylor Wade

POET Biorefining - Portland loads denatured ethanol or undenatured ethanol to dedicated railcars using two loadout skids. After shipping ethanol off-site, dedicated railcars are returned to the plant empty, but containing residue ethanol vapors. When the empty railcars are in need of repair, a third party contractor will be at POET to complete the repairs prior to loading ethanol. The railcars will be vented prior to repair work so that the vapors within the railcar are below the lower explosive limit (LEL) and can be worked on safely. Railcars will be vented by opening the top manway lid and allowing the ethanol vapors to escape. The venting will occur passively; there will not be air forced into the railcar to vent the vapors.

Section 7.1 of AP-42 addresses emissions from Organic Liquid Storage Tanks, and includes emissions associated with Standing Storage, or "breathing", losses. Emissions in this section are based on the ideal gas law. Breathing losses occur as temperatures change throughout the day and cause the expansion (driving vapors out of the tank) and contraction (drawing fresh air into the tank) of vapors within the tank. The table below estimates railcar venting emissions based on AP-42 and the American Petroleum Institute's (API's) Technical Report 2568, Evaporative Loss from the Cleaning of Storage Tanks, November 2007. The estimated emissions were determined using calculations for Vapor Space Purging emissions from a horizontal fixed roof tank.

HAPs emissions were assumed to be negligible due to the low percent of denaturant present in the denatured ethanol.

Given:
Maximum annual ethanol production = 107,756,000 gallons
Railcar Volume = 85,127,240 gallons

Assumptions:
Maximum % ethanol shipped by rail = 79.00%
Maximum % of railcars needing repair = 12.5%
Safety Factor = 3.0
Maximum railcars venting at one time = 5.0

Calculations:
Maximum railcars per year = 400 railcars/year
Maximum railcars needing repair per year = 50 railcars/year

<table>
<thead>
<tr>
<th>Tank Information:</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>p_d</td>
<td>Enter the number of days to vent the railcar</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Stored Product Information:</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>M_v</td>
<td>Vapor Molecular Weight, lb/lbmole</td>
</tr>
<tr>
<td>A</td>
<td>Vapor Pressure Coefficient, dimensionless</td>
</tr>
<tr>
<td>B</td>
<td>Vapor Pressure Coefficient, dimensionless</td>
</tr>
<tr>
<td>C</td>
<td>Vapor Pressure Coefficient, dimensionless</td>
</tr>
<tr>
<td>P_{VA}</td>
<td>Vapor Pressure at Daily Ave. Surface Temp, psia</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Meteorological Information:</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Month</td>
<td>July</td>
</tr>
<tr>
<td>Delta T_v</td>
<td>Month the tank vented (assumes worst-case temperatures)</td>
</tr>
<tr>
<td>T_{AA}</td>
<td>Daily Average Ambient Temperature, degrees R</td>
</tr>
<tr>
<td>T_{AX}</td>
<td>Daily Maximum Average Ambient Temp, degrees F</td>
</tr>
<tr>
<td>T_{AN}</td>
<td>Daily Minimum Average Ambient Temp, degrees F</td>
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<td>Delta T_{A}</td>
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<td>T_{B}</td>
<td>Liquid Bulk Temperature at daily average ambient temperature, degrees R</td>
</tr>
<tr>
<td>Pa</td>
<td>Atmospheric Pressure, psia</td>
</tr>
<tr>
<td>I</td>
<td>Daily Total Solar Insulation Factor, BTUft^2/°F</td>
</tr>
</tbody>
</table>

Tanks 4.0.9d Chemical Data. Assumes denatured ethanol is 95% ethanol and 5% gasoline (RVP 15).
Tanks 4.0.9d Chemical Data (ethyl alcohol).
Tanks 4.0.9d Chemical Data (ethyl alcohol).
Tanks 4.0.9d Chemical Data (ethyl alcohol).
AP-42, Chapter 7.1, Formula 1-24, 1-25, & 4-3. Assumes denatured ethanol is 95% ethanol and 5% gasoline (RVP 15).
AP-42, Chapter 7.1, Formula 1-27
AP-42, Chapter 7.1, Formula 1-8
AP-42, Chapter 7.1, Formula 1-28
AP-42, Chapter 7.1, Formula 1-12
AP-42, Chapter 7.1, Formula 1-26
Appendix A: Emission Calculations
VOC Emissions
Railcar Venting for Repair

Company Name: POET Biorefining - Portland
Address City IN Zip: 1542 South 200 West, Portland, IN 47371
Significant Source Modification No.: 075-41725-00032
Significant Permit Modification No.: 075-41904-00032

| alpha | Tank Paint Solar Absorptance, dimensionless | 0.97 | API MPMS Chapter 19.1, Evaporative Loss from Fixed-Roof Tanks, Table 5 - Solar Absorptance for Selected Tank Surfaces, Addendum August 2008 |

**Vapor Space Purge Emissions**

| Pvp | True Vapor Pressure of Liquid During Purge, psia | 2.11 | AP-42, Chapter 7.1, Formula 1-25 |
| Vv | Capacity of Rail Cars, gallon | 31,800 |
| R | Ideal Gas Constant, psia*ft3/lbmole*R | 10.731 |
| Tpurge | Average Monthly Stock Temperature, degrees R | 534 | Equal to average ambient temperature, Equation 14, API Technical Report 2568 - Evaporative Loss from the Cleaning of Storage Tank, November 2007 |
| Mv | Vapor Molecular Weight, lb/lbmole | 49.50 | Tanks 4.0.9d Chemical Data |
| Spurge | Vapor Space Purge Saturation Factor, dimensionless | 0.25 | Table 5, API Technical Report 2568 - Evaporative Loss from the Cleaning of Storage Tank, November 2007 |

### Uncontrolled Potential to Emit

<table>
<thead>
<tr>
<th>VOC</th>
<th>Lbs/railcar</th>
<th>lb/hr</th>
<th>TPY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>19.36</td>
<td>4.03</td>
<td>0.48</td>
</tr>
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</table>

### Controlled Potential to Emit

<table>
<thead>
<tr>
<th>VOC</th>
<th>Lbs/railcar</th>
<th>lb/hr</th>
<th>TPY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>19.36</td>
<td>4.03</td>
<td>0.48</td>
</tr>
</tbody>
</table>

**Methodology**


Vapor space purge losses calculated using Formula Number 14.

\[
\text{Vapor Space Purge Loss } L_p = \left( \frac{P V_v}{R T_s} \right) M_v S
\]

Max Railcars per year = Total Ethanol Production x % Shipped by rail / Railcar Volume

Max Railcar Repairs per year = Max Railcars per year x % railcars requiring repairs x safety factor

PTE Before Control = PTE After Control = \( L_p \times \text{Railcar Repairs per year} / 2000 \text{ lb/ton} \)

**Notes**

1. Highest annual percentage of ethanol shipped by rail from Portland or North Manchester between 2010-2015.
2. Based on estimation by Poet Ethanol Products
3. Safety factor to account for possibility of higher percentage of ethanol shipped by rail in future
4. Assumes maximum of 5 railcars venting at a time
5. Denatured ethanol is assumed to be 95% ethanol and 5% gasoline (RVP 15) for these calculations
Indiana Department of Environmental Management
Office of Air Quality

Appendix B
Best Available Control Technology (BACT) Analysis Determination

<table>
<thead>
<tr>
<th>Source Background and Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Source Name:</strong> POET Biorefining – Portland, LLC</td>
</tr>
<tr>
<td><strong>Source Location:</strong> 1542 South 200 West, Portland, IN 47371</td>
</tr>
<tr>
<td><strong>County:</strong> Jay</td>
</tr>
<tr>
<td><strong>SIC Code:</strong> 2869 (Industrial Organic Chemicals, NEC) 2048 (Prepared Feed and Feed Ingredients for Animals and Fowls)</td>
</tr>
<tr>
<td><strong>Significant Source Modification No.:</strong> 075-41725-00032</td>
</tr>
<tr>
<td><strong>Significant Permit Modification No.:</strong> 075-41904-00032</td>
</tr>
<tr>
<td><strong>Part 70 Operating Permit Renewal No.:</strong> T075-38211-00032</td>
</tr>
<tr>
<td><strong>Permit Reviewer:</strong> Taylor Wade</td>
</tr>
</tbody>
</table>

**Background Information**

POET Biorefining – Portland, LLC (POET) is currently permitted to use whole corn kernel and alternative feedstocks to produce ethanol. Ethanol production using whole corn kernel is subject to 326 IAC 8-5-6. The alternative grain feedstocks included in the evaluation are grain sorghum (also referred to as milo) and wheat. Since the alternative grain feedstock is not whole corn kernel, producing ethanol with it is not regulated under 326 IAC 8-5-6. Therefore, the ethanol production using non-whole corn kernel is subject to 326 IAC 8-1-6.

When using a feedstock other than whole kernel corn, or in combination with whole kernel corn, to produce a meal that is then used to the production of fuel grade ethanol, the Indiana Department of Environmental Management (IDEM) determined that BACT analyses are required under the provisions of 326 IAC 8-1-6 (Best Available Control Technology (BACT)) for the following processes, because the potential emissions are equal to or greater than twenty-five (25) tons per year of VOC: fermentation, distillation, and dehydration, distillers grains and solids (DGS) drying, and ethanol load-out operations.

This application is requesting to revise existing VOC 326 IAC 8-1-6 BACT limits for the Scrubber/RTO operating scenarios and Ethanol Loading allow for loading of 100% denataurant through the ethanol loading system (EU036) and bring the operational limits of the source to similar levels of the other POET biorefining sources. Therefore, a BACT analyses is being included for these units.

**Summary of the Best Available Control Technology (BACT) Process**

BACT is an emissions limitation based on the maximum degree of pollution reduction of emissions, which is achievable on a case-by-case basis. BACT analysis takes into account the energy, environmental, and economic impacts on the source. These reductions may be determined through the application of available control techniques, process design, work practices, and operational limitations. Such reductions are necessary to demonstrate that the emissions remaining after application of BACT will not cause or contribute significantly to air pollution, thereby protecting public health and the environment.

Federal guidance on BACT requires an evaluation that follows a “top down” process. In this approach, the applicant identifies the best-controlled similar source on the basis of controls required by regulation or permit, or controls achieved in practice. The highest level of control is then evaluated for technical feasibility.
The five (5) basic steps of a top-down BACT analysis are listed below:

**Step 1: Identify Potential Control Technologies**

The first step is to identify potentially “available” control options for each emission unit and for each pollutant under review. Available options should consist of a comprehensive list of those technologies with a potentially practical application to the emissions unit in question. The list should include lowest achievable emission rate (LAER) technologies, innovative technologies, and controls applied to similar source categories.

**Step 2: Eliminate Technically Infeasible Options**

The second step is to eliminate technically infeasible options from further consideration. To be considered feasible, a technology must be both available and applicable. It is important in this step that any presentation of a technical argument for eliminating a technology from further consideration be clearly documented based on physical, chemical, engineering, and source-specific factors related to safe and successful use of the controls. Innovative control means a control that has not been demonstrated in a commercial application on similar units. Innovative controls are normally given a waiver from the BACT requirements due to the uncertainty of actual control efficiency. A control technology is considered available when there are sufficient data indicating that the technology results in a reduction in emissions of regulated pollutants.

**Step 3: Rank the Remaining Control Technologies by Control Effectiveness**

The third step is to rank the technologies not eliminated in Step 2 in order of descending control effectiveness for each pollutant of concern. The ranked alternatives are reviewed in terms of environmental, energy, and economic impacts specific to the proposed modification. If the analysis determines that the evaluated alternative is not appropriate as BACT due to any of the impacts, then the next most effective is evaluated. This process is repeated until a control alternative is chosen as BACT. If the highest ranked technology is proposed as BACT, it is not necessary to perform any further technical or economic evaluation, except for the environmental analyses.

**Step 4: Evaluate the Most Effective Controls and Document the Results**

The fourth step entails an evaluation of energy, environmental, and economic impacts for determining a final level of control. The evaluation begins with the most stringent control option and continues until a technology under consideration cannot be eliminated based on adverse energy, environmental, or economic impacts.

For the technologies determined to be feasible, there may be several different limits that have been set as BACT for the same control technology. The permitting agency has to choose the most stringent limit as BACT unless the applicant demonstrates in a convincing manner why that limit is not feasible. BACT must, at a minimum, be no less stringent than the level of control required by any applicable New Source Performance Standard (NSPS) and National Emissions Standard for Hazardous Air Pollutants (NESHAP) or state regulatory standards applicable to the emission units included in the permits.

**Step 5: Select BACT**

Final BACT determinations are made by following the five steps identified above:

| Volatile Organic Compounds (VOC) BACT – Fermentation / Distillation / Dryers |
|**Step 1 – Identify Potential Control Options**|
The volatile organic compounds (VOC) emissions can be controlled by the following emission control systems:

1. Destruction Processes;
2. Reclamation Processes; and/or
3. Combination of Reclamation and Destruction Technologies.

Destruction technologies reduce VOC concentration by high temperature oxidation into carbon dioxide and water vapor. Reclamation is the capture of VOCs for reuse or disposal. A further description of these types of control technologies follows:

**Destruction Control Methods**

The destruction of organic compounds usually requires temperatures ranging from 1,200°F to 2,000°F for direct thermal incinerators or 600°F to 1,200°F for catalytic systems. Combustion temperature depends on the chemical composition and the desired destruction efficiency. Carbon dioxide and water vapor are the typical products of complete combustion. Turbulent mixing and combustion chamber retention times of 0.5 to 1.0 seconds are needed to obtain high destruction efficiencies.

Control technologies include direct incineration, recuperative thermal incineration, regenerative thermal incineration, recuperative catalytic incineration, regenerative catalytic incineration, and flares.

**Direct Incineration:** Direct incineration is the most simple and direct form of incineration. It involves burning the VOC-laden fumes directly in a combustion chamber without reheating or post-combustion heat recovery. Direct incineration typically requires supplemental fuel. Concentrated VOC streams with high heat contents obviously require less supplementary fuel than more dilute streams. VOC streams sometimes have a heat content high enough to be self-sustaining, but a supplemental fuel firing rate equal to about 5% of the total incinerator heat input is usually needed to stabilize the burner flame. Natural gas is the most common fuel for VOC incinerators, but fuel oil is an option in some circumstances.

**Recuperative Thermal Oxidation:** Recuperative thermal incinerators are add-on control devices used to control VOC emissions by introducing solvent-laden fumes to the oxidizer. The stream is pre-heated by exiting flue gas from the same system in a heat exchanger or recuperator, a burner then heats the air to the required temperature. The air is then passed through an oxidation chamber where the solvent-laden air is converted to carbon dioxide and water. These are then passed through the heat exchanger where incoming fume is preheated by the heat of the exiting flue gas. Finally the clean flue gas is discharged to the atmosphere. The recuperative thermal oxidizer is appropriate for waste streams with a relatively high solvent content and/or consistent pollutant loading. Variation in pollutant loading will require a longer retention time in the oxidizer in order to properly destroy VOC emissions.

**Regenerative Thermal Oxidation:** Regenerative thermal oxidizers (RTOs) are add-on control devices used to control VOC emissions by simple reaction of the harmful air pollutants with oxygen and heat. An RTO uses a direct contact heat exchanger. These direct contact heat exchangers consist of a bed of porous ceramic packing or other structured, high heat capacity media. These systems can handle variable and low concentration VOC waste streams.

The inlet gas first passes through a hot ceramic bed thereby heating the stream (and cooling the bed) to its ignition temperature. The hot gases then react (releasing energy) in the combustion chamber and while passing through another ceramic bed, thereby heating
it to the combustion chamber outlet temperature. The process flows are then switched, now feeding the inlet stream to the hot bed. This cyclic process affords very high energy recovery (up to 95%). The higher capital costs associated with these high performance heat exchangers and combustion chambers may be offset by the increased auxiliary fuel savings to make such a system economical.

**Recuperative and Regenerative Catalytic Oxidation:** Catalytic incinerators are add-on control devices used to control VOC emissions by using a bed of catalyst that facilitates the oxidation of the combustible gases. The catalyst increases the reaction rate and allows the conversion of VOC at lower temperatures than thermal incinerators. Catalytic oxidation can be used for low-concentration VOC waste streams; however, certain compounds present in waste stream gas may foul the catalyst. It may also be necessary to remove particulate prior to catalytic oxidation as well.

**Flares:** Flaring is used to control VOC emissions by piping VOCs to a remote, usually elevated location and burning them in an open flame in the open air using a specially designed burner tip, auxiliary fuel, and steam or air to promote mixing for nearly complete (> 98%) VOC destruction. While flares are designed to eliminate waste gas streams, they can cause safety and operational problems and the exhaust stream concentration must be high enough to sustain combustion.

**Reclamation Control Methods**

Organic compounds may be reclaimed by one of three possible methods; adsorption, absorption (scrubbing) or condensation. In general, the organic compounds are separated from the emission stream and reclaimed for reuse or disposal. Depending on the nature of the contaminant and the inlet concentration of the emission stream, recovery technologies can reach efficiencies of 98%.

**Adsorption:** Adsorption is a surface phenomenon where attraction between the carbon and VOC molecules binds the pollutants to the carbon surface. Both carbon and VOC are chemically intact after adsorption. The VOCs may be removed, or desorbed, from the carbon bed reclaimed and destroyed. Adsorption can be used for relatively low VOC exhaust streams. Pollutants present in the gas streams can reduce adsorber efficiency, increase pressure drop and eventually plug the bed. Adsorption processes can be used to capture VOCs in low concentration exhaust; however, it is typically only used for exhaust that is not loaded with other pollutants which can plug the bed.

**Absorption:** Absorption is a unit operation where components of a gas phase mixture (Pollutants) are selectively transferred to a relatively nonvolatile liquid, usually water. Sometimes, organic liquids, such as mineral oil or nonvolatile hydrocarbons, are suitable absorption solvents. The choice of solvent depends on cost and solubility of the pollutant in the solvent. Absorption is commonly used to recover products or purify gas streams that have high concentrations of organic compounds. Absorption processes are typically used to recover products or purify gas streams with high concentrations of organic compounds such as in the ethanol production and soybean oil refinery industries. There are several types of wet scrubbers that use a variety of techniques to control VOC emissions. The type of scrubber used in a particular application is dependent on the characteristics of the waste gas stream and the pollutants of concern. VOC control scrubbers are designed primarily for creating intimate contact to promote absorption of soluble compounds.

**Condensation:** Condensation is the separation of VOCs from an emission stream through a phase change, by increasing the system pressure or, more commonly, lowering the system temperature below the dew point of the VOC vapor. When condensers are used for air pollution control, they usually operate at the pressure of the emission stream, and typically require a refrigeration unit to obtain the temperature necessary to condense the VOCs from the emission stream. These systems are frequently used prior to other control devices.
(e.g., oxidizers or absorbers) to remove components that may be corrosive or damaging to other parts of the system. Refrigerated condensers are used as air pollution control devices for treating emission streams with high VOC concentrations (usually > 5,000 ppmv). Condensers may be used to control VOC emissions with high VOC concentrations (usually greater than 5,000 ppmv).

Combination of Reclamation and Destruction Control Methods

In some cases, a combination of control technologies offers the most efficient and cost effective VOC control.

The combination of carbon adsorption with recuperative thermal incineration is available commercially. This system concentrates the VOC stream by using carbon adsorption to remove low concentration VOCs in an emission stream and then uses a lower volume of hot air, commonly one-tenth the original flow, to desorb the pollutants. A recuperative incinerator for destroying pollutants in the concentrated stream is much smaller and has lower supplemental fuel requirement than an incinerator sized for the full emission stream volume.

Absorption systems can also be used to concentrate emission streams to reduce the size of destruction equipment. The concentration effect is not as extreme as with carbon adsorption, a concentrated exhaust stream one quarter the volume of the inlet stream seems to be the practical limit. Absorption concentrators are typically suited for batch processes or to equalize pollutant concentrations in a variable stream. The physical characteristics that drive the absorption of pollutants into a liquid also limit the opportunity to remove those pollutants from the liquid stream. Fume incinerators typically need supplemental fuel. Concentrated VOC streams with high heat contents obviously require less supplementary fuel than more dilute streams. VOC streams sometimes have a heat content high enough to be self-sustaining, but a supplemental fuel firing rate equal to about 5% of the total incinerator heat input is usually needed to stabilize the burner flame. Natural gas is the most common fuel for VOC incinerators, but fuel oil is an option in some circumstances.

Step 2: Eliminate Technically Infeasible Options

The test for technical feasibility of any control option is whether it is both available and applicable to reducing VOC emissions from emissions units at fermentation/distillation/dryer facilities. The control technologies listed in the previous section are discussed and evaluated below for their technical feasibility.

A CO2 scrubber system is used by POET to recover alcohol. Therefore, any other control technologies would be used downstream of the CO2 scrubber.

Because of the variety of exhaust streams that are directed to a common control device, the control device by nature must be able to treat a fairly broad range of VOC, particulate, moisture and other loadings as well as other differences such as air volumes, batch operations, temperatures, pressure drop issues, etc.

Destruction Control Methods

Direct Incineration: The use of direct incineration is not a technically feasible option for the fermentation/distillation/dryer processes at this source, because direct incineration typically needs VOC inlet concentrations of at least 1500 to 3000 ppm to perform acceptably without requiring significant quantities of supplemental fuel to sustain temperatures. Since POET normally uses a CO2 scrubber to recover alcohol first, the inlet concentrations for an incinerator would be well below the 1500 to 3000 ppm minimum range for direct thermal incineration. When bypassing the scrubber during scrubber down time, inlet concentrations for an incinerator would still be well below the 1500 to 3000 ppm minimum range for direct thermal incineration.
Recuperative Thermal Oxidation: Recuperative thermal oxidation typically needs VOC inlet concentrations of at least 1500 to 3000 ppm to perform acceptably without requiring significant quantities of supplemental fuel to sustain temperatures. Since POET normally first uses a CO2 scrubber to recover alcohol, the inlet concentrations for a recuperative thermal oxidizer would be well below the 1500 to 3000 ppm minimum range for recuperative thermal incineration. When bypassing the scrubber during scrubber down time, inlet concentrations for an incinerator would still be well below the 1500 to 3000 ppm minimum range for a recuperative thermal oxidizer. The use of a Recuperative Thermal Oxidation is not a technically feasible option for the fermentation/distillation/dryer processes at this source.

Recuperative and Regenerative Catalytic Oxidation: Catalytic incinerators are add-on control devices used to control VOC emissions by using a bed of catalyst that facilitates the oxidation of the combustible gases. The catalyst increases the reaction rate and allows the conversion of VOC at lower temperatures than thermal incinerators. Catalytic oxidation can be used for low-concentration VOC waste streams; however, certain compounds present in waste stream gas may foul the catalyst. It may also be necessary to remove particulate prior to catalytic oxidation as well. The use of a Recuperative and Regenerative Catalytic Oxidation are not a technically feasible options for the fermentation/distillation/dryer processes at this source.

Flares: Flaring is used to control VOC emissions by piping VOCs to a remote, usually elevated location and burning them in an open flame in the open air using a specially designed burner tip, auxiliary fuel, and steam or air to promote mixing for nearly complete (> 98%) VOC destruction. While flares are designed to eliminate waste gas streams, they can cause safety and operational problems and the exhaust stream concentration must be high enough to sustain combustion. The VOC concentration downstream of POET's CO2 scrubber is too low to sustain usage of a flare. Based on this, as well as the safety issues associated with flares, Flaring is not a technically feasible option for the fermentation/distillation/dryer processes at this source.

Reclamation Control Methods

Adsorption: Based on a review of the RBLC, this type of control has been used in the printing and petroleum refinery industries. This type of control is not typically used in ethanol fermentation processes. Carbon adsorption is not technically feasible for the control of VOC emissions from the fermentation/distillation/dryer processes. The primary VOC constituents emitted from this process are ethanol and acetaldehyde. Carbon adsorption is only technically feasible for VOC concentrations of 200 to 1,000 ppmv and an average VOC molecular weight of 50 to 60 atomic units. The VOC molecular weight from the fermentation/distillation/dryer processes will be below 50. Additionally, the broad range of VOC, particulate, moisture and other loadings would reduce adsorber efficiency, increase pressure drop and eventually plug the bed. The use of Adsorption is not a technically feasible option for the fermentation/distillation/dryer processes at this source.

Condensation: Condensers are not considered technically feasible for the application of controlling VOC emissions from the fermentation/distillation/dryer processes due to the low concentration of VOC in the exhaust downstream of POET's CO2 scrubber. Based on a review of the RBLC, this type of control is not used in the ethanol fermentation/distillation process and is not a technically feasible option for the fermentation/distillation/dryer processes at this source.

Step 3: Rank the Remaining Control Technologies by Control Effectiveness

The remaining control options are in order of descending control effectiveness:

(a) Regenerative Thermal Oxidation - 98%
(b) Wet Scrubber (Absorption) - 98%
**Step 4 – Evaluate the Most Effective Controls and Document Results**

Based on a review of the RBLC, there are several control technologies that have been used to control VOC emissions from alcohol fermentation/distillation/dryer processes vent streams; found in process types 70.120 (Alcohol Fuel Production), 70.190 (Other Alcohol Production) and 12.290 (Other Liquid Fuel and Liquid Fuel Mixtures), however, the primary process to accomplish this appears to be wet scrubbing or scrubbing combined with thermal oxidation. Of the relevant entries found in the RBLC (over the last 10 years), the majority of these facilities use a wet scrubber (see Table 4-1). VOC control efficiencies for such wet scrubbers are reported to range from 95 to 99%. High efficiencies are a result of the highly soluble nature of ethanol in water. The POET CO2 scrubber is designed to achieve a VOC control efficiency of 98%.

**Table 4-1. RBLC Data on Ethanol Plants: Fermenters / Distillation / Dryers**

This source normally operates with all fermentation/distillation/dryer process emissions controlled by a wet scrubber followed by an RTO. There are also two alternative scenarios:
- AOS#1: fermentation/distillation/dryer process emissions are controlled by the RTO only, and
- AOS#2: fermentation and distillation process emissions are controlled by the scrubber only.

<table>
<thead>
<tr>
<th>Company</th>
<th>RBLC ID</th>
<th>Source</th>
<th>Permit Issuance Date</th>
<th>Technology</th>
<th>VOC Limit(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Proposed BACT for POET Biorefining-Portland, LLC</strong></td>
<td></td>
<td>Fermentation/Distillation</td>
<td>Pending</td>
<td>CO2 scrubber in series with RTO</td>
<td>98% overall, or an outlet concentration of 10ppmv, 30.80 lb/hr at RTO outlet</td>
</tr>
<tr>
<td><strong>Proposed BACT for POET Biorefining-Portland, LLC (AOS1)</strong></td>
<td></td>
<td>Fermentation/Distillation/Dryers</td>
<td>Pending</td>
<td>RTO only</td>
<td>98% overall, or an outlet concentration of 10ppmv, 30.80 lb/hr at RTO outlet</td>
</tr>
<tr>
<td><strong>Proposed BACT for POET Biorefining-Portland, LLC (AOS2)</strong></td>
<td></td>
<td>Fermentation/Distillation</td>
<td>Pending</td>
<td>CO2 scrubber only</td>
<td>98% overall, or an outlet concentration of 20ppmv, 79.39 lb/hr at RTO outlet</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Dryers</td>
<td></td>
<td></td>
<td>Shall not operate</td>
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**Existing BACT Determinations**

<table>
<thead>
<tr>
<th>Company</th>
<th>RBLC ID</th>
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<th>Technology</th>
<th>VOC Limit(s)</th>
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<tbody>
<tr>
<td>BACT for POET Biorefining – Portland, LLC</td>
<td>Permit #075-39174-00032</td>
<td>Fermentation / Distillation</td>
<td>03/02/2018 Permit 075-39174-00032</td>
<td>Wet scrubber in series with RTO</td>
<td>98% overall, or an outlet concentration of 10 ppmv, 27.40 lb/hr at RTO outlet</td>
</tr>
<tr>
<td>BACT for POET Biorefining – Portland, LLC (AOS1)</td>
<td></td>
<td>Fermentation / Distillation / Dryers</td>
<td></td>
<td>RTO only</td>
<td>98% overall, or an outlet concentration of 10 ppmv, 27.40 lb/hr at RTO outlet</td>
</tr>
<tr>
<td>BACT for POET Biorefining – Portland, LLC (AOS2)</td>
<td></td>
<td>Fermentation / Distillation</td>
<td></td>
<td>Wet Scrubber only</td>
<td>98% overall, or an outlet concentration of 20 ppmv, 500 hours, 79.39 lbs/hr</td>
</tr>
<tr>
<td>Company</td>
<td>RBLC ID</td>
<td>Source</td>
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<td>Technology</td>
<td>VOC Limit(s)</td>
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<tr>
<td>BACT for POET Biorefining – North Manchester, LLC</td>
<td>IN-0293</td>
<td>Fermentation/ Distillation</td>
<td>07/19/2018 Permit 169-39635-00068</td>
<td>Wet scrubber in series with RTO</td>
<td>98% overall, or an outlet concentration of 10 ppmv, 27.40 lb/hr at RTO outlet</td>
</tr>
<tr>
<td>BACT for POET Biorefining – North Manchester, LLC (AOS1 - Scrubber by-passed)</td>
<td></td>
<td></td>
<td></td>
<td>RTO only</td>
<td>98% overall, or an outlet concentration of 10 ppmv, 27.40 lb/hr at RTO outlet</td>
</tr>
<tr>
<td>BACT for POET Biorefining – North Manchester, LLC (AOS2 - RTO bypassed)</td>
<td></td>
<td>Fermentation/ Distillation</td>
<td></td>
<td>CO2 Scrubber only</td>
<td>98% overall, or an outlet concentration of 20 ppmv, 500 hours, 79.39 lbs/hr</td>
</tr>
<tr>
<td>BACT for POET Biorefining-Cloverdale, LLC</td>
<td>IN-0289</td>
<td>Fermentation</td>
<td>08/03/2018 Permit 133-39368-00003</td>
<td>Wet Scrubber</td>
<td>98% overall, or an outlet concentration of 20 ppmv, 25.64 lbs/hr</td>
</tr>
<tr>
<td>BACT for POET Biorefining-Cloverdale, LLC (AOS1)</td>
<td></td>
<td>Fermentation</td>
<td></td>
<td>RTO</td>
<td>98% overall, or an outlet concentration of 10 ppmv, 35.60 lb/hr at RTO outlet</td>
</tr>
<tr>
<td>BACT for POET Biorefining – Alexandria, LLC</td>
<td>IN-0304</td>
<td>Fermentation/ Distillation</td>
<td>08/08/2018 Permit 095-39730-00127</td>
<td>Wet scrubber in series with RTO</td>
<td>98% overall, or an outlet concentration of 10 ppmv, 30.8 lb/hr at RTO outlet</td>
</tr>
<tr>
<td>BACT for POET Biorefining – Alexandria, LLC (AOS1)</td>
<td></td>
<td>Fermentation/ Distillation/Dryers</td>
<td></td>
<td>RTO only</td>
<td>98% overall, or an outlet concentration of 10 ppmv, 33.14 lb/hr at RTO outlet</td>
</tr>
<tr>
<td>BACT for POET Biorefining – Alexandria, LLC (AOS2)</td>
<td>IN-0308</td>
<td>Fermentation/ Distillation</td>
<td>09/26/2018 Permit 145-39686-00089</td>
<td>Wet Scrubber only</td>
<td>98% overall, or an outlet concentration of 20 ppmv, 500 hours, 75.95 lbs/hr</td>
</tr>
<tr>
<td>BACT for POET Biorefining – Shelbyville, LLC</td>
<td></td>
<td>Fermentation/ Distillation</td>
<td></td>
<td>Wet scrubber in series with RTO</td>
<td>98% overall, or an outlet concentration of 10 ppmv, 25.0 lb/hr at RTO outlet</td>
</tr>
<tr>
<td>BACT for POET Biorefining – Shelbyville, LLC (AOS2)</td>
<td></td>
<td>Fermentation/ Distillation</td>
<td></td>
<td>Wet Scrubber only</td>
<td>98% overall, or an outlet concentration of 20 ppmv, 500 hours, 51.15 lbs/hr</td>
</tr>
<tr>
<td>Cardinal</td>
<td>IN-0230</td>
<td>Distillation and Dryers</td>
<td>10/15/2015</td>
<td>TO</td>
<td>98% overall, 10ppmv, 6.5 lb/h 3-hour</td>
</tr>
<tr>
<td>Central Indiana Ethanol, LLC*</td>
<td>IN-0241</td>
<td>Fermentation</td>
<td>10/26/2015</td>
<td>Wet Scrubbers</td>
<td>98%, 9.5 lbs/hr from CE005. 0.62 lbs/hr from CE010</td>
</tr>
<tr>
<td>Company</td>
<td>RBLC ID</td>
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<tr>
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</tr>
<tr>
<td>Abengoa Bioenergy Biomass of Kansas (ABBK)</td>
<td>KS-0034</td>
<td>EH Fermentation</td>
<td>05/27/2014</td>
<td>CO2 Scrubber</td>
<td>2.71 lb/hr</td>
</tr>
<tr>
<td>Grain Processing Corporation</td>
<td>IN-0175</td>
<td>Fermentation System</td>
<td>03/20/2014</td>
<td>Scrubber and RTO</td>
<td>98% or 10 ppm, 32.52 lb/3-hr average</td>
</tr>
<tr>
<td>Highlands Envirofuels (HEF), LLC</td>
<td>FL-0332</td>
<td>Fermentation</td>
<td>09/23/2011</td>
<td>Wet Scrubber</td>
<td>19.01 lb/hr, 76.41 ton/yr</td>
</tr>
<tr>
<td>Homeland Energy Solutions, LLC, PN 06-672</td>
<td>IA-0089</td>
<td>Fermenters</td>
<td>08/26/2011</td>
<td>Scrubber</td>
<td>97.0% or 100 ppmv</td>
</tr>
<tr>
<td>Verenium (Highlands Ethanol Facility)</td>
<td>FL-0318</td>
<td>Enzymatic Conversion, Fermentation, Distillation and Enzyme Propagation</td>
<td>12/10/2009</td>
<td>Wet Scrubber</td>
<td>98%, 5.1 lb/hr, 0.9540 lb/kgal</td>
</tr>
<tr>
<td>Tate &amp; Lyle Ingredients Americas, Inc.</td>
<td>IA-0095</td>
<td>Fermentation Process</td>
<td>09/19/2008</td>
<td>CO2 Scrubber, Distillation Scrubber and Regenerative Thermal Oxidizer</td>
<td>98%, 0.39 lb/hr, 1.73 tons per 12 month rolling total</td>
</tr>
<tr>
<td>Aventine Renewable Energy - Aurora West, LLC</td>
<td>NE-0046</td>
<td>Fermentation Operations</td>
<td>09/27/2007</td>
<td>CO2 Scrubber</td>
<td>99% control or 150 ppmvd</td>
</tr>
<tr>
<td>Archer Daniels Midland</td>
<td>IA-0088</td>
<td>Fermentation Process and Indirect-fired DDGS Dryer</td>
<td>06/29/2007</td>
<td>Route Process Off-gasses through the Dryers Combustion Chamber</td>
<td>98% control, 3.35 lb/hr based on a 3 hr test run, 14.70 tpy</td>
</tr>
<tr>
<td>Sunnyside Ethanol, LLC</td>
<td>PA-0257</td>
<td>Fermentation</td>
<td>05/07/2007</td>
<td>Packed Bed Counterflow Scrubber</td>
<td>98.0% control, 155 lb/MMgal</td>
</tr>
<tr>
<td>Southwest Iowa Renewable Energy</td>
<td>IA-0092</td>
<td>Fermentation</td>
<td>04/19/2007</td>
<td>Wet Scrubber</td>
<td>95% control or 100 ppmv, 12 lb/hr</td>
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<tr>
<td>Cardinal</td>
<td>IN-0230</td>
<td>Fermentation</td>
<td>10/15/2015</td>
<td>CO2 scrubber</td>
<td>98% overall, 909 lb/MMgal</td>
</tr>
<tr>
<td>Highlands Envirofuels (HEF), LLC</td>
<td>FL-0332 psd-fl-416, 055006 3-001-ac</td>
<td>Ethanol Production Process-distillation/ dehydration liquid scrubber vent</td>
<td>09/23/2011</td>
<td>Wet scrubber Distillation/ dehydration liquid scrubber</td>
<td>98% control, 2.78 lb/hr, 11.19 tpy</td>
</tr>
<tr>
<td>Aventine Renewable Energy - Aurora West, LLC</td>
<td>NE-0046</td>
<td>Pre-Fermentation, Distillation, and DDGS Drying Operations</td>
<td>09/27/2007</td>
<td>RTO</td>
<td>99% control or 50 ppmvd as carbon</td>
</tr>
<tr>
<td>Company</td>
<td>RBLC ID</td>
<td>Source</td>
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<td>---------------------------------------------------------------------------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td>Homeland Energy Solutions, LLC, PN</td>
<td>IA-0089</td>
<td>Distillation/ Dryer</td>
<td>08/08/2007</td>
<td>TO</td>
<td>98% control or 0.006 lb/MMBtu, 1.48 lb/hr</td>
</tr>
<tr>
<td>06-672</td>
<td></td>
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<td></td>
<td>Route Process Off-gasses through the Dryers</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Combustion Chamber</td>
<td></td>
</tr>
<tr>
<td>Archer Daniels Midland</td>
<td>IA-0088</td>
<td>Fermentation Process and Indirect-fired DDGS Dryer</td>
<td>06/29/2007</td>
<td>98% control, 3.16 lb/hr</td>
<td></td>
</tr>
<tr>
<td>Sunnyside Ethanol, LLC</td>
<td>PA-0257</td>
<td>DDGS Processing System</td>
<td>05/07/2007</td>
<td>Packed Bed, Counter Flow Scrubber</td>
<td>98% control, 0.93 lb/hr</td>
</tr>
<tr>
<td>Southwest Iowa Renewable Energy</td>
<td>IA-0092</td>
<td>Distillation/ Dryer</td>
<td>04/19/2007</td>
<td>TO</td>
<td>98% control or 10 ppmv, 5.11 lb/hr</td>
</tr>
<tr>
<td>Cardinal</td>
<td>IN-0230</td>
<td>Distillation and Dryers</td>
<td>10/15/2015</td>
<td>TO</td>
<td>98% overall, 10 ppmv, 6.5 lb/h 3-hour</td>
</tr>
</tbody>
</table>

Note: Several State BACTs were issued under 326 IAC 8-1-6 for this SIC code. However, these facilities are now subject to the State RACT under 326 IAC 8-5-6. Therefore, these have not been included in this discussion.

This source normally operates with all fermentation/distillation/dryer process emissions controlled by a wet scrubber followed by an RTO. There are also two alternative scenarios:

AOS#1) fermentation/distillation/dryer process emissions are controlled by the RTO only, and
AOS#2) fermentation and distillation process emissions are controlled by the scrubber only.

The Archer Daniels Midland facility routes process off-gasses to the DDGS dryer for combustion, however, at POET this would result in a loss of product, since the CO2 scrubber is also used as an ethanol recovery device. Other processes utilize a CO2 scrubber and a Purge Scrubber or multiple scrubbers in tandem to treat process gases. While some other alternatives may exist in theory (e.g., biofiltration or carbon absorption), they have not been demonstrated (except for the MN-0062 facility) in practice for this source category. Further, such alternatives offer no technical, performance or cost advantages over the option identified. There are no other technologies that have been applied to the control of VOC emissions from ethanol fermentation/distillation/dryer process operations.

IDEM is aware that the above control technologies may be able to periodically achieve control efficiencies that exceed 98% under certain operating conditions. However, BACT must be achievable on a consistent basis under normal operational conditions. BACT limitations do not necessarily reflect the highest possible control efficiency achievable by the technology on which the emission limitation is based. The permitting authority has the discretion to base the emission limitation on a control efficiency that is somewhat lower than the optimal level. There are several reasons why the permitting authority might choose to do this. One reason is that the control efficiency achievable through the use of the technology may fluctuate, so that it would not always achieve its optimal control efficiency. In that case, setting the emission limitation to reflect the highest control efficiency would make violations of the permit unavoidable. To account for this possibility, a permitting authority must be allowed a certain degree of discretion to set the emission limitation at a level that does not necessarily reflect the highest possible control efficiency, but will allow the Permittee to achieve compliance consistently. While we recognize that greater than 98%
may be achievable as an average during testing, IDEM allows for sources to include a safety factor, or margin of error, to allow for minor variations in the operation of the emission units and the control device.

Based on the above analysis of available control options and the historic use of wet scrubbing or regenerative thermal oxidation at almost all ethanol facilities listed in the RBLC, POET Biorefining – Portland, LLC proposes the overall efficiency be least 98% at 100% capture for all processing scenarios: the scrubber and RTO combined, the scrubber only, and the RTO only.

While lower pound per hour limits can be found in the RBLC, pound per hour emissions from this type of operation can vary greatly between plants based on production capacity, feedstock, and additives used in the fermentation process. Therefore, the pound per hour limits are not comparable.

**Step 5 – Select BACT**

The following is the VOC BACT for the fermentation/distillation/dryer processes (when using a feedstock other than whole kernel corn, or in combination with whole kernel corn):

(a) The VOC emissions from the fermentation and distillation processes shall be controlled by either the scrubber CE008 or the regenerative thermal oxidizer (RTO) CE009 or a combination of both the scrubber CE008 and RTO system CE009.

(b) The VOC emissions from the DDGS dryers (EU025 and EU026) shall be controlled by RTO CE009.

(c) The overall efficiency for the scrubber and RTO combined (including the capture efficiency and destruction efficiency) shall be at least 98%, or the VOC outlet concentration shall not exceed 10 ppmv at 100% capture.

(d) The overall efficiency for the RTO (including the capture efficiency and destruction efficiency) shall be at least 98%, or the VOC outlet concentration shall not exceed 10 ppmv at 100% capture.

(e) When not operating under AOS1 or AOS2, VOC emissions from SV009 shall not exceed 30.80 lbs/hr.

When operating under AOS1 – Scrubber Downtime

(f) The overall efficiency for the RTO (including the capture efficiency and destruction efficiency) shall be at least 98%, or the VOC outlet concentration shall not exceed 10 ppmv at 100% capture.

(g) The VOC emissions from SV009 shall not exceed 30.80 lbs/hr.

When operating under AOS2 – RTO Downtime

(h) The overall efficiency for the scrubber (including the capture efficiency and the destruction efficiency) shall be at least 98%, or the VOC outlet concentration shall not exceed 20 ppmv at 100% capture.

(i) The VOC emissions from SV008 shall not exceed 79.39 lbs/hr.

(j) The scrubber shall not vent to the atmosphere (RTO bypass stack) more than 500 hours per twelve (12) consecutive month period.
(k) The DDGS dryers (EU25 and EU26) shall not be in operation when the RTO is not operating.

### Volatile Organic Compounds (VOC) BACT – Ethanol Loadout

#### Step 1 – Identify Potential Control Options

The volatile organic compounds (VOC) emissions can be controlled by the following emission control systems:

1. Destruction Processes;
2. Reclamation Processes; and/or
3. Combination of Reclamation and Destruction Technologies.

Destruction technologies reduce VOC concentration by high temperature oxidation into carbon dioxide and water vapor. Reclamation is the capture of VOCs for reuse or disposal. A further description of these types of control technologies follows:

**Destruction Control Methods**

The destruction of organic compounds usually requires temperatures ranging from 1,200°F to 2,000°F for direct thermal incinerators or 600°F to 1,200°F for catalytic systems. Combustion temperature depends on the chemical composition and the desired destruction efficiency. Carbon dioxide and water vapor are the typical products of complete combustion. Turbulent mixing and combustion chamber retention times of 0.5 to 1.0 seconds are needed to obtain high destruction efficiencies.

Control technologies include direct incineration, recuperative thermal incineration, regenerative thermal incineration, recuperative catalytic incineration, regenerative catalytic incineration, and flares.

**Direct Incineration:** Direct incineration is the most simple and direct form of incineration. It involves burning the VOC-laden fumes directly in a combustion chamber without reheating or post-combustion heat recover. Direct incineration typically requires supplemental fuel. Concentrated VOC streams with high heat contents obviously require less supplementary fuel than more dilute streams. VOC streams sometimes have a heat content high enough to be self-sustaining, but a supplemental fuel firing rate equal to about 5% of the total incinerator heat input is usually needed to stabilize the burner flame. Natural gas is the most common fuel for VOC incinerators, but fuel oil is an option in some circumstances.

**Recuperative Thermal Oxidation:** Recuperative thermal incinerators are add-on control devices used to control VOC emissions by introducing solvent-laden fumes to the oxidizer. The stream is pre-heated by exiting flue gas from the same system in a heat exchanger or recuperator, a burner then heats the air to the required temperature. The air is then passed through an oxidation chamber where the solvent-laden air is converted to carbon dioxide and water. These are then passed through the heat exchanger where incoming fume is preheated by the heat of the exiting flue gas. Finally the clean flue gas is discharged to the atmosphere. The recuperative thermal oxidizer is appropriate for waste streams with a relatively high solvent content and/or consistent pollutant loading. Variation in pollutant loading will require a longer retention time in the oxidizer in order to properly destroy VOC emissions.

**Regenerative Thermal Oxidation:** Regenerative thermal oxidizers (RTOs) are add-on control devices used to control VOC emissions by simple reaction of the harmful air
pollutants with oxygen and heat. An RTO uses a direct contact heat exchanger. These direct contact heat exchangers consist of a bed of porous ceramic packing or other structured, high heat capacity media. These systems can handle variable and low concentration VOC waste streams.

The inlet gas first passes through a hot ceramic bed thereby heating the stream (and cooling the bed) to its ignition temperature. The hot gases then react (releasing energy) in the combustion chamber and while passing through another ceramic bed, thereby heating it to the combustion chamber outlet temperature. The process flows are then switched, now feeding the inlet stream to the hot bed. This cyclic process affords very high energy recovery (up to 95%). The higher capital costs associated with these high performance heat exchangers and combustion chambers may be offset by the increased auxiliary fuel savings to make such a system economical.

**Recuperative and Regenerative Catalytic Oxidation:** Catalytic incinerators are add-on control devices used to control VOC emissions by using a bed of catalyst that facilitates the oxidation of the combustible gases. The catalyst increases the reaction rate and allows the conversion of VOC at lower temperatures than thermal incinerators. Catalytic oxidation can be used for low-concentration VOC waste streams; however, certain compounds present in waste stream gas may foul the catalyst. It may also be necessary to remove particulate prior to catalytic oxidation as well.

**Flares:** Flaring is used to control VOC emissions by piping VOCs to a remote, usually elevated location and burning them in an open flame in the open air using a specially designed burner tip, auxiliary fuel, and steam or air to promote mixing for nearly complete (> 98%) VOC destruction. While flares are designed to eliminate waste gas streams, they can cause safety and operational problems and the exhaust stream concentration must be high enough to sustain combustion.

**Reclamation Control Methods**

Organic compounds may be reclaimed by one of three possible methods; adsorption, absorption (scrubbing) or condensation. In general, the organic compounds are separated from the emission stream and reclaimed for reuse or disposal. Depending on the nature of the contaminant and the inlet concentration of the emission stream, recovery technologies can reach efficiencies of 98%.

**Adsorption:** Adsorption is a surface phenomenon where attraction between the carbon and VOC molecules binds the pollutants to the carbon surface. Both carbon and VOC are chemically intact after adsorption. The VOCs may be removed, or desorbed, from the carbon bed reclaimed and destroyed. Adsorption can be used for relatively low VOC exhaust streams. Pollutants present in the gas streams can reduce adsorber efficiency, increase pressure drop and eventually plug the bed. Adsorption processes can be used to capture VOCs in low concentration exhaust; however, it is typically only used for exhaust that is not loaded with other pollutants which can plug the bed.

**Absorption:** Absorption is a unit operation where components of a gas phase mixture (Pollutants) are selectively transferred to a relatively nonvolatile liquid, usually water. Sometimes, organic liquids, such as mineral oil or nonvolatile hydrocarbons, are suitable absorption solvents. The choice of solvent depends on cost and solubility of the pollutant in the solvent. Absorption is commonly used to recover products or purify gas streams that have high concentrations of organic compounds. Absorption processes are typically used to recover products or purify gas streams with high concentrations of organic compounds such as in the ethanol production and soybean oil refinery industries.

**Condensation:** Condensation is the separation of VOCs from an emission stream through a phase change, by increasing the system pressure or, more commonly, lowering the system
temperature below the dew point of the VOC vapor. When condensers are used for air pollution control, they usually operate at the pressure of the emission stream, and typically require a refrigeration unit to obtain the temperature necessary to condense the VOCs from the emission stream. These systems are frequently used prior to other control devices (e.g., oxidizers or absorbers) to remove components that may be corrosive or damaging to other parts of the system. Refrigerated condensers are used as air pollution control devices for treating emission streams with high VOC concentrations (usually > 5,000 ppmv). Condensers may be used to control VOC emissions with high VOC concentrations (usually greater than 5,000 ppmv).

Combinations of Reclamation and Destruction Control Methods

In some cases, a combination of control technologies offers the most efficient and cost effective VOC control.

The combination of carbon adsorption with recuperative thermal incineration is available commercially. This system concentrates the VOC stream by using carbon adsorption to remove low concentration VOCs in an emission stream and then uses a lower volume of hot air, commonly one-tenth the original flow, to desorb the pollutants. A recuperative incinerator for destroying pollutants in the concentrated stream is much smaller and has lower supplemental fuel requirement than an incinerator sized for the full emission stream volume.

Absorption systems can also be used to concentrate emission streams to reduce the size of destruction equipment. The concentration effect is not as extreme as with carbon adsorption, a concentrated exhaust stream one quarter the volume of the inlet stream seems to be the practical limit. Absorption concentrators are typically suited for batch processes or to equalize pollutant concentrations in a variable stream. The physical characteristics that drive the absorption of pollutants into a liquid also limit the opportunity to remove those pollutants from the liquid stream. Fume incinerators typically need supplemental fuel. Concentrated VOC streams with high heat contents obviously require less supplementary fuel than more dilute streams. VOC streams sometimes have a heat content high enough to be self-sustaining, but a supplemental fuel firing rate equal to about 5% of the total incinerator heat input is usually needed to stabilize the burner flame. Natural gas is the most common fuel for VOC incinerators, but fuel oil is an option in some circumstances.

Step 2 – Eliminate Technically Infeasible Control Options

The test for technical feasibility of any control option is whether it is both available and applicable to reducing VOC emissions from emissions units at the fermentation facilities. The control technologies listed in the previous section are discussed and evaluated below for their technical feasibility.

Destruction Control Methods

Direct Incineration: The use of direct incineration is not a technically feasible option for the ethanol loadout at this source because direct incineration typically needs VOC inlet concentrations of at least 1500 to 3000 ppm to perform acceptably without requiring significant quantities of supplemental fuel to sustain temperatures. The inlet concentrations for an incinerator would be well below the 1500 to 3000 ppm minimum range for direct thermal incineration. The use of direct incineration is not a technically feasible option for the ethanol loadout at this source.

Recuperative Thermal Oxidation: Recuperative thermal oxidation typically needs VOC inlet concentrations of at least 1500 to 3000 ppm to perform acceptably without requiring significant quantities of supplemental fuel to sustain temperatures. The inlet concentrations for a recuperative thermal oxidizer would be well below the 1500 to 3000 ppm minimum range for recuperative
thermal incineration. The use of a Recuperative Thermal Oxidation is not a technically feasible option for the ethanol loadout at this source.

Reclamation Control Methods

*Adsorption:* Carbon adsorption is effective when there is sufficient VOC concentration and adequate van der Waals interactions. Because the primary VOC being emitted is ethanol, the van der Waals interactions would be minimal. Therefore, carbon adsorption is not typically used in this type of application. According to Calgon Carbon Industries, carbon adsorption is actually used in some applications to purify ethanol. This means that carbon adsorption is so ineffective at capturing ethanol that it is used to remove contaminants from ethanol. Therefore, carbon adsorption is considered technologically infeasible for controlling the VOC emissions from the ethanol loadout facility.

*Absorption:* Wet scrubbers are reasonably effective for controlling VOC emissions when the VOCs are easily absorbed in water. Several characteristics control the effectiveness of wet scrubbers for VOC removal. The one parameter that can be easily analyzed to determine if wet scrubbing is effective is the solubility of the pollutants in the absorbent (water). The constituents in gasoline include many different organic compounds. Some of these compounds have limited solubility in water and, therefore, potentially affect the control efficiency of the scrubber. A significant amount of VOC emissions emitted during loadout arises from the displacement of petroleum or gasoline vapors present in the tank from the previous cargo. While the emissions from the ethanol would be effectively controlled by a wet scrubber, the VOC emissions resulting from the displacement of gasoline or petroleum vapors would not be effectively controlled by a wet scrubber.

**Step 3 – Rank Remaining Control Technologies by Control Effectiveness**

The remaining control options are in order of descending control effectiveness:

(a) Flare - 98%
(b) Regenerative Thermal Oxidation - 98%
(c) Recuperative and Regenerative Catalytic Oxidation - 98%
(d) Condensers - 90%

**Step 4 – Evaluate the Most Effective Controls and Document Results**

The RBLC has been reviewed to determine the available control options for Ethanol Loadout. Each of the relevant entries found in process types 70.120 (Alcohol Fuel Production), 70.190 (Other Alcohol Production) and 12.290 (Other Liquid Fuel and Liquid Fuel Mixtures) in the RBLC (over the last 10 years) uses a flare (see Table 4-3). VOC control efficiencies for the flares are reported to range from 98 to 99%. In summary, many control devices could be used, however, due to the batch design of the process several engineering judgements must be considered when selecting the most appropriate control for the facility under consideration. It appears that in most cases, ethanol facilities have elected to have a single control unit for product loadout. The POET facility uses a flare that is shared between the rail and truck loadout fuel racks.

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<tr>
<th>Company</th>
<th>RBLC ID</th>
<th>Source</th>
<th>Permit Issuance Date</th>
<th>Technology</th>
<th>VOC Limit(s)</th>
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<td>Pending</td>
<td>Ethanol Loadout</td>
<td>Pending</td>
<td>Enclosed Flare</td>
<td>98% control overall, 14.54 lb/hr</td>
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<td>Company</td>
<td>RBLC ID</td>
<td>Source</td>
<td>Permit issuance Date</td>
<td>Technology</td>
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<td>Permit #075-39174-00032</td>
<td>Ethanol Loadout</td>
<td>03/02/2018</td>
<td>Enclosed Flare</td>
<td>98% control overall, 7.24 lb/hr</td>
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<td>BACT for POET Biorefining – North Manchester, LLC</td>
<td>IN-0293</td>
<td>Ethanol Loadout</td>
<td>07/19/2018</td>
<td>Enclosed Flare</td>
<td>98% control overall, 14.26 lb/hr</td>
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<td>BACT for POET Biorefining – Cloverdale, LLC</td>
<td>IN-0289</td>
<td>Ethanol Loadout</td>
<td>08/03/2018</td>
<td>Enclosed Flare</td>
<td>98% control overall, 5.13 lbs/hr</td>
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<td>Enclosed Flare</td>
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<tr>
<td>BACT for POET Biorefining – Shelbyville, LLC</td>
<td>IN-0308</td>
<td>Ethanol Loadout</td>
<td>09/26/2018</td>
<td>Enclosed Flare</td>
<td>98% control overall, 14.26 lb/hr</td>
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<tr>
<td>Tate &amp; Lyle Ingredients Americas, Inc.</td>
<td>IA-0095</td>
<td>Ethanol Truck Loadout System</td>
<td>09/19/2008</td>
<td>Enclosed Flare</td>
<td>98% control, 0.6 lb/hr, 0.76 ton per 12 month rolling total</td>
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<td>Tate &amp; Lyle Ingredients Americas, Inc.</td>
<td>IA-0095</td>
<td>Ethanol Rail Loadout System</td>
<td>09/19/2008</td>
<td>Enclosed Flare</td>
<td>98% control, 1.5 lb/hr, 0.76 ton per 12 month rolling total</td>
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<td>Aventine Renewable Energy- Aurora West, LLC</td>
<td>NE-0046</td>
<td>Ethanol Loadout</td>
<td>09/27/2007</td>
<td>Flare</td>
<td>98% control, 27.00 lb / 3/hr</td>
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<td>Homeland Energy Solutions, LLC, PN 06-672</td>
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<td>98% control, 0.21 lb/MMBtu</td>
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<td>Archer Daniels Midland</td>
<td>IA-0088</td>
<td>Ethanol Loading Rack</td>
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<td>Vapor Recovery system with Enclosed Flare</td>
<td>10.17 lb/3-hr average, 10.86 ton per 12 month rolling total</td>
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<td>Sunnyside Ethanol, LLC</td>
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<td>Ethanol Loadout</td>
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<td>Southwest Iowa Renewable Energy</td>
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<td>Central Indiana Ethanol, LLC</td>
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<td>Cardinal</td>
<td>IN-0230</td>
<td>Ethanol Loadout</td>
<td>10/15/2015</td>
<td>Flare</td>
<td>98% overall, 6.13 lb/h 3-hour</td>
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Note: Several State BACTs were issued under 326 IAC 8-1-6 for this SIC code. However, these facilities are now subject to the State RACT under 326 IAC 8-5-6. Therefore, these have not been included in this discussion.
Since the control technologies listed above are all flares, they all have similar environmental impacts. Flares combine a series of unique characteristics that suggest they are the most appropriate for this application. This includes the lack of generating other waste streams either solid or liquid that require further treatment or disposal; the flexibility of economically handling varying exhaust gas streams from a concentration and volume perspective; and finally ease of operation with minimal labor required.

In this case POET proposes a flare with a minimum 98% VOC control efficiency. POET’s control of 98% is equal to the facilities listed in the RBLC utilizing the same process.

**Step 5 – Select BACT**

The following is the VOC BACT for the ethanol loadout operation EU036 When using a feedstock other than whole kernel corn, or in combination with whole kernel corn):

(a) The VOC emissions from the ethanol loading rack shall be collected and controlled by an enclosed flare.

(b) The overall control efficiency for the vapor collection system and enclosed flare (including the capture efficiency and destruction efficiency) shall be at least 98%.

(c) The VOC emissions from the ethanol loadout operation shall not exceed 14.54 lb/hr.
October 28, 2019

Aaron Edelbrock
POET Biorefining – Portland, LLC
1542 S CR 200 W
Portland, IN 47371

Re: Public Notice
POET Biorefining – Portland, LLC
Permit Level: Title V Sig Source Mod Minor PSD
Permit Number: 075-41725-00032

Dear Mr. Edelbrock:

Enclosed is a copy of your draft Title V Significant Source Modification Minor PSD, Technical Support Document, emission calculations, and the Public Notice.

The Public Notice period will begin the date the Notice is published on the IDEM Official Public Notice website. Publication has been requested and is expected within 2-3 business days. You may check the exact Public Notice begins and ends date here: https://www.in.gov/idem/5474.htm

Please note that as of April 17, 2019, IDEM is no longer required to publish the notice in a newspaper.

OAQ has submitted the draft permit package to the Jay County Public Library, 315 North Ship Street in Portland, IN. As a reminder, you are obligated by 326 IAC 2-1.1-6(c) to place a copy of the complete permit application at this library no later than ten (10) days after submittal of the application or additional information to our department. We highly recommend that even if you have already placed these materials at the library, that you confirm with the library that these materials are available for review and request that the library keep the materials available for review during the entire permitting process.

Please review the enclosed documents carefully. This is your opportunity to comment on the draft permit and notify the OAQ of any corrections that are needed before the final decision. Questions or comments about the enclosed documents should be directed to Taylor Wade, Indiana Department of Environmental Management, Office of Air Quality, 100 N. Senate Avenue, Indianapolis, Indiana, 46204 or call (800) 451-6027, and ask for extension 3-0868 or dial (317) 233-0868.

Sincerely,

Theresa Weaver

Theresa Weaver
Permits Branch
Office of Air Quality

Enclosures
PN Applicant Cover Letter 4/12/19
October 28, 2019

To:      Jay County Public Library

From:    Jenny Acker, Branch Chief
         Permits Branch
         Office of Air Quality

Subject: Important Information to Display Regarding a Public Notice for an Air Permit

Applicant Name:   POET Biorefining – Portland, LLC
Permit Number:    075-41725-00032; 075-41904-00032

Enclosed is a copy of important information to make available to the public. This proposed project is regarding a source that may have the potential to significantly impact air quality. Librarians are encouraged to educate the public to make them aware of the availability of this information. The following information is enclosed for public reference at your library:

- Notice of a 30-day Period for Public Comment
- Draft Permit and Technical Support Document

You will not be responsible for collecting any comments from the citizens. Please refer all questions and request for the copies of any pertinent information to the person named below.

Members of your community could be very concerned in how these projects might affect them and their families. Please make this information readily available until you receive a copy of the final package.

If you have any questions concerning this public review process, please contact Joanne Smiddle-Brush, OAQ Permits Administration Section at 1-800-451-6027, extension 3-0185. Questions pertaining to the permit itself should be directed to the contact listed on the notice.

Enclosures
PN Library updated 4/2019
Notice of Public Comment

October 28, 2019
POET Biorefining – Portland, LLC
075-41725-00032; 075-41904-00032

Dear Concerned Citizen(s):

You have been identified as someone who could potentially be affected by this proposed air permit. The Indiana Department of Environmental Management, in our ongoing efforts to better communicate with concerned citizens, invites your comment on the draft permit.

Enclosed is a Notice of Public Comment, which has posted on IDEM’s Public Notice website at https://www.in.gov/idem/5474.htm.

The application and supporting documentation for this proposed permit have been placed at the library indicated in the Notice. These documents more fully describe the project, the applicable air pollution control requirements and how the applicant will comply with these requirements.

If you would like to comment on this draft permit, please contact the person named in the enclosed Public Notice. Thank you for your interest in the Indiana’s Air Permitting Program.

Please Note: If you feel you have received this Notice in error, or would like to be removed from the Air Permits mailing list, please contact Patricia Pear with the Air Permits Administration Section at 1-800-451-6027, ext. 3-6875 or via e-mail at PPEAR@IDEM.IN.GOV. If you have recently moved and this Notice has been forwarded to you, please notify us of your new address and if you wish to remain on the mailing list. Mail that is returned to IDEM by the Post Office with a forwarding address in a different county will be removed from our list unless otherwise requested.

Enclosure
PN AAA Cover Letter 4/12/2019
AFFECTED STATE NOTIFICATION OF PUBLIC COMMENT PERIOD
DRAFT INDIANA AIR PERMIT

October 28, 2019

A 30-day public comment period has been initiated for:

**Permit Number:** 075-41725-00032; 075-41904-00032
**Applicant Name:** POET Biorefining – Portland, LLC
**Location:** Portland, Jay County, Indiana

The public notice, draft permit and technical support documents can be accessed via the IDEM Air Permits Online site at:
http://www.in.gov/ai/appfiles/idem-caats/

Questions or comments on this draft permit should be directed to the person identified in the public notice by telephone or in writing to:

Indiana Department of Environmental Management
Office of Air Quality, Permits Branch
100 North Senate Avenue
Indianapolis, IN 46204

Questions or comments regarding this email notification or access to this information from the EPA Internet site can be directed to Chris Hammack at chammack@idem.IN.gov or (317) 233-2414.

Affected States Notification 1/9/2017
**Mail Code 61-53**

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