NORTH Dakota | Environmental Quality
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September 9, 2025

Mr. Corey Aanenson
EH&S Manager
Tharaldson Ethanol Plant I, LLC
3549 - 153rd Avenue SE
Casselton, ND 58012

Re: Air Quality
Title V (Renewal)
Permit to Operate

Dear Mr. Aanenson:

Pursuant to the Air Pollution Control Rules of the State of North Dakota, the Department of Environmental Quality has reviewed your permit application dated April 14, 2025, for the Tharaldson Ethanol Plant located in Cass County, North Dakota.

Enclosed is a copy of the Department's draft/proposed Title V Permit to Operate and statement of basis for the facility. Before making final determinations on the permit application, the Department provides for public comment by means of the enclosed public notice, to be immediately followed by a 45-day Environmental Protection Agency (EPA) review period. As indicated in the notice, the 30-day public comment period will begin September 18, 2025 and end October 17, 2025.

If any changes are subsequently made to the draft permit, then a review copy of the proposed permit reflecting those changes will be provided to EPA prior to the start of a 45-day EPA review period. The 45-day EPA review period is scheduled to begin October 18, 2025 and end December 1, 2025.

All comments received will be considered in the final determination concerning issuance of the permit. The Department will take final action on the permit application following the public comment period and the EPA review period. You will be notified in writing of our final determination.

If you have any questions, please contact me at (701)328-5218 or email kkschneider@nd.gov.

Sincerely,

Kyla K. Schneider
Environmental Scientist
Division of Air Quality

KKS:er
Enc:
xc/enc: EPA Region 8, Air Permitting (email – r8airpermitting@epa.gov)

NOTICE OF INTENT TO ISSUE AN
AIR POLLUTION CONTROL
TITLE V
PERMIT TO OPERATE

Take notice that the North Dakota Department of Environmental Quality (NDDEQ) proposes to reissue an Air Pollution Control Permit to Operate to Tharaldson Ethanol Plant I, LLC for operation of the ethanol production facility in accordance with the ND Air Pollution Control Rules. The facility is located near Casselton, ND in Cass County. Tharaldson Ethanol Plant I, LLC processes corn to produce fuel grade ethanol and animal feed. The mailing address is 3549 - 153rd Avenue SE, Casselton, ND 58012. The draft permit incorporates construction permit ACP-18156 v1.0.

A thirty-day public comment period for the draft permit will begin September 18, 2025, and end on October 17, 2025. Direct comments in writing to the NDDEQ, Division of Air Quality, 4201 Normandy Street 2nd Floor, Bismarck, ND 58503-1324 or email AirQuality@nd.gov, Re: Public Comment Permit No. AOP-28451 v4.0. Please note that, to be considered, comments submitted by email must be sent to the email address listed; comments sent to any other email address **will not** be considered. Comments must be received by 11:59 p.m. central time on the last day of the public comment period to be considered in the final permit determination. A public hearing regarding issuance of the permit will be held if a significant degree of public interest exists as determined by the NDDEQ. Requests for a public hearing must be received in writing by the NDDEQ before the end of the public comment period.

The notice, draft permit, statement of basis and application are available for review at the NDDEQ address and at the Division of Air Quality website at https://deq.nd.gov/AQ/PublicCom.aspx. A copy of these documents may be obtained by writing to the Division of Air Quality or contacting Kyla Schneider at (701)328-5218 or emailing kkschneider@nd.gov.

The NDDEQ will consider every request for reasonable accommodation to provide an accessible meeting facility or other accommodation for people with disabilities, language interpretation for people with limited English proficiency (LEP), and translations of written material necessary to access programs and information. Language assistance services are available free of charge to you. To request accommodations or language assistance, contact the NDDEQ Non-discrimination/EJ Coordinator at 701-328-5150 or deqEJ@nd.gov. TTY users may use Relay North Dakota at 711 or 1-800-366-6888.

Dated this 9th day of September 2025

James L. Semerad
Director
Division of Air Quality

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# AIR POLLUTION CONTROL
# TITLE V PERMIT TO OPERATE

| | |
|---|---|
| **Permittee:**<br>**Name:**<br>Tharaldson Ethanol Plant I, LLC<br><br>**Address:**<br>3549 - 153rd Avenue SE<br>Casselton, ND 58012 | **Permit Number:**<br>AOP-28451 v4.0<br><br>**Source Name:**<br>Tharaldson Ethanol Plant I, LLC |
| **Source Location:**<br>3549 - 153rd Avenue SE<br>Casselton, ND<br>Cass County | **Source Type:**<br>Ethanol Production |
| **Expiration Date:**<br>February 14, 2031 | |

Pursuant to Chapter 23.1-06 of the North Dakota Century Code (NDCC), and the Air Pollution Control Rules of the State of North Dakota, Article 33.1-15 of the North Dakota Administrative Code (NDAC), and in reliance on statements and representations heretofore made by the permittee (i.e., owner) designated above, a Title V Permit to Operate is hereby issued authorizing such permittee to operate the emissions units at the location designated above. This Title V Permit to Operate is subject to all applicable rules and orders now or hereafter in effect of the North Dakota Department of Environmental Quality (Department) and to any conditions specified on the following pages. All conditions are enforceable by EPA and citizens under the Clean Air Act unless otherwise noted.

Renewal: TBD

James L. Semerad
Director
Division of Air Quality

**Tharaldson Ethanol Plant I, LLC**
Title V Permit to Operate
Table of Contents

1. **Emission Unit Identification**:

The emission units regulated by this permit are as follows:

**Table 1.1 Emission Unit Identification**

| Process Unit | Emission Unit Description | Emission Unit (EU) | Emission Point (EP) | Air Pollution Control Equipment |
|---|---|---|---|---|
| Grain handling (NSPS DD) | Truck dump pit #1 | 1 | 1 | Baghouse |
| | Truck dump pit #2 | 2 | | |
| | Rail dump pit | 3 | | |
| | Truck drag conveyor #1 | 4 | | |
| | Truck drag conveyor #2 | 5 | | |
| | Rail drag conveyor | 6 | | |
| | Truck elevator #1 | 7 | | |
| | Truck elevator #2 | 8 | | |
| | Rail elevator | 9 | | |
| | Distribution conveyors | 10 | | |
| Hammermilling | Surge bin #1 | 14 | 2 | Baghouse |
| | Surge bin #2 | 15 | | |
| | Surge bin #3 | 16 | | |
| | Surge bin #4 | 76 | | |
| | Surge bin #5 | 85 | | |
| | Hammermill #1 | 17 | | |
| | Hammermill #2 | 18 | | |
| | Hammermill #3 | 19 | | |
| | Hammermill #4 | 75 | | |
| | Hammermill #5 | 84 | | |
| Prefermentation & fermentation | Yeast propagation #1 | 73 | 4 | Wet Scrubber1 |
| | Yeast propagation #2 | 74 | | |
| | Fermenter #1 | 27 | | |
| | Fermenter #2 | 28 | | |
| | Fermenter #3 | 29 | | |
| | Fermenter #4 | 30 | | |
| | Fermenter #5 | 31 | | |
| | Fermenter #6 | 32 | | |
| | Fermenter #7 | 83 | | |
| | Beer well #1 | 33 | | |
| | Beer well #2 | 72 | | |
| Emergency generator engine | Diesel engine-driven emergency generator rated at 2,682 bhp (manuf. 2/13/08) (NSPS IIII; MACT ZZZZ) | 13 [A, B] | 13 | None |
| DDGS cooling | DDGS cooler 1 | 15a | 15 | Baghouse |
| | DDGS cooler 2 | 15b | 22 | Baghouse |

| Process Unit | Emission Unit Description | Emission Unit (EU) | Emission Point (EP) | Air Pollution Control Equipment |
|---|---|---|---|---|
| Long term storage | Long term storage | 16a | 16 | Baghouse |
| Air pollution control | Two natural gas-fired regenerative thermal oxidizers (RTOs) rated at 18 x $10^6$ Btu/hr each | RTO1, RTO2 | 17 | N/A |
| Distillation | Degas column | 34 | 17 | RTO1 & RTO2 |
| | Beer column | 35 | | |
| | Rectifying column | 36 | | |
| | Stripper column | 37 | | |
| | Molecular sieve #1 | 38 | | |
| | Molecular sieve #2 | 39 | | |
| | 200 proof condenser #1 | 40 | | |
| | 200 proof condenser #2 | 41 | | |
| Evaporation | Whole stillage tank | 42 [A] | 18 | None |
| | Solid bowl stillage decanter (centrifuge) | 43 [A] | 19 | |
| | Thin stillage tank | 44 [A] | 20 | |
| | Evaporator #1 | 45 | 17 | RTO1 & RTO2 |
| | Evaporator #2 | 46 | | |
| | Evaporator #3 | 47 | | |
| Final evaporation | Final evaporator | 48 | | |
| | Syrup tank | 49 [A] | 7 | None |
| Boiler (NSPS Db) | Natural gas-fired boiler rated at 480 x $10^6$ Btu/hr (built 2008) | 53 | 8 | Ultra-low $NO_x$ Burners (ULNB) with Flue Gas Recirculation (FGR) |
| Distillers dry grains & soluble (DDGS) handling & loadout | DDGS handling conveyors | 54 | 9 | Baghouse |
| | DDGS elevators | 55 | | |
| | DDGS loadout conveyors | 62 | | |
| | DDGS rail loadout spout | 63 | | |
| | DDGS truck loadout spout | 64 | | |
| Ethanol loadout | Ethanol loading rack (truck) | 65 | 11 | Vapor Collection System & Enclosed Flare |
| | Ethanol loading rack (rail) | 66 | | |
| | Loadout enclosed flare | 67 | | |
| DGS dryers (4) | Four direct-fired natural gas dryers rated at 11.6 tph of wet cake each with dryer burners rated at 45 x $10^6$ Btu/hr each | 68, 69, 70, 71 | 17 | RTO1 & RTO2 |
| Protein Ring Dryer (1) | Protein ring dryer startup stack | 86 | 3 [A] | None |
| | Natural gas protein ring dryer rated at 70 x $10^6$ Btu/hr | | 17 | Scrubber2, RTO1 & RTO2 |

| Process Unit | Emission Unit Description | Emission Unit (EU) | Emission Point (EP) | Air Pollution Control Equipment |
|---|---|---|---|---|
| MSC | Maximum stillage co-products (MSC) centrate building vents | N/A | 17 | RTO1 & RTO2 |
| Air pollution control (NSPS Db) | Natural gas-fired thermal oxidizer (TO) rated at 125 x $10^6$ Btu/hr | TO | 21 | N/A |
| DGS dryers (2) | Two direct-fired natural gas dryers rated at 11.6 tph of wet cake each with dryer burners are rated at 45 x $10^6$ Btu/hr each | 77, 78 | 21 | TO |
| Grain Handling 2 (NSPS DD) | Truck Dump Pit #3 | 79 | 23 | Baghouse |
| | Reclaim conveyor | 80 | | |
| | Bulk weigher | 81 | | |
| | Receiving conveyor | 82 | | |
| Protein cooling | Protein cyclone | 159 | 25 | Baghouse |
| Protein storage | Protein storage silo #1 | 153b [A] | 27 | Aspiration Dust Collector |
| | Protein storage silo #2 | 154b [A] | | |
| | Protein storage silo #3 | 155b [A] | | |
| Protein rail loadout | Protein rail loadout | 157 [A] | 32 | Baghouse |
| Protein truck loadout | Protein truck loadout | 158 [A] | | |
| Fire pump building | Caterpillar Model C18 diesel engine-driven emergency fire pump rated at 687 bhp (manuf. 2022) (NSPS IIII; MACT ZZZZ) | 159 [A, B] | 159 | None |
| | Diesel fuel tank, 849 gal. | 160 [A] | 160 | N/A |
| Storage tanks (NSPS Kb) | Shift tank, 300,000 gal., ethyl alcohol (built 2008) | TK1 [A] | TK1 | Internal Floating Roof |
| | Off spec tank, 150,000 gal., ethyl alcohol (built 2008) | TK2 [A] | TK2 | |
| | Denatured ethanol storage tank #1, 2,000,000 gal. (built 2008) | TK3 [A] | TK3 | |
| | Denatured ethanol storage tank #2, 2,000,000 gal. (built 2008) | TK4 [A] | TK4 | |
| | Denaturant, 150,000 gal., gasoline (built 2008) | TK5 [A] | TK5 | |
| Grain handling | Grain handling fugitive emissions | FS1 [A] | FS1 | N/A |
| DDGS handling | DDGS handling fugitive emissions | FS2 [A] | FS2 | N/A |
| Process equipment | Equipment leaks | FS5 [A] | FS5 | Leak Detection & Repair (LDAR) |
| Roads | Truck traffic | FS6 [A] | FS6 | Paved Roads |

| Process Unit | Emission Unit Description | Emission Unit (EU) | Emission Point (EP) | Air Pollution Control Equipment |
|---|---|---|---|---|
| Cooling towers | Cooling towers | FS7 [A] | FS7 | Mist Eliminators |
| Wet cake storage | Wet cake | FS8 [A] | FS8 | None |
| Wet storage bin | Wet storage bin | FS9 [A] | FS9 | None |
| Miscellaneous process sources | Miscellaneous processes | FS10 [A] | FS10 | N/A |
| Grain storage silos | Grain silo #1 | FS11A [A] | FS11A | None |
| | Grain silo #2 | | | |
| | Grain silo #3 (522,758 bu) | FS11B [A] | FS11B | |
| | Grain silo #4 (522,758 bu) | | | |
| | Grain day bin (26,214 bu) | | | |
| DDGS storage silos | DDGS silo #1 | FS12 [A] | FS12 | None |
| | DDGS silo #2 | | | |
| Grain drying | Grain dryer | FS14 | FS14 | N/A |
| Tricanter | Tricanter tanks and loadout | FS15 [A] | FS15 | N/A |
| Rail loadout | Rail loadout fugitive emissions | FS17 [A] | FS17 | None |

[A] Insignificant or fugitive emission sources (no specific emission limit).

[B] The potential to emit for an emergency stationary reciprocating internal combustion engine (RICE) is based on operating no more hours per year than is allowed by the subpart (40 CFR 60, Subpart IIII, §60.4211(f) and 40 CFR 63, Subpart ZZZZ) for other than emergency situations. For engines to be considered emergency stationary RICE under the RICE rules, engine operations must comply with the operating hour limits as specified in the applicable subpart. There is no time limit on the use of emergency stationary RICE in emergency situations [40 CFR 60, Subpart IIII, §60.4211(f) and 40 CFR 63, Subpart ZZZZ, §63.6640(f)].

2. **Applicable Standards, Restrictions and Miscellaneous Conditions**:

A. **Fuel Restrictions:**

1) The emergency generator engine (EU 13) and emergency fire pump engine (EU 159) are restricted to combusting only distillate oil with no more than 0.0015 percent sulfur by weight. This fuel restriction ensures compliance with NDAC 33.1-15-06-01.2.

Applicable Requirements: ACP-17155 v1.0, NDAC 33.1-15-12-02, Subpart IIII & NDAC 33.1-15-06-01.2

2) The boiler (EU 53) and dryers (EU 68 through EU 71, 77, 78 and 86) are restricted to combusting only pipeline quality natural gas containing no more than 2 grains of sulfur per 100 standard cubic feet. This fuel restriction ensures compliance with NDAC 33.1-15-06-01.2. Other fuels may be used if approved in advance by the Department.

Applicable Requirements: ACP-17155 v1.0, NDAC 33.1-15-14-06.5.b(1) & NDAC 33.1-15-06-01.2

3) The two RTOs (EU RTO1 & RTO2) and the TO (EU TO) are restricted to combusting only pipeline quality natural gas containing no more than 2 grains of sulfur per 100 standard cubic feet and VOCs from the dryers (EU 68 through 71, 77, 78 and 86), MSC centrate building vents and distillation – evaporation process (EU 34 through 41 and 45 through 48).

Applicable Requirements: NDAC 33.1-15-15-01.2 & NDAC 33.1-15-06-01.2

B. **Best Management Practices (BMP)**: At all times, including periods of startup, shutdown and malfunction, the permittee shall, to the extent practicable, maintain and operate any affected process unit including associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions.

Applicable Requirement: NDAC 33.1-15-17

C. **Loading Rack Vapor Collection (EU 65 and 66)**: The process unit shall be operated with a vapor collection system which collects the total organic compounds displaced from tank trucks and railcars during product loading. The vapors shall be routed to a vapor combustor that achieves at least 98% destruction efficiency.

Applicable Requirements: NDAC 33.1-15-07-02 & ACP-17155 v1.0

D. **Process/Operational Restrictions:**

1) Cooling Tower Mist Eliminators (EU FS7): The cooling towers shall be equipped and operated with mist eliminators that are guaranteed to limit drift to 0.001% or less of the circulating flow.

Applicable Requirements: NDAC 33.1-15-15-01.4.c(2) & ACP-18108 v1.0

2) When the protein ring dryer EU 86 is operating, DGS Dryers A, B, C and D (EU 68, 69, 70 and 71) shall only operate under the following scenarios:

**Table 2.1 DGS Dryers Operating Scenarios**

| Scenario | Dryer | Dryer Allowed to Operate? |
|---|---|---|
| 1 | A (EU 68) | Yes |
| | B (EU 69) | Yes |
| | C (EU 70) | No |
| | D (EU 71) | No |
| 2 | A (EU 68) | No |
| | B (EU 69) | No |
| | C (EU 70) | Yes |
| | D (EU 71) | Yes |

E. **Stack Heights**: The emissions from the facility shall be vented through stacks that meet the following requirements:

**Table 2.2 Stack Heights**

| Process Unit and/or Emission Unit Description | EP | Minimum Stack Height Above Ground Level (ft) |
|---|---|---|
| Grain handling | 1 | 40 |
| Hammermilling | 2 | 25 |
| Prefermentation & fermentation | 4 | 80 |
| Final evaporation, Syrup tank | 7 | 30 |
| Boiler | 8 | 100 |
| Distillers dry grains & soluble (DDGS) handling & loadout | 9 | 130 |
| Ethanol loadout | 11 | 35 |
| Emergency generator engine | 13 | 8 |
| DDGS cooling, DDGS cooler 1 | 15 | 120 |
| Long term storage | 16 | 40 |
| Distillation, Evaporation (Evaporators #1, #2 & #3) & Final evaporation (Final evaporator), DGS dryers (4) | 17 | 130 |
| Evaporation, Thin stillage tank | 20 | 32 |
| DGS dryers (2) | 21 | 125 |
| DDGS cooling, DDGS cooler 2 | 22 | 80 |

Applicable Requirements: NDAC 33.1-15-15-01.2, ACP-17155 v1.0, ACP-17726 v1.0, ACP-17765 v1.0 & ACP-17787 v1.0

F. **New Source Performance Standards (NSPS):** The permittee shall comply with all applicable requirements of the following NDAC 33.1-15-12-02 and 40 CFR 60 subparts in addition to complying with Subpart A - General Provisions.

1) Subpart Db – Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units (EU 53 and TO).

2) Subpart DD – Standards of Performance for Grain Elevators (EU 1 through 10 and 79 through 82).

3) 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 (EU TK1 through TK5).

4) Subpart VVa – Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry for Which Construction, Reconstruction, or Modification Commenced After November 7, 2006.

5) Subpart IIII - Standards of Performance for Stationary Internal Combustion Engines (EU 13 and 159).

Applicable Requirements: NDAC 33.1-15-12-02, Subparts A, Db, DD, Kb, VVa & IIII

G. **National Emission Standards for Hazardous Air Pollutants (NESHAP)/Maximum Achievable Control Technology (MACT)**: The permittee shall comply with all applicable requirements of the following NDAC 33.1-15-22-03 and 40 CFR 63 subparts in addition to complying with Subpart A - General Provisions.

1) Subpart ZZZZ - National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (EU 13 and 159). As an area source of HAPs, compliance with 40 CFR 63, Subpart ZZZZ is achieved by complying with 40 CFR 60, Subpart JJJJ. The North Dakota Department of Environmental Quality has not adopted the area source provisions of this subpart. All required documentation must be submitted to EPA at the following address.

U.S. EPA Region 8
1595 Wynkoop Street
Mail Code 8ENF-AT
Denver, CO 80202-1129

Applicable Requirements: 40 CFR 63, Subparts A and ZZZZ

H. **Enclosed Flare (EU 67/EP 11)**:

1) The enclosed flare shall be operated with a flame present at all times when emissions may be vented to the enclosed flare.

2) The enclosed flare must be equipped and operated with an automatic ignitor or a continuous burning pilot which must be maintained in good working order as outlined in NDAC 33.1-15-07-02.

3) The presence of a flame shall be monitored using a thermocouple or any other equivalent device approved by the Department.

Applicable Requirements: NDAC 33.1-15-07-02 & NDAC 33.1-15-14-03.6

I. **Tanks**: EUTK1 through EUTK5 shall be equipped with and filled through a submerged fill pipe.

Applicable Requirement: NDAC 33.1-15-07-01.3

J. **Like-Kind Engine Replacement**: This permit allows the permittee to replace the existing engine(s) with a like-kind engine. Replacement is subject to the following conditions.

1) The Department must be notified within 10 days after change-out of the engine.

2) The replacement engine shall operate in the same manner, provide no increase in throughput and have equal or less emissions than the engine it is replacing.

3) The date of manufacture of the replacement engine must be included in the notification. The facility must comply with any applicable federal standards (e.g. NSPS, NESHAP, MACT) triggered by the replacement.

4) The replacement engine is subject to the same state emission limits as the existing engine in addition to any NSPS or MACT emission limit that is applicable.

Applicable Requirement: NDAC 33.1-15-14-06.5.b(1)

3. **Emission Unit Limits**:

**Table 3.1 Emission Unit Limits [A]**

| Process Unit | EP | Pollutant/ Parameter [B] | Emission Limit | NDAC Applicable Requirement |
|---|---|---|---|---|
| Grain handling | 1 | PM (filterable) | 0.01 gr/dscf | 33.1-15-12-02, Subpart DD |
| | | Opacity | 0% to 10% [C] | 33.1-15-12-02, Subpart DD & ACP-17787 v1.0 |
| Hammermilling | 2 | Opacity | 20% (6-min. avg.) [D] | 33.1-15-03-02 |
| Protein ring dryer startup stack | 3 | Opacity | 20% (6-min. avg.) [D] | 33.1-15-03-02 |
| Prefermentation & fermentation | 4 | VOC | 98% reduction or 20 ppmvd [E] | 33.1-15-14-02.9 & ACP-17787 v1.0 |
| | | Opacity | 20% (6-min. avg.) [D] | 33.1-15-03-02 |
| Boiler | 8 | PM [F] | 3.36 lb/hr (3-hr avg.) | 33.1-15-15-01.2 (BACT) & ACP-17155 v1.0 |
| | | $SO_2$ | 0.29 lb/hr (1-hr avg.) | 33.1-15-15-01.2 & ACP-17155 v1.0 |
| | | $NO_x$ | 0.028 lb/$10^6$ Btu (30.d.r.a.) | 33.1-15-15-01.2 (BACT) & ACP-17155 v1.0 |
| | | CO | 7.00 lb/hr (3-hr avg.) | 33.1-15-15-01.2 (BACT) & ACP-17787 v1.0 |
| | | Opacity | 10% (6-min. avg.) [G] | 33.1-15-15-01.2 (BACT), 33.1-15-12-02, Subpart Db & ACP-17155 v1.0 |
| Boiler & TO for DGS Dryers (2) | 8 & 21 | $NO_x$ (Nested) | 99 tons/yr (12-month r.a.) [Cond. 4.B.12)f] | 33.1-15-15-01.2 & ACP-17895 v1.0 |
| DDGS handling & loadout | 9 | Opacity | 20% (6-min. avg.) [D] | 33.1-15-03-02 |

| Process Unit | EP | Pollutant/ Parameter [B] | Emission Limit | NDAC Applicable Requirement |
|---|---|---|---|---|
| Ethanol loadout enclosed flare | 11 | VOC | 98% reduction (Cond. 2.C) | 33.1-15-14-02.9 & ACP-17155 v1.0 |
| | | Opacity | 0% [H] | ACP-18105 v1.0 & 33.1-15-03-05.2 |
| Emergency generator engine & emergency fire pump engine | 13 & 159 | Opacity | 20% (6-min. avg.) [D] | 33.1-15-03-02 |
| | | Operating Hours | Hours of Operation (Table 1.1 Footnote B) | 33.1-15-12-02, Subpart IIII |
| DDGS cooling | 15 | Opacity | 20% (6-min. avg.) [D] | 33.1-15-03-02 |
| | 22 | Opacity | 20% (6-min. avg.) [D] | 33.1-15-03-02 |
| Long term storage | 16 | Opacity | 20% (6-min. avg.) [D] | 33.1-15-03-02 |
| DGS dryers (4) & Protein ring dryer (1) | 17 [I] | $SO_2$ | 12.11 lb/hr (1-hr avg.) | 33.1-15-15-01.2, ACP-17155 v1.0 & ACP-18156 v1.0 |
| | | Opacity | 20% (6-min avg.) [D] | 33.1-15-03-02 |
| MSC | 17 | VOC/HAPs/ Acetaldehyde | Included in Plant-wide Emission Limits | 33.1-15-15-01.2 |
| DGS dryers (2) | 21 [J] | $SO_2$ | 12.11 lb/hr (1-hr avg.) | 33.1-15-15-01.2 & ACP-17765 v1.0 |
| | | $NO_x$ | 0.1 lb/$10^6$ Btu (30 d.r.a.) | 33.1-15-12-02, Subpart Db & ACP-17854 v1.0 |
| | | Opacity | 20% (6-min avg.) [D] | 33.1-15-03-02 & 33.1-15-12-02, Subpart Db |
| Grain handling 2 | 23 | Opacity | 20% (6-min avg.) [D] | 33.1-15-03-02 |
| Protein cooling | 25 | Opacity | 20% (6-min avg.) [D] | 33.1-15-03-02 |
| Protein storage silos | 27 | Opacity | 20% (6-min avg.) [D] | 33.1-15-03-02 |
| Protein rail & truck loadout | 32 | Opacity | 20% (6-min avg.) [D] | 33.1-15-03-02 |
| Storage tanks | TK1 through TK5 | VOC | Cond. 2.F.3 | 33.1-15-12-02, Subpart Kb |
| Grain handling | FS1 | $PM/PM_{10}$/Opacity [K] | BMP (Cond. 2.B & [L]) | 33.1-15-17 |
| DDGS handling | FS2 | $PM/PM_{10}$/Opacity [K] | BMP (Cond. 2.B & [L]) | 33.1-15-17 |
| Process equipment leaks | FS5 | VOC | Cond. 2.F.4 | 33.1-15-12-02, Subpart VVa |
| Roads - Truck traffic | FS6 | $PM/PM_{10}$/Opacity [K] | BMP (Cond. 2.B & [L]) | 33.1-15-17 |

| Process Unit | EP | Pollutant/ Parameter [B] | Emission Limit | NDAC Applicable Requirement |
|---|---|---|---|---|
| Cooling towers | FS7 | PM/$PM_{10}$/Opacity [K] | Mist Eliminators/BMP (Cond. 2.B & [L]) | 33.1-15-15-01.2 & ACP-17155 v1.0 |
| Wet cake storage | FS8 | PM/$PM_{10}$/Opacity [K] | BMP (Cond. 2.B & [L]) | 33.1-15-17 |
| Wet storage bin | FS9 | PM/$PM_{10}$/Opacity [K] | BMP (Cond. 2.B & [L]) | 33.1-15-17 |
| Miscellaneous process sources | FS10 | VOC | BMP (Cond. 2.B & [L]) | 33.1-15-17 |
| Grain storage silos | FS11A & FS11B | PM/$PM_{10}$/Opacity [K] | BMP (Cond. 2.B & [L]) | 33.1-15-17 |
| DDGS storage silos | FS12 | PM/$PM_{10}$/Opacity [K] | BMP (Cond. 2.B & [L]) | 33.1-15-17 |
| Grain drying | FS14 | PM/$PM_{10}$/Opacity [K] | BMP (Cond. 2.B & [L]) | 33.1-15-17 |
| Rail loadout fugitives | FS17 | PM/$PM_{10}$/Opacity [K] | BMP (Cond. 2.B & [L]) | 33.1-15-17 |
| Plant-wide | -- | PM [F]/$SO_2$/$NO_x$/ VOC/Opacity | BMP (Cond. 2.B & [L]) | 33.1-15-14-02.9 & 33.1-15-14-03.6 |
| | | PM [F] | 249 tons/yr (12-month r.a.) [Cond. 4.B.12)d] | 33.1-15-15-01.2 & ACP-17895 v1.0 |
| | | $NO_x$ | 249 tons/yr (12-month r.a.) [Cond. 4.B.12)e] | 33.1-15-15-01.2 & ACP-17895 v1.0 |
| | | CO | 249 tons/yr (12-month r.a.) [Cond. 4.B.12)g] | 33.1-15-15-01.2 & ACP-17895 v1.0 |
| | | VOC | 249 tons/yr (12-month r.a.) [Cond. 4.B.12)h] | 33.1-15-15-01.2 & ACP-17895 v1.0 |
| | | HAPs | 24 tons/yr (12-month r.a.) [Cond. 4.B.12)i] | 33.1-15-14-03.1.e & ACP-17895 v1.0 |
| | | Acetaldehyde | 9.9 tons/yr (12-month r.a.) [Cond. 4.B.12)j] | 33.1-15-14-03.1.e & ACP-17895 v1.0 |

A The emission limits and work practice standards specified in this permit apply at all times including startup, shutdown and malfunction.

B VOC emission rates are as total VOC.

C The permittee shall not cause to be discharged into the atmosphere any fugitive emissions from:

1) Any individual truck unloading station, railcar unloading station, or railcar loading station, which exhibits greater than five percent opacity.
2) Any grain handling operation which exhibits greater than zero percent opacity.
3) Any truck loading station which exhibits greater than ten percent opacity.

D 40% opacity is permissible for not more than one six-minute period per hour. This standard applies at all times, except as allowed by NDAC 33.1-15-03-04. Compliance with the visible emissions standard shall be determined by conducting observations in accordance with NDAC 33.1-15-03-05 (Reference Method 9 of 40 CFR 60, Appendix A, as incorporated by reference into NDAC 33.1-15-12).

E The 20 ppmvd limit for the fermentation scrubber is only applicable when the inlet concentration to the scrubber is less than 1,000 ppmvd (as VOC).

F Includes filterable (PM, $PM_{10}$, and $PM_{2.5}$) and condensable (CPM) fractions.

G 27% opacity is permissible for not more than one six-minute period per hour.

H The enclosed flare shall be operated with no visible emissions, except for periods not to exceed a total of five minutes during any two consecutive hours. Reference Method 22 of 40 CFR 60, Appendix A shall be used to determine compliance with this visible emissions provision.

I Emission limits are the total for the four dryers and the protein ring dryer.

J Emission limits are the total for the two dryers.

K Includes filterable (PM and $PM_{10}$) fractions.

L Fugitive Emissions: The permittee shall not discharge into the ambient air any air contaminant which exhibits an opacity greater than 40% for more than one six-minute period per hour. Such visible emissions shall have been visibly transported off the property of emission origination and remains visible to an observer positioned off said property when sighting along a line which does not cross the property of emission origination.

## 4. Monitoring Requirements and Conditions:

### A. Requirements:

**Table 4.1 Emission Monitoring**

| Process Unit | EP | Pollutant/ Parameter [A] | Monitoring Requirement (Method) | Condition Number | NDAC Applicable Requirement |
|---|---|---|---|---|---|
| Grain handling | 1 | PM (Plant-wide Monitoring)/Opacity | VEO | 4.B.8 | 33.1-15-14-02.9.a |
| Hammermilling | 2 | PM (Plant-wide Monitoring)/Opacity | VEO | 4.B.8 | 33.1-15-14-02.9.a |
| Protein Ring Dryer Startup | 3 | PM/NOx/CO/VOC/HAPs /Acetaldehyde (Plant-wide Monitoring)/ Opacity | VEO | 4.B.8 | 33.1-15-14-02.9.a |
| Pre-fermentation & fermentation | 4 | VOC/HAPs/ Acetaldehyde (Plant-wide Monitoring) | CAM & Emissions Test | 4.B.1 & 4.B.9 | 33.1-15-14-06.10 & 33.1-15-14-02.9.a |
| | | Opacity | VEO | 4.B.8 | 33.1-15-14-02.9.a |

| Process Unit | EP | Pollutant/ Parameter [A] | Monitoring Requirement (Method) | Condition Number | NDAC Applicable Requirement |
|---|---|---|---|---|---|
| Boiler | 8 | PM [B] (Plant-wide Monitoring) | Recordkeeping | 4.B.2 | 33.1-15-14-06.5.a(3)(a) |
| | | $SO_2$ | Recordkeeping | 4.B.2 | 33.1-15-14-06.5.a(3)(a) |
| | | $NO_x$ (Plant-wide Monitoring) | CEMS | 4.B.4 | 33.1-15-12-02, Subpart Db, 33.1-15-14-06.5a(3)(a) & ACP-17155 v1.0 |
| | | CO (Plant-wide Monitoring) | Emissions Test | 4.B.3 | 33.1-15-14-06.5.a(3)(a) |
| | | VOC (Plant-wide Monitoring) | Emissions Test | 4.B.3 | 33.1-15-14-06.5.a(3)(a) |
| | | Opacity | Recordkeeping | 4.B.2 | 33.1-15-12-02, Subpart Db, 33.1-15-14-06.5.a(3)(a) |
| Boiler & TO for DGS dryers (2) | 8 & 21 | $NO_x$ (Nested) | Recordkeeping | 4.B.12)f | 33.1-15-14-06.5.a(3)(a) & ACP-17895 v1.0 |
| DDGS handling & loadout | 9 | PM (Plant-wide Monitoring)/Opacity | VEO | 4.B.8 | 33.1-15-14-02.9.a |
| Ethanol loadout | 11 | VOC (Plant-wide Monitoring) | CAM & Thermocouple | 4.B.1 & 4.B.5 | 33.1-15-14-06.10 & 33.1-15-14-06.5.a(3)(a) |
| | | PM (Plant-wide Monitoring)/Opacity | VEO | 4.B.8 | 33.1-15-14-06.5.a(3)(a) |
| Emergency generator engine & emergency fire pump engine | 13 & 159 | Opacity | Recordkeeping | 4.B.2 | 33.1-15-14-06.5.a(3)(a) |
| | | Operating Hours | Recordkeeping | 4.B.6 | 33.1-15-12-02, Subpart IIII & 33.1-15-14-06.5.a(3)(a) |
| DDGS cooling | 15 & 22 | VOC (Plant-wide Monitoring) | Emissions Test | 4.B.3 | 33.1-15-14-06.5.a(3)(a) |
| | | PM (Plant-wide Monitoring)/Opacity | VEO | 4.B.8 | 33.1-15-14-02.9.a |
| Long term storage | 16 | PM (Plant-wide Monitoring)/Opacity | VEO | 4.B.8 | 33.1-15-14-02.9.a |

| Process Unit | EP | Pollutant/ Parameter [A] | Monitoring Requirement (Method) | Condition Number | NDAC Applicable Requirement |
|---|---|---|---|---|---|
| DGS dryers (4), Protein ring dryer & MSC | 17 | PM [B] (Plant-wide Monitoring)/Opacity | CAM, Recordkeeping, Emissions Test & VEO | 4.B.1, 4.B.2, 4.B.8 & 4.B.10 | 33.1-15-14-06.5.a(3)(a) & 33.1-15-14-02.9.a |
| | | $SO_2$ | Recordkeeping | 4.B.2 | 33.1-15-14-06.5.a(3)(a) |
| | | $NO_x$ (Plant-wide Monitoring) | Emissions Test | 4.B.3 | 33.1-15-14-06.5.a(3)(a) |
| | | VOC (Plant-wide Monitoring) | CAM, Recordkeeping & Emissions Test | 4.B.1 & 4.B.10 | 33.1-15-14-06.10 & 33.1-15-14-02.9.a |
| | | CO (Plant-wide Monitoring) | Recordkeeping & Emissions Test | 4.B.3 & 4.B.10 | 33.1-15-14-02.9.a |
| | | Acetaldehyde (Plant-wide Monitoring) | Recordkeeping & Emissions Test | 4.B.10 | 33.1-15-14-06.5.a(3)(a) & 33.1-15-14-02.9.a |
| DGS dryers (2) | 21 | PM [B] (Plant-wide Monitoring)/Opacity | CAM, Recordkeeping, Emissions Test & VEO | 4.B.1, 4.B.2, 4.B.8 & 4.B.10 | 33.1-15-14-06.5.a(3)(a) & 33.1-15-14-02.9.a |
| | | $SO_2$ | Recordkeeping | 4.B.2 | 33.1-15-14-06.5.a(3)(a) |
| | | $NO_x$ (Plant-wide Monitoring) | CEMS | 4.B.4 | 33.1-15-12-02, Subpart Db, 33.1-15-14-06.5a(3)(a) & ACP-17854 v1.0 |
| | | VOC (Plant-wide Monitoring) | CAM, Recordkeeping & Emissions Test | 4.B.1 & 4.B.10 | 33.1-15-14-06.10 & 33.1-15-14-02.9.a |
| | | CO (Plant-wide Monitoring) | Recordkeeping & Emissions Test | 4.B.3 & 4.B.10 | 33.1-15-14-02.9.a |
| | | Acetaldehyde (Plant-wide Monitoring) | Recordkeeping & Emissions Test | 4.B.10 | 33.1-15-14-06.5.a(3)(a) & 33.1-15-14-02.9.a |
| Grain handling 2 | 23 | PM (Plant-wide Monitoring)/Opacity | VEO | 4.B.8 | 33.1-15-14-02.9.a |
| Protein cooling | 25 | VOC/HAPs/ Acetaldehyde (Plant-wide Monitoring)/Opacity | VEO | 4.B.8 | 33.1-15-14-02.9.a |

| Process Unit | EP | Pollutant/ Parameter [A] | Monitoring Requirement (Method) | Condition Number | NDAC Applicable Requirement |
|---|---|---|---|---|---|
| Protein storage silos | 27 | PM (Plant-wide Monitoring)/Opacity | VEO | 4.B.8 | 33.1-15-14-02.9.a |
| Protein rail & truck loadout | 32 | PM (Plant-wide Monitoring)/Opacity | VEO | 4.B.8 | 33.1-15-14-02.9.a |
| Storage tanks | TK1 through TK5 | VOC (Plant-wide Monitoring) | Inspections/ Recordkeeping | 2.F.4 | 33.1-15-12-02, Subpart Kb |
| Grain handling | FS1 | PM/$PM_{10}$/Opacity (Plant-wide Monitoring) | FEMP | 4.B.7 | 33.1-15-14-06.5.a(3)(a) |
| DDGS handling | FS2 | PM/$PM_{10}$/Opacity (Plant-wide Monitoring) | FEMP | 4.B.7 | 33.1-15-14-06.5.a(3)(a) |
| Process equipment leaks | FS5 | VOC (Plant-wide Monitoring) | Inspections | 2.F.4 | 33.1-15-12-02, Subpart VVa |
| Roads | FS6 | PM/$PM_{10}$/Opacity | FEMP | 4.B.7 | 33.1-15-14-06.5.a(3)(a) |
| Cooling towers | FS7 | PM/$PM_{10}$/Opacity (Plant-wide Monitoring) | FEMP | 4.B.7 | 33.1-15-14-06.5.a(3)(a) |
| Wet cake storage | FS8 | PM/$PM_{10}$/Opacity (Plant-wide Monitoring) | FEMP | 4.B.7 | 33.1-15-14-06.5.a(3)(a) |
| Wet storage bin | FS9 | PM/$PM_{10}$/Opacity (Plant-wide Monitoring) | FEMP | 4.B.7 | 33.1-15-14-06.5.a(3)(a) |
| Miscellaneous process sources | FS10 | VOC (Plant-wide Monitoring) | FEMP | 4.B.7 | 33.1-15-14-06.5.a(3)(a) |
| Grain storage silos | FS11A & FS11B | PM/$PM_{10}$/Opacity (Plant-wide Monitoring) | FEMP | 4.B.7 | 33.1-15-14-06.5.a(3)(a) |
| DDGS storage silos | FS12 | PM/$PM_{10}$/Opacity (Plant-wide Monitoring) | FEMP | 4.B.7 | 33.1-15-14-06.5.a(3)(a) |
| Grain drying | FS14 | PM/$PM_{10}$/Opacity (Plant-wide Monitoring) | FEMP | 4.B.7 | 33.1-15-14-06.5.a(3)(a) |
| Rail loadout fugitives | FS17 | PM/$PM_{10}$/Opacity (Plant-wide Monitoring) | FEMP | 4.B.7 | 33.1-15-14-06.5.a(3)(a) |

| Process Unit | EP | Pollutant/ Parameter [A] | Monitoring Requirement (Method) | Condition Number | NDAC Applicable Requirement |
|---|---|---|---|---|---|
| Plant-wide | -- | PM [B]/Opacity | FEMP | 4.B.7 | 33.1-15-14-06.5.a(3)(a) |
| | | PM [B] | Recordkeeping | 4.B.12 | 33.1-15-14-06.5.a(3)(a) & ACP-17895 v1.0 |
| | | $NO_x$ | Recordkeeping | 4.B.12 | 33.1-15-14-06.5.a(3)(a) & ACP-17895 v1.0 |
| | | CO | Recordkeeping | 4.B.12 | 33.1-15-14-06.5.a(3)(a) & ACP-17895 v1.0 |
| | | VOC | Recordkeeping | 4.B.12 | 33.1-15-14-06.5.a(3)(a) & ACP-17895 v1.0 |
| | | HAPs | Recordkeeping | 4.B.12 | 33.1-15-14-06.5.a(3)(a) & ACP-17895 v1.0 |
| | | Acetaldehyde | Recordkeeping | 4.B.12 | 33.1-15-14-06.5.a(3)(a) & ACP-17895 v1.0 |

[A] The pollutants PM and/or $PM_{10}$ throughout the table include filterable fractions only, unless indicated otherwise by footnote B.

[B] Includes filterable (PM, $PM_{10}$, and $PM_{2.5}$) and condensable (CPM) fractions.

B. **Monitoring Conditions:**

1) The permittee shall conduct the monitoring, recordkeeping and reporting as required by applicable subparts of NDAC 33.1-15-14-06.10 (40 CFR 64). Monitoring for each emission unit shall be conducted in accordance with the Compliance Assurance Monitoring (CAM) plan in Attachment A of this permit.

The measured indicators for the emission units subject to CAM are summarized as follows:

**Table 4.2 CAM Indicators**

| Process Unit / EP | Control (Pollutant) | Indicator | Indicator Range | Frequency |
|---|---|---|---|---|
| Prefermentation & fermentation 4 | Wet Scrubber (VOC) | Water Flow Rate | ≥134 gpm | 3-Hour Average |
| | | Ammonium Bisulfite/ VOX-Out Concentration | ≥7 ppm | Every 12 Hours |
| | | Inspection/Maintenance | N/A | Daily |

| Process Unit / EP | Control (Pollutant) | Indicator | Indicator Range | Frequency |
|---|---|---|---|---|
| Ethanol loadout 11 | Enclosed Flare (VOC) | Thermocouple | ≥ 750°F | During Times of Ethanol Loadout |
| | | Inspection/Maintenance | N/A | Daily |
| DGS dryers (4), Protein Ring Dryer 17 | RTO1 & RTO2 (VOC) | RTO Combustion Temperature | ≥1685° F [A, B] | 3-Hour Average |
| | | Inspection/Maintenance | N/A | Daily |
| DGS dryers (2) 21 | TO (VOC) | TO Combustion Temperature | ≥1545° F | 3-Hour Average |
| | | Inspection/Maintenance | N/A | Daily |

[A] Temperature applies to each RTO.

[B] RTO combustion temperature applies to operating scenarios in Condition 3.D.3 for the protein ring dryer (EU 86), or when the four DGS Dryers (EUs 68, 69, 70, and 71) are in operation.

2) For purposes of compliance monitoring, burning of fuels as outlined in Condition 2.A, shall be considered credible evidence of compliance with the opacity, particulate or $SO_2$ emission limit. However, results from tests conducted in accordance with the test methods in 40 CFR 50, 51, 60, 61, or 75 will take precedence over burning of gaseous fuel, biogas and distillate oil as outlined in Condition 2.A, for evidence of compliance or noncompliance with the opacity, particulate and $SO_2$ emission limit, in the event of enforcement action.

3) Twice during the term of the renewal permit, an emissions test shall be conducted to measure $NO_x$ (for EP 17 only), CO and VOC emissions using EPA Reference Methods in 40 CFR 60, Appendix A or at a minimum a portable analyzer method approved by the Department.

a) A test shall consist of three runs, with each run at least 20 minutes in length.

b) The first test shall be conducted within one year of issuance of the renewal permit and the second test shall be conducted no sooner than two years or later than three years after the previous test.

4) CEMS:

a) The permittee shall conduct monitoring of $NO_x$ emissions in accordance with 40 CFR 60, Subpart Db.

1] The permittee shall calibrate, maintain, and operate a system for continuously monitoring and recording $NO_x$ on a $lb/10^6$ Btu basis. The monitoring and recording shall be in accordance with the requirements for

Notification and Recordkeeping (40 CFR §60.7) and monitoring requirements (40 CFR §60.13) as adopted by reference in NDAC 33.1-15-12-02 or quality assurance procedures approved in advance by the Department.

2] The quality assurance requirements applicable to the CEMS are specified in Appendix F of 40 CFR 60.

b) The CEMS shall be used to determine compliance with the $NO_x$ concentration ($lb/10^6$ Btu) emission limits applicable to the boiler (EU 53/EP 8) and the TO (EP 21) stacks.

1] The CEMS shall be certified to comply with the applicable requirements of 40 CFR 60, Appendix B, Performance Specification 2.

2] A relative accuracy test audit (RATA) shall be conducted annually on the $NO_x$ CEMS in accordance with the applicable procedures in 40 CFR 60, Appendix B, Performance Specification 2.

c) When a failure of a CEMS occurs, an alternative method, acceptable to the Department, for measuring or estimating emissions must be undertaken as soon as possible. Timely repair of the emission monitoring system must be made.

d) The Department may require additional audits of the CEMS.

5) Ethanol Loadout: The permittee shall install, operate and maintain a device to monitor the temperature in the firebox or in the ductwork downstream of the firebox before any substantial heat exchange occurs.

a) An operating temperature range shall be established showing compliance for the combustion device during times of ethanol loadout. Operating within or above the temperature range shall be considered an indication of compliance with the destruction efficiency requirement.

b) After the temperature range is established, the permittee shall measure and record the operating temperature continuously when the emission unit is operated.

1] If the temperature is below the established operating range, the permittee shall investigate the problem within eight hours.

2] Any malfunctions shall be corrected as soon as possible.

6) Engine Operating Hours: Each engine shall be equipped with a non-resettable hour meter and a log shall be kept of the total hours of operation on a calendar year basis for each engine. Records shall be maintained time operated for emergency purposes, for maintenance/testing purposes, and for other nonemergency purposes.

7) Fugitive Emissions Management Plan (FEMP): The permittee shall develop, revise as necessary and comply with a fugitive emissions management plan for all fugitive emission sources.

a) The fugitive emission management plan shall describe the best management practices (BMP) which will be used for all source units listing BMP as the emission limit from Condition 3.A and all other fugitive dust sources.

b) The plan shall be submitted to the Department whenever it is revised.

8) Visible Emissions Observations (VEO): At least once per week in which the emission unit is operated, a company representative who is certified, has been certified, or has received Department approved visible emissions training (requires a one-time visible emissions session) shall observe the emission points. If no visible emissions are present, the permittee shall record the date, time and observation results.

a) If the observation indicates visible emissions are present, the permittee must investigate for a potential problem within eight hours. Any problems that are discovered must be corrected as soon as possible. If the correction of the situation is expected to take longer than 24 hours, the permittee shall follow procedures as outlined in Condition 7.G. Following corrective maintenance, a visible emissions observation shall be made.

b) For flares only, if visible emissions are observed for longer than 24 hours or corrective action fails to eliminate the visible emissions, a formal visible emissions evaluation shall be conducted in accordance with Table 3.1, footnote H.

c) All instances of visible emissions, investigations of malfunctions, and corrective actions taken shall be recorded. The permittee shall comply with the visible emissions and particulate emission limits in Condition 3.A and nothing in this condition shall be construed as authorizing otherwise.

9) Prefermentation & Fermentation and Distillation Scrubber: A flow meter to continuously measure the liquid flow rate to the scrubber shall be installed, calibrated, operated and maintained. The flow meter shall be guaranteed to be accurate within $\pm$5%.

a) A flow rate operating range shall be established through testing that shows compliance with the VOC emission limits. This flow rate shall be an indicator of compliance with the VOC emission limits specified in Condition 3.A.

1] After the indicator range is established, the permittee shall check the flow rate to the scrubber at least once per day when the emission unit is operated.

a] If the flow rate is outside the indicator range, the permittee shall investigate the problem within eight hours.

b] Any malfunction shall be corrected as soon as possible.

b) The permittee shall also operate and maintain a system for measuring the ammonium bisulfite or other Departmental approved chemical concentration in the scrubber water used to control emissions from the fermentation systems (EP 4). The permittee may use other chemical additives and may use other compliance assurance monitoring for VOC and acetaldehyde provided it is approved in advance by the Department.

1] The chemical additive rate shall be checked and recorded daily.

c) During the final two years of each renewal permit period, prior to submitting each Title V permit renewal application, the permittee shall conduct stack tests on the fermentation scrubber (EP 4) to ensure compliance with the emission limit for acetaldehyde and to verify or revise the VOC emission factor and CAM indicators.

1] The fermentation scrubber liquid flow rate and chemical additive rate recorded during the most recent satisfactory testing will be provided as the CAM indicators for EP 4.

10) Regenerative Thermal Oxidizers (RTO) and Thermal Oxidizer (TO):

a) The permittee shall continuously measure and record the temperature of the combustion chamber of each thermal oxidizer and shall continuously monitor the RTO and TO combustion chamber temperatures. If the temperatures are below the indicator ranges, the permittee shall investigate the problem within 8 hours. Any malfunction shall be corrected as soon as possible. The minimum operating temperature may be revised as indicated by a subsequent successful compliance test.

c) During the final two years of the 5-year renewal permit period, prior to submitting each Title V permit renewal application, the permittee shall conduct stack tests on the thermal oxidizers to ensure compliance with the emission limits for VOC, CO, PM and acetaldehyde and to verify or revise the CAM indicators for VOC.

1] The thermal oxidizer combustion changer temperatures recorded during the most recent satisfactory testing will be provided as the CAM indicators for EP 17 and 21.

11) The permittee shall record the amount of 200 proof ethanol produced on a monthly and 12-month rolling total basis, which shall be provided to the Department upon request.

12) Annual Emissions Restrictions: By the 15th day of each month, the permittee shall calculate and record the total $NO_x$, CO, VOC, PM, HAP and acetaldehyde emissions for the previous month and for the previous 12-month period.

a) If the total calculated, combined emissions exceed the corresponding limits defined below in any 12-month period, the permittee shall notify the Department in writing within 15 days of the date the calculation was made.

b) The emissions records shall be kept on file (in an easily accessible format, electronic or otherwise) for five years and shall be submitted to the Department upon request.

c) The sources of the emission factors that were used in the calculations are listed in the table below. If alternative emissions factors are to be used, they must be approved by the Department. Additionally, emission calculation methodologies other than those listed below may be used if approved in advance by the Department.

**Table 4.3 Emission Factor Sources**

| EP | PM | $NO_x$ | CO | VOC | HAPs | Acetaldehyde |
|---|---|---|---|---|---|---|
| 1 | Testing [A] | --- | --- | --- | --- | --- |
| 2 | Testing [A] | --- | --- | --- | --- | --- |
| 3 | Engineering Estimate | Engineering Estimate | Engineering Estimate | Engineering Estimate | Engineering Estimate | Engineering Estimate |
| 4 | --- | --- | --- | Testing [A] | Testing [A] | Testing [A] |
| 8 | BACT [D] | CEMS | Testing [A] | Testing [A] | AP-42 | --- |
| 9 | Testing [A] | --- | --- | --- | --- | --- |
| 11 | AP-42 | AP-42 | AP-42 | AP-42 | Mass Fraction of VOC [E] | Mass Fraction of VOC [E] |
| 13 | BACT [D] | BACT [D] | BACT [D] | BACT [D] | AP-42 | AP-42 |
| 15 | Testing [A] | --- | --- | Testing [A] | Testing [A] | Testing [A] |
| 16 | Testing [A] | --- | --- | --- | --- | |
| 17 | Testing [A] | Testing [A] | Testing [A] | Testing [A] | Testing [A, D] & AP-42 | Testing [A] |
| 21 | Testing [A] | CEMS | Testing [A] | Testing [A] | Testing [A] & AP-42 | Testing [A] |
| 22 | Testing [A] | --- | --- | Testing [A] | Testing [A] | Testing [A] |
| 23 | Testing [A] | --- | --- | --- | --- | --- |
| 25 | Testing [A] | -- | -- | Testing [A] | Engineering Estimate | Engineering Estimate |
| 27 | Engineering Estimate | -- | -- | -- | -- | -- |
| 32 | Testing [A] | -- | -- | -- | -- | -- |

| EP | PM | $NO_x$ | CO | VOC | HAPs | Acetaldehyde |
|---|---|---|---|---|---|---|
| TK1 through TK5 | --- | --- | --- | Emission Data [B] | Emission Data [B] | Emission Data [B] |
| FS1 | AP-42 | --- | --- | | --- | --- |
| FS2 | AP-42 | --- | --- | --- | --- | --- |
| FS5 | --- | --- | --- | Emission Data [B] | Emission Data [B] | Emission Data [B] |
| FS7 | Manufacturer Guarantee | --- | --- | --- | --- | --- |
| FS8 | --- | --- | --- | Testing [C] | Mass Fraction of VOC [E] | Mass Fraction of VOC [E] |
| FS9 | AP-42 | --- | --- | --- | --- | --- |
| FS10 | --- | --- | --- | Emission Data [B] | --- | --- |
| FS11A & FS11B | AP-42 | --- | --- | --- | --- | --- |
| FS12 | AP-42 | --- | --- | --- | --- | --- |
| FS14 | --- | AP-42 | AP-42 | AP-42 | AP-42 | --- |
| FS15 | --- | --- | --- | AP-42 & Emission Data [B] | --- | --- |
| FS17 | AP-42 | --- | --- | --- | --- | --- |

A Based on the most recent Department approved stack test.
B Based on the average ton/month emissions from the PTE calculations.
C Based on testing done at a similar facility.
D BACT limits established in ACP-17155 v1.0; See Condition 4.
E HAP emissions are estimated by calculating the mass fractions of each of the contributing HAPs based on the VOC emissions.

d) PM Emissions: Combined particulate matter emissions from the following emission points are restricted to 249 tons per year: the unloading baghouse, hammermill baghouse, boiler, DDGS handling baghouse, ethanol loadout pilot, emergency generator, long-term storage baghouse, RTO, TO, DDGS coolers, protein cooling, protein storage, protein loadout and fugitive emissions from other various equipment (EP 1, 2, 3, 8, 9, 11, 13, 15, 16, 17, 21, 22, 23, 25, 27, 32, FS1, FS2, FS7, FS9, FS11A/B, FS12, FS14 and FS17). Compliance with the PM limit will inherently demonstrate compliance with the $PM_{10}$ and $PM_{2.5}$ emissions restriction since all $PM_{10}$ and $PM_{2.5}$ are included in PM. Emissions shall be calculated monthly in a method as shown below:

$$\text{PM Emissions(ton)} = EP1 + EP2 + EP\,3 + EP8 + EP9 + EP11_{pilot} + EP13 + EP15 + EP16 + EP17 + EP21 + EP22 + EP23 + EP25 + EP27 + EP32 + EPFS1 + EPFS2 + EPFS7 + EPFS9 + EPFS11A/B + EPFS12 + EPFS14 + EPFS17$$

Where:

$$EP1(\text{ton}) = \frac{\text{Hours of Operation(hr)} * \text{Baghouse EF}\left(\frac{\text{lb}}{\text{hr}}\right)}{2{,}000\left(\frac{\text{lb}}{\text{ton}}\right)}$$

$$EP2(\text{ton}) = \frac{\text{Hours of Operation(hr)} * \text{Baghouse EF}\left(\frac{\text{lb}}{\text{hr}}\right)}{2{,}000\left(\frac{\text{lb}}{\text{ton}}\right)}$$

$$EP3(\text{ton}) = \frac{\text{Natural Gas Combusted during Ring Dryer Startup(MMBtu)} * \text{PM EF}\left(\frac{\text{lb}}{\text{MMBtu}}\right)}{2{,}000\left(\frac{\text{lb}}{\text{ton}}\right)}$$

$$EP8(\text{ton}) = \frac{\text{Natural Gas Combusted in Boiler(MMBtu)} * \text{Boiler EF}\left(\frac{\text{lb}}{\text{MMBtu}}\right)}{2{,}000\left(\frac{\text{lb}}{\text{ton}}\right)}$$

$$EP9(\text{ton}) = \frac{\text{Hours of Operation(hr)} * \text{Baghouse EF}\left(\frac{\text{lb}}{\text{hr}}\right)}{2{,}000\left(\frac{\text{lb}}{\text{ton}}\right)}$$

$$EP11_{pilot}(\text{ton}) = \frac{\text{Hours of Operation(hr)} * \text{Pilot EF}\left(\frac{\text{lb}}{\text{MMBtu}}\right) * \text{Pilot Rating}\left(\frac{\text{MMBtu}}{\text{hr}}\right)}{2{,}000\left(\frac{\text{lb}}{\text{ton}}\right)}$$

$$EP13(\text{ton}) = \frac{\text{Hours of Operation(hr)} * \text{Diesel Generator EF}\left(\frac{\text{lb}}{\text{hp} * \text{hr}}\right) * \text{Rating(hp)}}{2{,}000\left(\frac{\text{lb}}{\text{ton}}\right)}$$

$$EP15(\text{ton}) = \frac{2 * \text{DDGS Produced(ton)} * \text{DDGS EF}\left(\frac{\text{lb}}{\text{ton DDGS}}\right)}{3 * 2{,}000\left(\frac{\text{lb}}{\text{ton}}\right)}$$

$$EP16(\text{ton}) = \frac{\text{Hours of Operation(hr)} * \text{Baghouse EF}\left(\frac{\text{lb}}{\text{hr}}\right)}{2{,}000\left(\frac{\text{lb}}{\text{ton}}\right)}$$

$$EP17(\text{ton}) = \frac{\text{Natural Gas Combusted in RTO, RTO Dryers \& Ring Dryer(MMBtu)} * \text{RTO EF}^{A}\left(\frac{\text{lb}}{\text{MMBtu}}\right)}{2{,}000\left(\frac{\text{lb}}{\text{ton}}\right)}$$

$$EP21(ton) = \frac{\text{Natural Gas Combusted in TO and TO Dryers(MMBtu)} * \text{TO EF}\left(\frac{lb}{MMBtu}\right)}{2{,}000\left(\frac{lb}{ton}\right)}$$

$$EP22(ton) = \frac{\text{DDGS Produced(ton)} * \text{DDGS EF}\left(\frac{lb}{ton\ DDGS}\right)}{3 * 2{,}000\left(\frac{lb}{ton}\right)}$$

$$EP23(ton) = \frac{\text{Hours of Operation(hr)} * \text{Baghouse EF}\left(\frac{lb}{hr}\right)}{2{,}000\left(\frac{lb}{ton}\right)}$$

$$EP25(ton) = \frac{\text{Hours of Operation(hr)} * \text{Baghouse EF}\left(\frac{lb}{hr}\right)}{2{,}000\left(\frac{lb}{ton}\right)}$$

$$EP27(ton) = \frac{\text{Hours of Operation(hr)} * \text{Dust Collector EF}\left(\frac{lb}{hr}\right)}{2{,}000\left(\frac{lb}{ton}\right)}$$

$$EP32(ton) = \frac{\text{Protein Loaded (ton)} * \text{Loading EF}\left(\frac{lb}{hr}\right)}{2{,}000\left(\frac{lb}{ton}\right)}$$

$$EPFS1(ton) = \frac{\text{Grain Received(ton)} * \text{Grain EF}\left(\frac{lb}{ton}\right) * (1 - \text{Control Efficiency EF})}{2{,}000\left(\frac{lb}{ton}\right)}$$

$$EPFS2(ton) = \frac{\text{DDGS Produced(ton)} * \text{DDGS EF}\left(\frac{lb}{ton}\right) * (1 - \text{Control Efficiency EF})}{2{,}000\left(\frac{lb}{ton}\right)}$$

$$EPFS7(ton) = \frac{\text{Hours of Operation(hr)} * \text{Circulation Rate}\left(\frac{gal}{hr}\right) * 8.34\left(\frac{lb}{gal}\right) * \text{Drift Loss}\left(\frac{0.001}{100}\right)}{1{,}000{,}000\left(\frac{lb}{TDS(ppm)}\right) * 2{,}000\left(\frac{lb}{ton}\right)}$$

$$EPFS9(ton) = \frac{\text{Grain Dried(ton)} * \text{Fugitive EF}\left(\frac{lb}{ton}\right) * (1 - \text{Control Efficiency EF})}{2{,}000\left(\frac{lb}{ton}\right)}$$

$$EPFS11A/B(ton) = \frac{\text{Grain Received(ton)} * \text{Storage EF}\left(\frac{lb}{ton}\right) * (1 - \text{Control Efficiency EF})}{2{,}000\left(\frac{lb}{ton}\right)}$$

$$EPFS12(ton) = \frac{\text{DDGS Produced(ton)} * \text{Storage EF}\left(\frac{lb}{ton}\right) * (1 - \text{Control Efficiency EF})}{2{,}000\left(\frac{lb}{ton}\right)}$$

$$EPFS14(ton) = \frac{\text{Natural Gas Combusted in Grain Dryer(MMBtu)} * \text{Dryer EF}\left(\frac{lb}{MMscf}\right)}{\text{Heat Content}\left(\frac{Btu}{scf}\right) * 2{,}000\left(\frac{lb}{ton}\right)} + \frac{\text{Grain Dried(ton)} * \text{Dryer EF}\left(\frac{lb}{ton}\right)}{2{,}000\left(\frac{lb}{ton}\right)}$$

$$EPFS17(ton) = \frac{\text{Protein Loaded(ton)} * \text{Fugitive EF}\left(\frac{lb}{ton}\right)}{2{,}000\left(\frac{lb}{ton}\right)}$$

[A] The operating scenario must be considered when determining the correct RTO pollutant emission factor (see Condition 2.D.2 for operating scenarios).

e) $NO_x$ Emissions: Combined $NO_x$ emissions from the following emission points are restricted to 249 tons per year: the ring dryer startup, boiler, ethanol loadout flare, emergency generator, regenerative thermal oxidizer (RTO), thermal oxidizer (TO) and grain dryer (EP 3, 8, 11, 13, 17, 21 and FS14, respectively). Emissions shall be calculated monthly in a method as shown below:

$$NO_x \text{ Emissions(ton)} = EP3 + EP8 + EP11_{product} + EP11_{pilot} + EP13 + EP17 + EP21 + EPFS14$$

Where:

$$EP3(ton) = \frac{\text{Natural Gas Combusted during Ring Dryer Startup(MMBtu)} * \text{EF}\left(\frac{lb}{MMBtu}\right)}{2{,}000\left(\frac{lb}{ton}\right)}$$

$$EP8(ton)^{A} = \frac{\text{Natural Gas Combusted in Boiler(MMBtu)} * NO_x \text{ CEMS}\left(\frac{lb}{MMBtu}\right)}{2{,}000\left(\frac{lb}{ton}\right)}$$

$$EP11_{product}(ton) = \frac{\text{Hours of Operation(hr)} * \text{Flare EF}\left(\frac{lb}{MMBtu}\right) * \text{Flare Rating}\left(\frac{MMBtu}{hr}\right)}{2{,}000\left(\frac{lb}{ton}\right)}$$

$$EP11_{pilot}(ton) = \frac{\text{Hours of Operation(hr)} * \text{Pilot EF}\left(\frac{lb}{MMBtu}\right) * \text{Pilot Rating}\left(\frac{MMBtu}{hr}\right)}{2{,}000\left(\frac{lb}{ton}\right)}$$

$$EP13(ton) = \frac{\text{Hours of Operation(hr)} * \text{Diesel Generator EF}\left(\frac{lb}{hp * hr}\right) * \text{Rating(hp)}}{2{,}000\left(\frac{lb}{ton}\right)}$$

$$EP17(ton) = \frac{\text{Natural Gas Combusted in RTO, RTO Dryers \& Ring Dryer(MMBtu)} * \text{RTO EF}^{B}\left(\frac{lb}{MMBtu}\right)}{2{,}000\left(\frac{lb}{ton}\right)}$$

$$EP21(ton)^{A} = \frac{\text{Natural Gas Combusted in TO and TO Dryers(MMBtu)} * NO_X \text{ CEMS}\left(\frac{lb}{MMBtu}\right)}{2{,}000\left(\frac{lb}{ton}\right)}$$

$$FS14(ton) = \frac{\text{Natural Gas Combusted in Grain Dryer(MMBtu)} * \text{Grain Dryer EF}\left(\frac{lb}{MMscf}\right)}{\text{Heat Content}\left(\frac{Btu}{scf}\right) * 2{,}000\left(\frac{lb}{ton}\right)}$$

A These emission points are subject to additional $NO_x$ limits; see Condition 4.B.12)f.

B The operating scenario must be considered when determining the correct RTO pollutant emission factor (see Condition 2.D.2 for operating scenarios).

f) Nested $NO_x$ Emissions: Combined $NO_x$ emissions from the boiler and TO (EP 8 and 21) are restricted to 99 tons per year. Compliance with this limit shall be demonstrated using the same calculating methodology identified in Condition 4.B.12)e. For EP 21, only the natural gas consumed by the TO (no dryers) shall contribute to the nested limit.

g) CO Emissions: Combined CO emissions from the following emission points are restricted to 249 tons per year: the ring dryer startup, boiler, ethanol loadout flare, emergency generator, regenerative thermal oxidizer (RTO), thermal oxidizer (TO) and grain dryer (EP 3, 8, 11, 13, 17, 21 and FS14, respectively). Emissions shall be calculated monthly in a method as shown below:

$$\text{CO Emissions(ton)} = EP3 + EP8 + EP11_{product} + EP11_{pilot} + EP13 + EP17 + EP21 + EPFS14$$

Where:

$$EP3(ton) = \frac{\text{Natural Gas Combusted during Ring Dryer Startup(MMBtu)} * \text{EF}\left(\frac{lb}{MMBtu}\right)}{2{,}000\left(\frac{lb}{ton}\right)}$$

$$EP8(ton) = \frac{\text{Natural Gas Combusted in Boiler(MMBtu)} * \text{Boiler EF}\left(\frac{lb}{MMBtu}\right)}{2{,}000\left(\frac{lb}{ton}\right)}$$

$$EP11_{product}(ton) = \frac{\text{Hours of Operation(hr)} * \text{Flare EF}\left(\frac{lb}{MMBtu}\right) * \text{Flare Rating}\left(\frac{MMBtu}{hr}\right)}{2{,}000\left(\frac{lb}{ton}\right)}$$

$$EP11_{pilot}(ton) = \frac{\text{Hours of Operation(hr)} * \text{Pilot EF}\left(\frac{lb}{MMBtu}\right) * \text{Pilot Rating}\left(\frac{MMBtu}{hr}\right)}{2{,}000\left(\frac{lb}{ton}\right)}$$

$$EP13(ton) = \frac{\text{Hours of Operation(hr)} * \text{Diesel Generator EF}\left(\frac{lb}{hp * hr}\right) * \text{Rating(hp)}}{2{,}000\left(\frac{lb}{ton}\right)}$$

$$EP17(ton) = \frac{\text{Natural Gas Combusted in RTO, RTO Dryers \& Ring Dryer(MMBtu)} * \text{RTO EF}^{A}\left(\frac{lb}{MMBtu}\right)}{2{,}000\left(\frac{lb}{ton}\right)}$$

$$EP21(ton) = \frac{\text{Natural Gas Combusted in TO and TO Dryers(MMBtu)} * \text{TO EF}\left(\frac{lb}{MMBtu}\right)}{2{,}000\left(\frac{lb}{ton}\right)}$$

$$EPFS14(ton) = \frac{\text{Natural Gas Combusted in Grain Dryer(MMBtu)} * \text{Grain Dryer EF}\left(\frac{lb}{MMscf}\right)}{\text{Heat Content}\left(\frac{Btu}{scf}\right) * 2{,}000\left(\frac{lb}{ton}\right)}$$

A The operating scenario must be considered when determining the correct RTO pollutant emission factor (see Condition 2.D.2 for operating scenarios).

h) VOC Emissions: Combined VOC emissions from the following emission points are restricted to 249 tons per year: the ring dryer startup, wet scrubber, boiler, ethanol loadout flare, emergency generator, baghouses, RTO, TO, DDGS cooler, protein cyclone, and fugitive emissions from storage tanks and other various equipment (EP 3, 4, 8, 11, 13, 15, 17, 21, 22, 25, TK1 through TK5, FS5, FS8, FS10, FS14 and FS15). Emissions shall be calculated monthly in a method as shown below:

$$\begin{aligned} VOC\ Emissions(ton) = {} & EP3 + EP4 + EP4_{EE} + EP8 + EP11_{product} + \\ & EP11_{pilot} + EP11_{fug} + EP13 + EP15 + EP17 + \\ & EP21 + EP22 + EP25 + EPTK1 \text{ through } EPTK5 + \\ & EPFS5 + EPFS8 + EPFS10 + EPFS14 + EPFS15 \end{aligned}$$

Where:

$$EP3(ton) = \frac{\text{Natural Gas Combusted during Ring Dryer Startup(MMBtu)} * EF\left(\frac{lb}{MMBtu}\right)}{2{,}000\left(\frac{lb}{ton}\right)}$$

$$EP4(ton) = \frac{\text{Ethanol Produced(gal)} * \text{Scrubber EF}\left(\frac{lb}{MMgal}\right)}{1{,}000{,}000\left(\frac{gal}{MMgal}\right) * 2{,}000\left(\frac{lb}{ton}\right)}$$

$$EP4_{\text{Exess Emissions}}(ton) = \frac{\text{Scrubber Downtime(hr)} * \text{VOC EF}\left(\frac{lb}{hr}\right)}{2{,}000\left(\frac{lb}{ton}\right)}$$

$$EP8(ton) = \frac{\text{Natural Gas Combusted in Boiler(MMBtu)} * \text{Boiler EF}\left(\frac{lb}{MMBtu}\right)}{2{,}000\left(\frac{lb}{ton}\right)}$$

$$EP11_{product}(ton) = \frac{\text{Hours of Operation(hr)} * \text{Flare EF}\left(\frac{lb}{MMBtu}\right) * \text{Flare Rating}\left(\frac{MMBtu}{hr}\right)}{2{,}000\left(\frac{lb}{ton}\right)}$$

$$EP11_{pilot}(ton) = \frac{\text{Hours of Operation(hr)} * \text{Pilot EF}\left(\frac{lb}{MMBtu}\right) * \text{Pilot Rating}\left(\frac{MMBtu}{hr}\right)}{2{,}000\left(\frac{lb}{ton}\right)}$$

$$EP11_{fugT}(ton) = \frac{DEtOH_{Truck}(gal) * \text{Truck EF}\left(\frac{lb}{Mgal\ DEtOH}\right)}{1{,}000\left(\frac{gal}{Mgal}\right) * 2{,}000\left(\frac{lb}{ton}\right)}$$

$$EP11_{fugR}(ton) = \frac{EtOH_{Rail}(gal) * \text{Rail EF}\left(\frac{lb}{Mgal\ EtOH}\right)}{1{,}000\left(\frac{gal}{Mgal}\right) * 2{,}000\left(\frac{lb}{ton}\right)}$$

$$EP11_{fugRD}(ton) = \frac{DEtOH_{Rail}(gal) * \text{DEtOH Rail EF}\left(\frac{lb}{Mgal\ DEtOH}\right)}{1{,}000\left(\frac{gal}{Mgal}\right) * 2{,}000\left(\frac{lb}{ton}\right)}$$

$$EP13(ton) = \frac{\text{Hours of Operation(hr)} * \text{Diesel Generator EF}\left(\frac{lb}{hp * hr}\right) * \text{Rating(hp)}}{2{,}000\left(\frac{lb}{ton}\right)}$$

$$EP15(ton) = \frac{2 * \text{DDGS Produced(ton)} * \text{DDGS EF}\left(\frac{lb}{ton\ DDGS}\right)}{3 * 2{,}000\left(\frac{lb}{ton}\right)}$$

$$EP17(ton) = \frac{\text{Natural Gas Combusted in RTO, RTO Dryers \& Ring Dryer(MMBtu)} * \text{RTO EF}^{A}\left(\frac{lb}{MMBtu}\right)}{2{,}000\left(\frac{lb}{ton}\right)}$$

$$EP21(ton) = \frac{\text{Natural Gas Combusted in TO and TO Dryers(MMBtu)} * \text{TO EF}\left(\frac{lb}{MMBtu}\right)}{2{,}000\left(\frac{lb}{ton}\right)}$$

$$EP22(ton) = \frac{\text{DDGS Produced(ton)} * \text{DDGS EF}\left(\frac{lb}{ton\ DDGS}\right)}{3 * 2{,}000\left(\frac{lb}{ton}\right)}$$

$$EP25(ton) = \frac{\text{Material Processed(hr)} * \text{EF}\left(\frac{lb}{hr}\right)}{2{,}000\left(\frac{lb}{ton}\right)}$$

$$EPTK1 \text{ through } EPTK5(ton) = \text{Tank EF(ton)}$$

$$EPFS5(ton) = \text{Combined VOC}^{B}(ton)$$

$$EPFS8(ton) = \frac{\text{WDGS Produced(ton)} * \text{WDGS EF}\left(\frac{lb}{ton\ WDGS}\right)}{2{,}000\left(\frac{lb}{ton}\right)}$$

$$EPFS10(ton) = \text{Misc. Process Sources EF(ton)}$$

$$EPFS14(ton) = \frac{\text{Natural Gas Combusted in Grain Dryer(MMBtu)} * \text{Grain Dryer EF}\left(\frac{lb}{MMscf}\right)}{\text{Heat Content}\left(\frac{Btu}{scf}\right) * 2{,}000\left(\frac{lb}{ton}\right)}$$

$$EPFS15(ton) = \frac{\text{CDO Shipped by Truck(gal)} * \text{Shipping EF}\left(\frac{lb}{Mgal\ CDO}\right)}{1{,}000\left(\frac{gal}{Mgal}\right) * 2{,}000\left(\frac{lb}{ton}\right)} + \text{Tank EF(ton)}$$

A The operating scenario must be considered when determining the correct RTO pollutant emission factor (see Condition 2.D.2 for operating scenarios).

B VOC emissions for EPFS5 are calculated based on the amount of leaks detected during the course of the calendar year and using the EPA Protocol for Equipment Leak Emission Estimates (EPA-453/R-95-017) SCOMI Screen Emission Factors from Table 2-5.

i) HAP Emissions: Combined HAP emissions from the following emission points are restricted to 24 tons per year: the ring dryer startup, fermentation scrubber, boiler, ethanol loadout flare, emergency generator, DDGS coolers, RTO, TO, protein cyclone, storage tanks, wetcake storage, grain dryer and fugitive emissions (EP 3, 4, 8, 11, 13, 15, 17, 21, 22, 25, TK1 through TK5, FS5, FS8 and FS14). Emissions shall be calculated monthly in a method as shown below:

$$\text{HAP Emissions(ton)} = \text{EP3} + \text{EP4} + \text{EP4}_{\text{EE}} + \text{EP8} + \text{EP11}_{\text{fug}} + \text{EP13} + \text{EP15} + \text{EP17} + \text{EP21} + \text{EP22} + \text{EP25} + \text{EPTK1 through EPTK5} + \text{EPFS5} + \text{EPFS8} + \text{EPFS14}$$

Where:

$$\text{EP3(ton)} = \frac{\text{Natural Gas Combusted during Ring Dryer Startup(MMBtu)} * \text{EF}\left(\frac{\text{lb}}{\text{MMBtu}}\right)}{2{,}000\left(\frac{\text{lb}}{\text{ton}}\right)}$$

$$\text{EP4(ton)} = \frac{\text{Ethanol Produced(gal)} * \text{Combined HAP EF}^{\text{A}}\left(\frac{\text{lb}}{\text{MMgal}}\right)}{1{,}000{,}000\left(\frac{\text{gal}}{\text{MMgal}}\right) * 2{,}000\left(\frac{\text{lb}}{\text{ton}}\right)}$$

$$\text{EP4}_{\text{EE}}\text{(ton)} = \frac{\text{Scrubber Downtime(hr)} * \text{Combined HAP EF}^{\text{A}}\left(\frac{\text{lb}}{\text{hr}}\right)}{2{,}000\left(\frac{\text{lb}}{\text{ton}}\right)}$$

$$\text{EP8(ton)} = \frac{\text{Natural Gas Combusted(MMBtu)} * \text{Combined HAP EF}^{\text{B}}\left(\frac{\text{lb}}{\text{MMBtu}}\right)}{2{,}000\left(\frac{\text{lb}}{\text{ton}}\right)}$$

$$\text{EP11}_{\text{fugTD}}\text{(ton)} = \frac{\text{EtOH}_{\text{Truck}}\text{(gal)} * \text{VOC Truck EF}\left(\frac{\text{lb}}{\text{Mgal EtOH}}\right) * \text{Mass Fraction VOC}^{\text{C}}}{1{,}000\left(\frac{\text{gal}}{\text{Mgal}}\right) * 2{,}000\left(\frac{\text{lb}}{\text{ton}}\right)} + \frac{\text{Denaturant(gal)} * \text{VOC Truck EF}\left(\frac{\text{lb}}{\text{Mgal EtOH}}\right) * \text{Mass Fraction VOC}^{\text{D}}}{1{,}000\left(\frac{\text{gal}}{\text{Mgal}}\right) * 2{,}000\left(\frac{\text{lb}}{\text{ton}}\right)}$$

$$\text{EP11}_{\text{fugRD}}\text{(ton)} = \frac{\text{EtOH}_{\text{Rail}}\text{(gal)} * \text{Rail EF}\left(\frac{\text{lb}}{\text{Mgal EtOH}}\right) * \text{Mass Fraction VOC}^{\text{C}}}{1{,}000\left(\frac{\text{gal}}{\text{Mgal}}\right) * 2{,}000\left(\frac{\text{lb}}{\text{ton}}\right)} + \frac{\text{Denaturant(gal)} * \text{Rail EF}\left(\frac{\text{lb}}{\text{Mgal EtOH}}\right) * \text{Mass Fraction VOC}^{\text{D}}}{1{,}000\left(\frac{\text{gal}}{\text{Mgal}}\right) * 2{,}000\left(\frac{\text{lb}}{\text{ton}}\right)}$$

$$\text{EP11}_{\text{fugR}}\text{(ton)} = \frac{\text{EtOH}_{\text{Rail}}\text{(gal)} * \text{Rail EF}\left(\frac{\text{lb}}{\text{Mgal EtOH}}\right) * \text{Mass Fraction VOC}^{\text{C}}}{1{,}000\left(\frac{\text{gal}}{\text{Mgal}}\right) * 2{,}000\left(\frac{\text{lb}}{\text{ton}}\right)}$$

$$\text{EP13(ton)} = \frac{\text{Hours of Operation(hr)} * \text{Generator Capacity}\left(\frac{\text{MMBtu}}{\text{hr}}\right) * \text{Combined HAP EF}^{\text{E}}\left(\frac{\text{lb}}{\text{MMbtu}}\right)}{2{,}000\left(\frac{\text{lb}}{\text{ton}}\right)}$$

$$EP15(ton) = \frac{2 * \text{DDGS Produced(ton)} * \text{Combined HAP EF}^{A}\left(\frac{lb}{\text{ton DDGS}}\right)}{3 * 2{,}000\left(\frac{lb}{ton}\right)}$$

$$EP17(ton)^{G} = \frac{\text{DDGS Produced(ton)} * \text{Combined HAP EF}^{F}\left(\frac{lb}{\text{ton DDGS}}\right)}{3 * 2{,}000\left(\frac{lb}{ton}\right)} + \frac{\text{Natural Gas Combusted(MMBtu)} * \text{Combined HAP EF}^{B}\left(\frac{lb}{MMscf}\right)}{\text{Heat Content}\left(\frac{Btu}{scf}\right) * 2{,}000\left(\frac{lb}{ton}\right)} + \frac{\text{Natural Gas Combusted Ring Dryer(MMBtu)} * EF\left(\frac{lb}{MMscf}\right)}{2{,}000\left(\frac{lb}{ton}\right)}$$

$$EP21(ton) = \frac{2 * \text{DDGS Produced(ton)} * \text{Combined HAP EF}^{F}\left(\frac{lb}{\text{ton DDGS}}\right)}{3 * 2{,}000\left(\frac{lb}{ton}\right)} + \frac{\text{Natural Gas Combusted(MMBtu)} * \text{Combined HAP EF}^{B}\left(\frac{lb}{MMscf}\right)}{\text{Heat Content}\left(\frac{Btu}{scf}\right) * 2{,}000\left(\frac{lb}{ton}\right)}$$

$$EP22(ton) = \frac{\text{DDGS Produced(ton)} * \text{Combined HAP EF}^{A}\left(\frac{lb}{\text{ton DDGS}}\right)}{3 * 2{,}000\left(\frac{lb}{ton}\right)}$$

$$EP25(ton) = \frac{\text{Material Processed(hr)} * EF\left(\frac{lb}{hr}\right)}{2{,}000\left(\frac{lb}{ton}\right)}$$

$$EPTK1 \text{ through } EPTK5(ton) = \text{Combined HAP EF}^{C,D}(ton)$$

$$EPFS5(ton) = \text{Combined HAP EF}^{C,D}(ton)$$

$$EPFS8(ton) = \frac{\text{WDGS Produced(ton)} * \text{WDGS EF}\left(\frac{lb}{\text{ton WDGS}}\right) * \text{Combined HAP EF}^{A}}{2{,}000\left(\frac{lb}{ton}\right)}$$

$$EPFS14(ton) = \frac{\text{Natural Gas Combusted(MMBtu)} * \text{Combined HAP EF}^{B}\left(\frac{lb}{MMscf}\right)}{\text{Heat Content}\left(\frac{Btu}{scf}\right) * 2{,}000\left(\frac{lb}{ton}\right)}$$

A Combined HAP emission factor includes methanol, acrolein, formaldehyde, and acetaldehyde.

B Combined HAP emission factor includes formaldehyde, hexane, benzene, toluene, and other HAPs associated with the combustion of natural gas.

C HAP emissions are estimated by calculating the mass fractions of each of the contributing HAPs based on the VOC emissions from ethanol.

D HAP emissions are estimated by calculating the mass fractions of each of the contributing HAPs based on the VOC emissions from the denaturant.

E Combined HAP emission factor includes acetaldehyde, acrolein, formaldehyde, benzene, toluene, and other HAPs associated with the combustion of diesel fuel.

F Combined HAP emission factor includes methanol, acrolein, and acetaldehyde.

G The operating scenario must be considered when determining the correct RTO pollutant emission factor (see Condition 2.D.2 for operating scenarios).

j) Acetaldehyde Emissions: Combined acetaldehyde emissions from the following emission points are restricted to 9.9 tons per year: the ring dryer, fermentation scrubber, ethanol loadout flare, emergency generator, RTO, TO, DDGS coolers, protein cyclone, storage tanks, fugitive emissions, and wetcake storage (EP 4, 11, 13, 15, 17, 21, 22, TK1 through TK5, FS5 and FS8). Emissions shall be calculated monthly in a method as shown below:

$$\text{Acetaldehyde Emissions(ton)} = \text{EP3} + \text{EP4} + \text{EP11} + \text{EP13} + \text{EP15} + \text{EP17} + \text{EP21} + \text{EP22} + \text{EP25} + \text{EPTK1 through EPTK5} + \text{EPFS5} + \text{EPFS8}$$

Where:

$$\text{EP3(ton)}^{A} = \frac{\text{Natural Gas Combusted during Ring Dryer Startup(MMBtu)} * \text{EF}\left(\frac{\text{lb}}{\text{MMBtu}}\right)}{2{,}000\left(\frac{\text{lb}}{\text{ton}}\right)}$$

$$\text{EP4(ton)} = \frac{\text{Hours of Operation(hr)} * \text{Scrubber EF}\left(\frac{\text{lb}}{\text{hr}}\right)}{2{,}000\left(\frac{\text{lb}}{\text{ton}}\right)}$$

$$\text{EP11(ton)} = \frac{\text{EtOH}_{\text{Truck}}\text{(gal)} * \text{VOC Truck EF}\left(\frac{\text{lb}}{\text{Mgal EtOH}}\right) * \text{Mass Fraction VOC}^{A}}{1{,}000\left(\frac{\text{gal}}{\text{Mgal}}\right) * 2{,}000\left(\frac{\text{lb}}{\text{ton}}\right)} + \frac{\text{EtOH}_{\text{Rail}}\text{(gal)} * \text{Rail EF}\left(\frac{\text{lb}}{\text{Mgal EtOH}}\right) * \text{Mass Fraction VOC}^{A}}{1{,}000\left(\frac{\text{gal}}{\text{Mgal}}\right) * 2{,}000\left(\frac{\text{lb}}{\text{ton}}\right)}$$

$$\text{EP13(ton)} = \frac{\text{Hours of Operation(hr)} * \text{Generator Capacity}\left(\frac{\text{MMBtu}}{\text{hr}}\right) * \text{Acetaldehyde EF}\left(\frac{\text{lb}}{\text{MMbtu}}\right)}{2{,}000\left(\frac{\text{lb}}{\text{ton}}\right)}$$

$$\text{EP15(ton)} = \frac{\text{Hours of Operation(hr)} * \text{DDGS EF}\left(\frac{\text{lb}}{\text{hr}}\right)}{2{,}000\left(\frac{\text{lb}}{\text{ton}}\right)}$$

$$EP17(ton) = \frac{\text{Hours of Operation(hr)} * \text{RTO EF}^{B}\left(\frac{lb}{hr}\right)}{2{,}000\left(\frac{lb}{ton}\right)} + \frac{\text{Natural Gas Combusted Ring Dryer(MMBtu)} * EF\left(\frac{lb}{MMscf}\right)}{2{,}000\left(\frac{lb}{ton}\right)}$$

$$EP21(ton) = \frac{\text{Hours of Operation(hr)} * \text{TO EF}\left(\frac{lb}{hr}\right)}{2{,}000\left(\frac{lb}{ton}\right)}$$

$$EP22(ton) = \frac{\text{Hours of Operation(hr)} * \text{DDGS EF}\left(\frac{lb}{hr}\right)}{2{,}000\left(\frac{lb}{ton}\right)}$$

$$EP25(ton) = \frac{\text{Material Processed(hr)} * EF\left(\frac{lb}{hr}\right)}{2{,}000\left(\frac{lb}{ton}\right)}$$

$$EPTK1 \text{ through } EPTK5(ton) = \text{Acetaldedyde EF}^{A}(ton)$$

$$EPFS5(ton) = \frac{\text{Equipement Leaks(lb VOC)} * \text{Mass Fraction VOC}^{A}}{2{,}000\left(\frac{lb}{ton}\right)}$$

$$EPFS8(ton) = \frac{\text{WDGS Produced(ton)} * \text{WDGS EF}\left(\frac{lb}{ton\ WDGS}\right) * \text{Mass Fraction VOC}^{C}}{2{,}000\left(\frac{lb}{ton}\right)}$$

A Acetaldehyde emissions are estimated by calculating the mass fraction of acetaldehyde based on the VOC emissions from ethanol.

B The operating scenario must be considered when determining the correct RTO pollutant emission factor (see Condition 2.D.2 for operating scenarios).

C Acetaldehyde emissions are calculating using the mass fraction of acetaldehyde based on the VOC emissions from wetcake.

C. In addition to the requirements outlined in Conditions 4.A and 4.B, monitoring shall be in accordance with the following requirements of NDAC 33.1-15-12, 33.1-15-22 and 40 CFR 63, as applicable.

1) NDAC 33.1-15-12-02, Subpart A, § 60.13, Monitoring requirements

2) NDAC 33.1-15-12-02, Subpart Db, §60.47b and §60.48b, Emission monitoring

3) NDAC 33.1-15-12-02, Subpart Kb, §60.116b, Monitoring of operations

Applicable Requirements: NDAC 33.1-15-12-02, Subparts A, Db and Kb

5. **Recordkeeping Requirements**:

A. The permittee shall maintain compliance monitoring records as outlined in the Monitoring Records table that include the following information.

1) The date, place (as defined in the permit) and time of sampling or measurement.

2) The date(s) testing was performed.

3) The company, entity, or person that performed the testing.

4) The testing techniques or methods used.

5) The results of such testing.

6) The operating conditions that existed at the time of sampling or measurement.

Applicable Requirement: NDAC 33.1-15-14-06.5.a(3)(b)[1]

**Table 5.1 Monitoring Records**

| Process Unit | EP | Pollutant/Parameter [A] | Compliance Monitoring Record |
|---|---|---|---|
| Grain handling | 1 | PM/Opacity | VEO & PM Emissions Test Data |
| Hammermilling | 2 | PM/Opacity | VEO & PM Emissions Test Data |
| Protein ring dryer startup stack | 3 | Opacity | VEO Data |
| Prefermentation & fermentation | 4 | VOC | CAM & Emissions Test Data |
| | | Opacity | VEO Data |
| Boiler | 8 | PM [B] | Type of Fuel Used Data |
| | | $SO_2$ | Type of Fuel Used Data |
| | | $NO_x$ | CEMS Data |
| | | CO | Emissions Test Data |
| | | VOC | Emissions Test Data |
| | | Opacity | Type of Fuel Used Data |
| Boiler & TO for DGS dryers (2) | 8 & 21 | $NO_x$ (Nested) | Emissions Test Data/Recordkeeping |

| Process Unit | EP | Pollutant/Parameter [A] | Compliance Monitoring Record |
|---|---|---|---|
| DDGS handling & loadout | 9 | Opacity | VEO & PM Emissions Test Data |
| Ethanol loadout | 11 | VOC | CAM Temperature Data |
| | | Opacity | VEO Data |
| Emergency generator engine & emergency fire pump engine | 13 & 159 | Opacity | Type of Fuel Used Data |
| | | Operating Hours | Hours of Operation Data |
| DDGS cooling | 15 & 22 | VOC (Plant-wide Monitoring) | Emissions Test Data |
| | | Opacity | VEO & PM Emissions Test Data |
| Long term storage | 16 | Opacity | VEO & PM Emissions Test Data |
| DGS dryers (4), Protein ring dryer & MSC | 17 | PM [B] (Plant-wide Monitoring) | CAM, Recordkeeping, Emissions Test & VEO Data |
| | | $SO_2$ | Type of Fuel Used Data |
| | | $NO_x$ (Plant-wide Monitoring) | Emissions Test Data |
| | | CO (Plant-wide Monitoring) | Recordkeeping & Emissions Test Data |
| | | VOC (Plant-wide Monitoring) | CAM & Emissions Test Data |
| | | Acetaldehyde | Emissions Test Data |
| | | Opacity | Type of Fuel Used Data |
| DGS dryers (2) | 21 | PM [B] (Plant-wide Monitoring) | CAM, Recordkeeping, Emissions Test & VEO Data |
| | | $SO_2$ | Type of Fuel Used Data |
| | | $NO_x$ | CEMS Data |
| | | CO (Plant-wide Monitoring) | Recordkeeping & Emissions Test Data |
| | | VOC (Plant-wide Monitoring) | CAM & Emissions Test Data |
| | | Acetaldehyde | Emissions Test Data |
| | | Opacity | Type of Fuel Used Data |
| Grain Handling | 23 | Opacity | VEO & PM Emissions Test Data |
| Protein cooling | 25 | Opacity | VEO & VOC Emission Test Data |
| Protein storage silos | 27 | Opacity | VEO Data |

| Process Unit | EP | Pollutant/Parameter [A] | Compliance Monitoring Record |
|---|---|---|---|
| Protein rail & truck loadout | 32 | Opacity | VEO & PM Emission Test Data |
| Storage tanks | TK1 through TK5 | VOC | Recordkeeping |
| Grain handling | FS1 | $PM/PM_{10}$/Opacity | FEMP |
| DDGS handling | FS2 | $PM/PM_{10}$/Opacity | FEMP |
| Process equipment | FS5 | VOC | Cond. 2.F.4 Equipment Leak Monitoring/Recordkeeping |
| Roads | FS6 | $PM/PM_{10}$/Opacity | FEMP |
| Cooling towers | FS7 | $PM/PM_{10}$/Opacity | FEMP |
| Wet cake storage | FS8 | $PM/PM_{10}$/Opacity | FEMP |
| Wet storage bin | FS9 | $PM/PM_{10}$/Opacity | FEMP |
| Miscellaneous process sources | FS10 | VOC (Plant-wide Monitoring) | FEMP |
| Grain storage silos | FS11A & FS11B | $PM/PM_{10}$/Opacity | FEMP |
| DDGS storage silos | FS12 | $PM/PM_{10}$/Opacity | FEMP |
| Grain drying | FS14 | $PM/PM_{10}$/Opacity | FEMP |
| Grain storage bin | FS16 | $PM/PM_{10}$/Opacity | FEMP |
| Plant-wide | -- | PM [B]/ Opacity | Emissions Data/Recordkeeping & FEMP |
| | | $NO_x$ | Emissions Data/Recordkeeping |
| | | VOC | Emissions Data/Recordkeeping |
| | | CO | Emissions Data/Recordkeeping |
| | | HAPs | Emissions Data/Recordkeeping |
| | | Acetaldehyde | Emissions Data/Recordkeeping |

A The pollutants PM and/or $PM_{10}$ throughout the table include filterable fractions only, unless indicated otherwise by footnote B.

B Includes filterable (PM, $PM_{10}$, and $PM_{2.5}$) and condensable (CPM) fractions.

B. In addition to the requirements outlined in Condition 5.A, recordkeeping shall be in accordance with the following requirements of the North Dakota Air Pollution Control Rules (NDAC) 33.1-15-12, 33.1-15-22 and 40 CFR 63, as applicable.

1) NDAC 33.1-15-12-02, Subpart A, § 60.7, Notification and record keeping

2) NDAC 33.1-15-12-02, Subpart Db, §60.49b, Reporting and recordkeeping requirements

3) NDAC 33.1-15-12-02, Subpart Kb, §60.115b, Reporting and recordkeeping requirements

4) NDAC 33.1-15-12-02, Subpart VVa, §60.486a, Recordkeeping requirements

5) NDAC 33.1-15-12-02, Subpart IIII, §60.4214, Notification, reporting, and recordkeeping requirements

6) NDAC 33.1-15-14-06.10, §64.9, Reporting and Recordkeeping Requirements

7) 40 CFR 63, Subpart A, §63.10, Recordkeeping and reporting requirements

8) 40 CFR 63, Subpart ZZZZ, §63.6645 - §63.6660, Notifications, reports, and records

Applicable Requirements: NDAC 33.1-15-12-02, Subparts A, Db, Kb, VVa, IIII, NDAC 33.1-15-14-06 and 40 CFR 63, Subparts A and ZZZZ

C. The permittee shall retain records of all required monitoring data and support information for a period of at least five years from the date of the monitoring sampling, measurement, report, or application. Support information includes all calibration and maintenance records and all original strip-chart recordings/computer printouts of continuous monitoring instrumentation, and copies of all reports required by the permit.

Applicable Requirement: NDAC 33.1-15-14-06.5.a(3)(b)[2]

6. **Reporting**:

A. In addition to the requirements outlined in Condition 5.A, recordkeeping shall be in accordance with the following requirements of the North Dakota Air Pollution Control Rules (NDAC) 33.1-15-12, 33.1-15-22 and 40 CFR 63, as applicable.

1) NDAC 33.1-15-12-02, Subpart A, § 60.7, Notification and record keeping

2) NDAC 33.1-15-12-02, Subpart Db, §60.49b, Reporting and recordkeeping requirements

3) NDAC 33.1-15-12-02, Subpart Kb, §60.115b, Reporting and recordkeeping requirements

4) NDAC 33.1-15-12-02, Subpart VVa, §60.486a, Recordkeeping requirements

5) NDAC 33.1-15-12-02, Subpart IIII, §60.4214, Notification, reporting, and recordkeeping requirements

6) NDAC 33.1-15-14-06.10, §64.9, Reporting and Recordkeeping Requirements, Paragraph (a) General Reporting Requirements.

7) 40 CFR 63, Subpart A, §63.10, Recordkeeping and reporting requirements

8) 40 CFR 63, Subpart ZZZZ, §63.6645 - §63.6660, Notifications, reports, and records

Applicable Requirements: NDAC 33.1-15-12-02, Subparts A, Db, Kb, VVa, IIII, NDAC 33.1-15-14-06 and 40 CFR 63, Subparts A and ZZZZ

B. Quarterly excess emission reports for the boiler and thermal oxidizer (EP 8 and EP 21) shall be submitted by the 30th day following the end of each calendar quarter. Excess emissions are defined as emission rates which exceed the emission limits in Condition 4.A. Excess emissions shall be reported for the following:

| Parameter | Averaging Period |
|---|---|
| $NO_x$ (lb/$10^6$ Btu) | 30 d.r.a. |

Applicable Requirements: NDAC 33.1-15-14-06.5.a(3)(c)[1] and [2]

C. The permittee shall submit a semi-annual monitoring report for all monitoring records required under Condition 5 in a format provided or approved by the Department. All instances of deviations from the permit must be identified in the report. Include all items required under NDAC 33.1-15-12-02 (40 CFR 60), Subpart VVa. A monitoring report shall be submitted within 45 days after June 30 and December 31 of each year.

Applicable Requirements: NDAC 33.1-15-14-06.5.a(3)(c)[1] and [2]

D. The permittee shall submit an annual compliance certification report in accordance with NDAC 33.1-15-14-06.5.c(5) within 45 days after December 31 of each year in a format provided or approved by the Department.

Applicable Requirement: NDAC 33.1-15-14-06.5.c(5)

E. For emission units where the method of compliance monitoring is demonstrated by an EPA Test Method or a portable analyzer test, the test report shall be submitted to the Department within 60 days after completion of the test.

Applicable Requirement: NDAC 33.1-15-14-06.5.a(6)(e)

F. The permittee shall submit an annual emission inventory report (AEIR) in a format provided or approved by the Department. This report shall be submitted by March 15 of each year. Insignificant units/activities listed in this permit do not need to be included in the report.

Applicable Requirements: NDAC 33.1-15-14-06.5.a(7) and NDAC 33.1-15-23-04

7. **Facility Wide Operating Conditions**:

A. **Ambient Air Quality Standards**:

1) Particulate and gases. The permittee shall not emit air contaminants in such a manner or amount that would violate the standards of ambient air quality listed in Table 1 of NDAC 33.1-15-02, external to buildings, to which the general public has access.

2) Radioactive substances. The permittee shall not release into the ambient air any radioactive substances exceeding the concentrations specified in NDAC 33.1-10.

3) Other air contaminants. The permittee shall not emit any other air contaminants in concentrations that would be injurious to human health or well-being or unreasonably interfere with the enjoyment of property or that would injure plant or animal life.

4) Disclaimer. Nothing in any other part or section of this permit may in any manner be construed as authorizing or legalizing the emission of air contaminants in such manner that would violate the standards in Paragraphs 1), 2) and 3) of this condition.

Applicable Requirements: NDAC 33.1-15-02-04 and 40 CFR 50.1(e)

B. **Fugitive Emissions**: The release of fugitive emissions shall comply with the applicable requirements in NDAC 33.1-15-17.

Applicable Requirement: NDAC 33.1-15-17

C. **Open Burning**: The permittee may not cause, conduct, or permit open burning of refuse, trade waste, or other combustible material, except as provided for in Section 33.1-15-04-02 and may not conduct, cause, or permit the conduct of a salvage operation by open burning. Any permissible open burning under NDAC 33.1-15-04-02 must comply with the requirements of that section.

Applicable Requirement: NDAC 33.1-15-04

D. **Asbestos Renovation or Demolition**: Any asbestos renovation or demolition at the facility shall comply with emission standard for asbestos in NDAC 33.1-15-13.

Applicable Requirement: NDAC 33.1-15-13-02

E. **Requirements for Organic Compounds Gas Disposal**:

1) Any organic compounds, gases and vapors which are generated as wastes as the result of storage, refining or processing operations and which contain hydrogen sulfide shall be incinerated, flared or treated in an equally effective manner before being released into the ambient air.

2) Each flare must be equipped and operated with an automatic ignitor or a continuous burning pilot.

Applicable Requirement: NDAC 33.1-15-07-02

F. **Rotating Pumps and Compressors**: All rotating pumps and compressors handling volatile organic compounds must be equipped and operated with properly maintained seals designed for their specific product service and operating conditions.

Applicable Requirement: NDAC 33.1-15-07-01.5

G. **Shutdowns/Malfunction/Continuous Emission Monitoring System Failure**:

1) Maintenance Shutdowns. In the case of shutdown of air pollution control equipment for necessary scheduled maintenance, the intent to shut down such equipment shall be reported to the Department at least 24 hours prior to the planned shutdown provided that the air contaminating source will be operated while the control equipment is not in service. Such prior notice shall include the following:

a) Identification of the specific facility to be taken out of service as well as its location and permit number.

b) The expected length of time that the air pollution control equipment will be out of service.

c) The nature and estimated quantity of emissions of air pollutants likely to be emitted during the shutdown period.

d) Measures, such as the use of off-shift labor and equipment, that will be taken to minimize the length of the shutdown period.

e) The reasons that it would be impossible or impractical to shut down the source operation during the maintenance period.

f) Nothing in this subsection shall in any manner be construed as authorizing or legalizing the emission of air contaminants in excess of the rate allowed by this article or a permit issued pursuant to this article.

Applicable Requirement: NDAC 33.1-15-01-13.1

2) Malfunctions.

a) When a malfunction in any installation occurs that can be expected to last longer than 24 hours and cause the emission of air contaminants in violation of this article or other applicable rules and regulations, the person responsible for such installation shall notify the Department of such malfunction as soon as possible

during normal working hours. The notification must contain a statement giving all pertinent facts, including the estimated duration of the breakdown. The Department shall be notified when the condition causing the malfunction has been corrected.

b) Immediate notification to the Department is required for any malfunction that would threaten health or welfare or pose an imminent danger. During normal working hours the Department can be contacted at 701-328-5188. After hours the Department can be contacted through the 24-hour state radio emergency number 1-800-472-2121. If calling from out of state, the 24-hour number is 701-328-9921.

c) Unavoidable Malfunction. The owner or operator of a source who believes any excess emissions resulted from an unavoidable malfunction shall submit a written report to the Department which includes evidence that:

[1] The excess emissions were caused by a sudden, unavoidable breakdown of technology that was beyond the reasonable control of the owner or operator.

[2] The excess emissions could not have been avoided by better operation and maintenance, did not stem from an activity or event that could have been foreseen and avoided, or planned for.

[3] To the extent practicable, the source maintained and operated the air pollution control equipment and process equipment in a manner consistent with good practice for minimizing emissions, including minimizing any bypass emissions.

[4] Any necessary repairs were made as quickly as practicable, using off-shift labor and overtime as needed and possible.

[5] All practicable steps were taken to minimize the potential impact of the excess emissions on ambient air quality.

[6] The excess emissions are not part of a recurring pattern that may have been caused by inadequate operation or maintenance, or inadequate design of the malfunctioning equipment.

The report shall be submitted within 30 days of the end of the calendar quarter in which the malfunction occurred or within 30 days of a written request by the Department, whichever is sooner.

The burden of proof is on the owner or operator of the source to provide sufficient information to demonstrate that an unavoidable equipment malfunction occurred. The Department may elect not to pursue enforcement action after considering

whether excess emissions resulted from an unavoidable equipment malfunction. The Department will evaluate, on a case-by-case basis, the information submitted by the owner or operator to determine whether to pursue enforcement action.

Applicable Requirement: NDAC 33.1-15-01-13.2

3) Continuous Emission Monitoring System Failures. When a failure of a continuous emission monitoring system occurs, an alternative method for measuring or estimating emissions must be undertaken as soon as possible. The owner or operator of a source that uses an alternative method shall have the burden of demonstrating that the method is accurate. Timely repair of the emission monitoring system must be made. The provisions of this subsection do not apply to sources that are subject to monitoring requirements in Chapter 33.1-15-21 (40 CFR 75, Acid Rain Program).

Applicable Requirement: NDAC 33.1-15-01-13.3

H. **Air Pollution from Internal Combustion Engines**: The permittee shall comply with all applicable requirements of NDAC 33.1-15-08-01 – Internal Combustion Engine Emissions Restricted.

Applicable Requirement: NDAC 33.1-15-08-01

I. **Prohibition of Air Pollution**:

1) The permittee shall not permit or cause air pollution, as defined in NDAC 33.1-15-01-04.

2) Nothing in any other part of this permit or any other regulation relating to air pollution shall in any manner be construed as authorizing or legalizing the creation or maintenance of air pollution.

Applicable Requirement: NDAC 33.1-15-01-15

J. **Performance Tests**:

1) The Department may reasonably require the permittee to make or have made tests, at a reasonable time or interval, to determine the emission of air contaminants from any source, for the purpose of determining whether the permittee is in violation of any standard or to satisfy other requirements of NDCC 23.1-06. All tests shall be made, and the results calculated in accordance with test procedures approved or specified by the Department including the North Dakota Department of Environmental Quality Emission Testing Guideline. All tests shall be conducted by reputable, qualified personnel. The Department shall be given a copy of the test results in writing and signed by the person responsible for the tests.

2) The Department may conduct tests of emissions of air contaminants from any source. Upon request of the Department, the permittee shall provide necessary and adequate access into stacks or ducts and such other safe and proper sampling and testing facilities, exclusive of instruments and sensing devices, as may be necessary for proper determination of the emission of air contaminants.

Applicable Requirement: NDAC 33.1-15-01-12

3) Except for sources subject to 40 CFR 63, the permittee shall notify the Department by submitting a Proposed Test Plan, or its equivalent, at least 30 calendar days in advance of any tests of emissions of air contaminants required by the Department. The permittee shall notify the Department at least 60 calendar days in advance of any performance testing required under 40 CFR 63, unless otherwise specified by the subpart. If the permittee is unable to conduct the performance test on the scheduled date, the permittee shall notify the Department as soon as practicable when conditions warrant and shall coordinate a new test date with the Department.

**Failure to give the proper notification may prevent the Department from observing the test. If the Department is unable to observe the test because of improper notification, the test results may be rejected.**

Applicable Requirements: NDAC 33.1-15-14-06.5.a(3)(a), NDAC 33.1-15-12-02 Subpart A (40 CFR 60.8), NDAC 33.1-15-13-01.2 Subpart A (40 CFR 61.13), NDAC 33.1-15-22-03 Subpart A (40 CFR 63.7)

K. **Pesticide Use and Disposal**: Any use of a pesticide or disposal of surplus pesticides and empty pesticide containers shall comply with the requirements in NDAC 33.1-15-10.

Applicable Requirements: NDAC 33.1-15-10-01 and NDAC 33.1-15-10-02

L. **Air Pollution Emergency Episodes**: When an air pollution emergency episode is declared by the Department, the permittee shall comply with the requirements in NDAC 33.1-15-11.

Applicable Requirements: NDAC 33.1-15-11-01 through NDAC 33.1-15-11-04

M. **Stratospheric Ozone Protection**: The permittee shall comply with any applicable standards for recycling and emissions reduction pursuant to 40 CFR 82, Subpart F, except as provided for MVACs in Subpart B:

1) Persons opening appliances for maintenance, service, repair, or disposal must comply with the required practices pursuant to Section 82.156.

2) Equipment used during the maintenance, service, repair, or disposal of appliances must comply with the standards for recycling and recovery equipment pursuant to Section 82.158.

3) Persons performing maintenance, service, repair, or disposal of appliances must be certified by an approved technician certification program pursuant to Section 82.161.

4) Persons owning commercial or industrial process refrigeration equipment must comply with the leak repair requirements pursuant to Section 82.156.

Applicable Requirement: 40 CFR 82

N. **Chemical Accident Prevention**: The permittee shall comply with all applicable requirements of Chemical Accident Prevention pursuant to 40 CFR 68. The permittee shall comply with the requirements of this part no later than the latest of the following dates:

1) Three years after the date on which a regulated substance is first listed under this part; or

2) The date on which a regulated substance is first present above a threshold quantity in a process.

Applicable Requirement: 40 CFR 68

O. **Air Pollution Control Equipment**: The permittee shall maintain and operate air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions. The manufacturer's recommended Operations and Maintenance (O&M) procedures, or a site-specific O&M procedure developed from the manufacturer's recommended O&M procedures, shall be followed to assure proper operation and maintenance of the equipment. The permittee shall have the O&M procedures available onsite and provide the Department with a copy when requested.

Applicable Requirement: NDAC 33.1-15-14-06.5.b(1)

P. **Prevention of Significant Deterioration of Air Quality** (40 CFR 52.21 as incorporated by NDAC Chapter 33.1-15-15): If this facility is classified as a major stationary source under the Prevention of Significant Deterioration of Air Quality (PSD) rules, a Permit to Construct must be obtained from the Department for any project which meets the definition of a "major modification" under 40 CFR 52.21(b)(2).

If this facility is classified as a major stationary source under the PSD rules and the permittee elects to use the method specified in 40 CFR 52.21(b)(41)(ii)(a) through (c) for calculating the projected actual emissions of a proposed project, then the permittee shall comply with all applicable requirements of 40 CFR 52.21(r)(6).

Applicable Requirement: NDAC 33.1-15-15-01.2

8. **General Conditions**:

A. **Annual Fee Payment**: The permittee shall pay an annual fee, for administering and monitoring compliance, which is determined by the actual annual emissions of regulated contaminants from the previous calendar year. The Department will send a notice, identifying the amount of the annual permit fee, to the permittee of each affected installation. The fee is due within 60 days following the date of such notice. Any source that qualifies as a "small business" may petition the Department to reduce or exempt any fee required under this section. Failure to pay the fee in a timely manner or submit a certification for exemption may cause this Department to initiate action to revoke the permit.

Applicable Requirements: NDAC 33.1-15-14-06.5.a(7) and NDAC 33.1-15-23-04

B. **Permit Renewal and Expiration**: This permit shall be effective from the date of its issuance for a fixed period of five years. 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 six months, but no more than 18 months, prior to the date of permit expiration. The Department shall approve or disapprove the renewal application within 60 days of receipt. Unless the Department requests additional information or otherwise notifies the applicant of incompleteness, the application shall be deemed complete. For timely and complete renewal applications for which the Department has failed to issue or deny the renewal permit before the expiration date of the previous permit, all terms and conditions of the permit, including any permit shield previously granted shall remain in effect until the renewal permit has been issued or denied. The application for renewal shall include the current permit number, description of any permit revisions and off-permit changes that occurred during the permit term, and any applicable requirements that were promulgated and not incorporated into the permit during the permit term.

Applicable Requirements: NDAC 33.1-15-14-06.4 and NDAC 33.1-15-14-06.6

C. **Transfer of Ownership or Operation**: This permit may not be transferred except by procedures allowed in Chapter 33.1-15-14 and is to be returned to the Department upon the destruction or change of ownership of the source unit(s), or upon expiration, suspension or revocation of this permit. A change in ownership or operational control of a source is treated as an administrative permit amendment if no other change in the permit is necessary and provided that a written agreement containing a specific date for transfer of permit responsibility, coverage, and liability between the current and new permittee has been submitted to the Department.

Applicable Requirement: NDAC 33.1-15-14-06.6.d

D. **Property Rights**: This permit does not convey any property rights of any sort, or any exclusive privilege.

Applicable Requirement: NDAC 33.1-15-14-06.5.a(6)(d)

E. **Submissions**:

1) Reports, test data, monitoring data, notifications, and requests for renewal shall be submitted to the Department using a format provided or approved by the Department. Physical submittals shall be submitted to:

North Dakota Department of Environmental Quality
Division of Air Quality
4201 Normandy Street, 2nd Floor
Bismarck, ND 58503-1324

2) Any application form, report or compliance certification submitted shall be certified as being true, accurate, and complete by a responsible official.

Applicable Requirement: NDAC 33.1-15-14-06.4.d

F. **Right of Entry**: Any duly authorized officer, employee or agent of the North Dakota Department of Environmental Quality may enter and inspect any property, premise or place listed on this permit or where records are kept concerning this permit at any reasonable time for the purpose of ascertaining the state of compliance with this permit and the North Dakota Air Pollution Control Rules. The Department may conduct tests and take samples of air contaminants, fuel, processing material, and other materials which affect or may affect emissions of air contaminants from any source. The Department shall have the right to access and copy any records required by the Department's rules and to inspect monitoring equipment located on the premises.

Applicable Requirements: NDAC 33.1-15-14-06.5.c(2) and NDAC 33.1-15-01-06

G. **Compliance**: The permittee must comply with all conditions of this permit. Any noncompliance with a federally-enforceable permit condition constitutes a violation of the Federal Clean Air Act. Any noncompliance with any State enforceable condition of this permit constitutes a violation of NDCC Chapter 23.1-06 and NDAC 33.1-15. Violation of any condition of this permit is grounds for enforcement action, for permit termination, revocation and reissuance or modification, or for denial of a permit renewal application. Noncompliance may also be grounds for assessment of penalties under the NDCC 23.1-06. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

Applicable Requirements: NDAC 33.1-15-14-06.5.a(6)(a) and NDAC 33.1-15-14-06.5.a(6)(b)

H. **Duty to Provide Information**: The permittee shall furnish to the Department, within a reasonable time, any information that the Department may request in writing to determine whether cause exists for modifying, revoking and reissuing, or terminating the permit, or to determine compliance with the permit. This includes instances where an alteration, repair, expansion, or change in method of operation of the source occurs. Upon request, the permittee shall also furnish to the Department copies of records that the permittee is required to keep by this permit, or for information claimed to be confidential, the permittee may furnish such recourse directly to the Department along with a claim of confidentiality. The permittee, upon becoming aware that any relevant facts were omitted, or incorrect information was submitted in

the permit application, shall promptly submit such supplementary facts or corrected information. Items that warrant supplemental information submittal include, but are not limited to, changes in the ambient air boundary and changes in parameters associated with emission points (i.e., stack parameters). The permittee shall also provide additional information as necessary to address any requirements that become applicable to the source after the date a complete renewal application was submitted but prior to release of a draft permit.

Applicable Requirements: NDAC 33.1-15-14-06.5.a(6)(e), NDAC 33.1-15-14-06.6.b(3) and NDAC 33.1-15-14-06.4.b

I. **Reopening for Cause**: The Department will reopen and revise this permit as necessary to remedy deficiencies in the following circumstances:

1) Additional applicable requirements under the Federal Clean Air Act become applicable to the permittee with a remaining permit term of three or more years. Such a reopening shall be completed no later than 18 months after promulgation of the applicable requirement. No such reopening is required if the effective date of the requirement is later than the expiration date of this permit.

2) The Department or the United States Environmental Protection Agency determines that this permit contains a material mistake or inaccurate statements were made in establishing the emissions standards or other terms or conditions of this permit.

3) The Department or the United States Environmental Protection Agency determines that the permit must be revised or revoked to assure compliance with the applicable requirements.

4) Reopenings shall not be initiated before a notice of intent to reopen is provided to the permittee by the Department at least 30 days in advance of the date that this permit is to be reopened, except that the Department may provide a shorter time period in the case of an emergency. Proceedings to reopen and issue 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 shall be made as expeditiously as practicable.

Applicable Requirement: NDAC 33.1-15-14-06.6.f

J. **Permit Changes**: The permit may be modified, revoked, reopened, and reissued or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or of a notification of planned changes or anticipated noncompliance does not stay any permit condition.

Applicable Requirement: NDAC 33.1-15-14-06.5.a(6)(c)

K. **Off-Permit Changes**: A permit revision is not required for changes that are not addressed or prohibited by this permit, provided the following conditions are met:

1) No such change may violate any term or condition of this permit.

2) Each change must comply with all applicable requirements.

3) Changes under this provision may not include changes or activities subject to any requirement under Title IV or that are modifications under any provision of Title I of the Federal Clean Air Act.

4) A Permit to Construct under NDAC 33.1-15-14-02 has been issued, if required.

5) Before the permit change is made, the permittee must provide written notice to both the Department and Air Program (8P-AR), Office of Partnerships & Regulatory Assistance, US EPA Region 8, 1595 Wynkoop Street, Denver, CO 80202-1129, except for changes that qualify as insignificant activities in Section 33.1-15-14-06. This notice shall describe each change, the date of the change, any change in emissions, pollutants emitted, and any applicable requirement that would apply as a result.

6) The permittee shall record all changes that result in emissions of any regulated air pollutant subject to any applicable requirement not otherwise regulated under this permit, and the emissions resulting from those changes. The record shall reside at the permittee's facility.

Applicable Requirement: NDAC 33.1-15-14-06.6.b(3)

L. **Administrative Permit Amendments**: This permit may be revised through an administrative permit amendment, if the revision to this permit accomplishes one of the following:

1) Corrects typographical errors.

2) Identifies a change in the name, address or phone number of any person identified in this permit or provides a similar minor administrative change at the source.

3) Requires more frequent monitoring or reporting by the permittee.

4) Allows for a change in ownership or operational control of the source where the Department determines that no other change in the permit is necessary, provided that a written agreement containing a specific date for transfer of permit responsibility, coverage and liability between the current and new permittee has been submitted to the Department.

5) Incorporates into the Title V permit the requirements from a Permit to Construct when the review was substantially equivalent to Title V requirements for permit issuance, renewal, reopenings, revisions and permit review by the United States Environmental Protection Agency and affected state review, that would be applicable to the change if it were subject to review as a permit modification and compliance requirements substantially equivalent to Title V requirements for permit content were contained in the Permit to Construct.

6) Incorporates any other type of change which the Administrator of the United States Environmental Protection Agency has approved as being an administrative permit amendment as part of the Department's approved Title V operating permit program.

Applicable Requirement: NDAC 33.1-15-14-06.6.d

M. **Minor Permit Modifications**: This permit may be revised by a minor permit modification, if the proposed permit modification meets the following requirements:

1) Does not violate any applicable requirement.

2) Does not involve significant changes to existing monitoring, reporting, or recordkeeping requirements in this permit.

3) Does not require or change a case-by-case determination of an emission limitation or other standard, or a source-specific determination for temporary sources of ambient impacts, or a visibility or increment analysis.

4) Does not seek to establish or change a permit term or condition for which there is no corresponding underlying applicable requirement and that the source has assumed to avoid an applicable requirement to which the source would otherwise be subject. Such terms and conditions include a federally enforceable emissions cap assumed to avoid classification as a modification under any provision of Title I of the Federal Clean Air Act; and alternative emissions limit approved pursuant to regulations promulgated under Section 112(i)(5) of the Federal Clean Air Act.

5) Is not a modification under NDAC 33.1-15-12, 33.1-15-13, and 33.1-15-15 or any provision of Title I of the Federal Clean Air Act.

6) Is not required to be processed as a significant modification.

Applicable Requirement: NDAC 33.1-15-14-06.6.e(1)

N. **Significant Modifications**:

1) Significant modification procedures shall be used for applications requesting permit modifications that do not qualify as minor permit modifications or as administrative amendments. Every significant change in existing monitoring permit terms or conditions and every relaxation of reporting or recordkeeping permit terms or conditions shall be considered significant. Nothing therein shall be construed to preclude the permittee from making changes consistent with this subsection that would render existing permit compliance terms and conditions irrelevant.

2) Significant permit modifications shall meet all Title V requirements, including those for applications, public participation, review by affected states, and review by the United States Environmental Protection Agency, as they apply to permit issuance and permit

renewal. The Department shall complete review of significant permit modifications within nine months after receipt of a complete application.

Applicable Requirement: NDAC 33.1-15-14-06.6.e(3)

O. **Operational Flexibility**: The permittee is allowed to make a limited class of changes within the permitted facility that contravene the specific terms of this permit without applying for a permit revision, provided the changes do not exceed the emissions allowable under this permit, are not Title I modifications and a Permit to Construct is not required. This class of changes does not include changes that would violate applicable requirements, or changes to federally-enforceable permit terms or conditions that are monitoring, recordkeeping, reporting, or compliance certification requirements.

The permittee is required to send a notice to both the Department and Air Program (8P-AR), Office of Partnerships & Regulatory Assistance, US EPA Region 8, 1595 Wynkoop Street, Denver, CO 80202-1129, at least seven days in advance of any change made under this provision. The notice must describe the change, when it will occur and any change in emissions, and identify any permit terms or conditions made inapplicable as a result of the change. The permittee shall attach each notice to its copy of this permit. Any permit shield provided in this permit does not apply to changes made under this provision.

Applicable Requirement: NDAC 33.1-15-14-06.6.b(2)

P. **Relationship to Other Requirements**: Nothing in this permit shall alter or affect the following:

1) The provisions of Section 303 of the Federal Clean Air Act (emergency orders), including the authority of the administrator of the United States Environmental Protection Agency under that section.

2) The liability of an owner or operator of a source for any violation of applicable requirements prior to or at the time of permit issuance.

3) The ability of the United States Environmental Protection Agency to obtain information from a source pursuant to Section 114 of the Federal Clean Air Act.

4) Nothing in this permit shall relieve the permittee of the requirement to obtain a Permit to Construct.

Applicable Requirements: NDAC 33.1-15-14-06.3 and NDAC 33.1-15-14-06.5.f(3)(a), (b) and (d)

Q. **Severability Clause**: The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

Applicable Requirement: NDAC 33.1-15-14-06.5.a(5)

R. **Circumvention**: The permittee shall not cause or permit the installation or use of any device of any means which conceals or dilutes an emission of air contaminants which would otherwise violate this permit.

Applicable Requirement: NDAC 33.1-15-01-08

9. **State Enforceable Only Conditions (not Federally enforceable)**:

A. **General Odor Restriction**: The permittee shall not discharge into the ambient air any objectionable odorous air contaminant which exceeds the limits established in NDAC 33.1-15-16.

Applicable Requirement: NDAC 33.1-15-16

Attachment A

Compliance Assurance Monitoring (CAM) Plan
for
Tharaldson Ethanol Plant I, LLC
Title V Permit to Operate AOP-28451

| | |
|---|---|
| EP4 | Prefermentation & fermentation |
| EP11 | Ethanol loadout |
| EP17 | DGS dryers (4), Protein dryer (1) |
| EP21 | DGS dryers (2) |

**COMPLIANCE ASSURANCE MONITORING PLAN:**
**THARALDSON ETHANOL PLANT I, LLC**
**CASSELTON, NORTH DAKOTA**
**EMISSION UNIT: EP4**
**TITLE V PERMIT NUMBER: AOP-28451**
**Updated: June 2025**

I. Background

Emissions Unit (EP4):

| | |
|---|---|
| Description: | Prefermentation/Fermentation (process vessels and beer well) |
| EPN: | EP4 |
| Control: | Control Device is parallel Wet Scrubbers |
| Limits: | VOC limit – 98% Reduction |
| | Acetaldehyde – 9.9 tpy (facility-wide) |
| | HAPS – 10 tpy (individual HAP) / 25 tpy (total HAPs) |

II. Monitoring Approach

See Table 1 – A reportable excursion occurs whenever the indicator range or parameter is exceeded for the prescribed monitoring period.

**MONITORING APPROACH JUSTIFICATION**

A. Background

The prefermentation/fermentation process (EPN: EP4) at the Tharaldson Ethanol Plant I, LLC facility is subject to the Compliance Assurance Monitoring (CAM) requirements as listed in 40 CFR Part 64. The prefermentation/fermentation process is controlled by a wet scrubber. The scrubber controls the pollutants that trigger the CAM requirements, or VOC emissions.

B. Rationale for Selection of Performance Indicators

The rate at which VOCs are controlled is greatly affected by water flow rate and the amount of chemical additive injection. As such, the monitoring approach relies on the fact that low water flow and low chemical injection may indicate potential for insufficient destruction of applicable pollutants. The minimum average water flow rate is based on facility testing on the existing scrubber. The facility is currently using ammonium bisulfite/VOXOUT as the chemical injected to the scrubber. An estimated current minimum average water flow rate to the existing scrubber is 134 gpm (3-hour average). The estimated minimum ammonium bisulfite/VOXOUT injection rate based on facility test data is to be maintained at 7.0 ppm (12 - hour average). The minimum average water flow rates and chemical injection rates are subject to change based on testing at the facility. Should the water flow rate or chemical injection rates fall below the minimum averages, corrective measures are

taken, the incident is logged, and the incident is reported as required by the Title V Permit. The indicators are set based 165 million gallons anhydrous ethanol production; therefore, applicable once obtain that production level.

The water flow rate is monitored on a continual basis through the Digital Control System (DCS). Historical and real-time data can be pulled off the system to ensure average flow rates are being maintained. The chemical injection rate is monitored via grab sample daily.

An inspection and maintenance (I/M) program provides assurance that this equipment is in good repair and is being properly operated. Inspection and maintenance of the scrubber system and monitoring systems is conducted per the manufacturer's specified recommendations. Maintenance needs and excursions are documented and performed as needed.

C. Rationale for Selection of Indicators

The indicator for flow rate for both water flow rate and chemical injection rate was selected based on manufacturer's suggested parameters, performance testing, and limits in the North Dakota Department of Environmental Quality construction permits. Baseline flow rates and measurements are concurrent with emissions testing.

Operating according to manufacturer specifications and inspections was chosen as an indicator because this can ensure proper operations of the device, especially when combined with the water flow rate and chemical injection rates as mentioned above.

## TABLE 1 – MONITORING APPROACH

| EP4 | Indicator No. 1 | Indicator No. 2 | Indicator No. 3 |
|---|---|---|---|
| I. Indicator | Water Flow Rate | Ammonium Bisulfite/VOXOUT Injection | Inspection/maintenance (I/M) |
| Measurement approach | DCS monitors constant water flow rate | Grab sample | Daily plant walk-throughs |
| II. Indicator Range | Water flow rate will be maintained at a minimum average of 134 gallon per minute. Should indicator fall below the 134 gallons per minute (average), corrective measures will be made and the incident will be recorded and reported as required by the Title V Permit. | The chemical injection rate will be maintained at a minimum average injection rate of 7.0 ppm. If the injection rate is below 7.0 ppm (average), corrective action will be taken. | Maintenance as necessary, corrective action will be documented and completed per permit recommendation. |
| III. Performance Criteria<br>A. Data Representativeness | Water flow rate is measured on the DCS. | Grab Sample | Daily plant walk-throughs |
| B. Verification of Operational Status | NA | NA | NA |
| C. QA/QC Practices and Criteria | Flow meter is calibrated or verified annually. | NA | Qualified personnel perform inspection |
| D. Monitoring Frequency | Constant | Once per shift | Daily plant walk-throughs |
| Data Collection Procedures | Constant via DCS | Daily grab samples analyzed by the lab. | Records are maintained to Document any excursion or equipment needing maintenance |
| Averaging Period | 3-hour average | 12 hours | NA |

**COMPLIANCE ASSURANCE MONITORING PLAN:**
**THARALDSON ETHANOL PLANT I, LLC**
**CASSELTON, NORTH DAKOTA**
**EMISSION UNIT: EP11**
**TITLE V PERMIT NUMBER: AOP-28451**
**UPDATED/REVIEWED: June 2025**

I. Background

Emissions Unit (EP11):

| | |
|---|---|
| Description: | Ethanol Loadout (Truck and Rail) |
| EPN: | EP11 |
| Control: | Control Device is an enclosed flare (6.6 MMBtu/hr avg) |
| Limits: | VOC limit – 98% reduction |

II. Monitoring Approach

See Table 1 – A reportable excursion occurs whenever the indicator range or parameter is exceeded for the prescribed monitoring period.

**MONITORING APPROACH JUSTIFICATION**

A. Background

The ethanol loadout flare (EPN: EP11) at the Tharaldson Ethanol Plant I, LLC facility is subject to the Compliance Assurance Monitoring (CAM) requirements as listed in 40 CFR Part 64. Ethanol loadout by both truck and rail are controlled by an enclosed flare. The flare controls VOC emissions which trigger the CAM requirements.

B. Rationale for Selection of Performance Indicators

The temperature range in the combustion chamber can affect the destruction efficiency of the flare, and the presence of a flame confirms combustion. As such, the monitoring approach relies on the fact that low temperatures indicate potential for insufficient destruction of VOC as well as the fact that higher temperatures are related to good performance. The proposed minimum operating temperature is based on compliance testing data and engineering knowledge of flare being used. The flare will be maintained at a minimum temperature of 750°F during times of ethanol being loaded out. In addition, a flame scanner is continuously monitoring the presence of a flame, and restricts loadout if flame is not present. Should the temperature fall below this minimum or the scanner not detect a flame, the problem will be investigated within eight (8) hours and any malfunctions will be corrected as soon as possible.

The operating temperature is measured by a thermocouple and monitored continuously on a Digital Control System (DCS). The temperature is monitored to assure the temperature does not go below the minimum temperature while the flare is operating (during times of ethanol loadout). As for the flame, the flame scanner will alert the facility if a flame is not present.

Implementation of a flare inspection and maintenance (I/M) program provides assurance that this equipment is in good repair and is being properly operated. Once per day, a plant walk through is conducted. Any excursions or abnormalities noticed are inspected closer to determine if further maintenance or repair is needed. Proper operation of the thermal oxidizers facilitates proper pollutant reduction.

C. Rationale for Selection of Indicators

The indicator for minimum temperature was selected based on performance testing and limits in the North Dakota Department of Environmental Quality construction permits. The indicator for a flame to be present was selected based on if a flame is not present combustion is not occurring.

Operating according to manufacturer specifications and inspections was chosen as an indicator because this can ensure proper operations of the device, especially when combined with the temperature indicator listed above.

**TABLE 1 – MONITORING APPROACH**

| **EP11** | Indicator No. 1 | Indicator No. 2 | Indicator No. 3 |
|---|---|---|---|
| I. Indicator | Operating Flare Temperature | Presence of a Flame | Inspection/maintenance (I/M) |
| Measurement approach | Temperature of the flare is measured by a thermocouple and monitored on a constant basis using a DCS. | Presence of a Flame is monitored by a flame scanner. | Daily plant walk-throughs |
| II. Indicator Range | The loadout flare will be maintained at a minimum temperature of 750°F (during times of ethanol loadout). Should the temperature fall below the minimum, this problem will be investigated within 8 hours and corrected as soon as possible. | The flame scanner will monitor if a flame is present. If a flame is not present, the scanner will sound an alarm and will restrict ethanol loadout. The problem will be investigated within 8 hours and corrected as soon possible. | Maintenance as necessary, corrective action will be documented and completed per permit recommendation. |
| III. Performance Criteria<br>A. Data Representativeness | Temperature is measured using a thermocouple. | Presence of flame monitored by flame scanner. | Daily plant walk-throughs |
| B. Verification of Operational Status | NA | NA | NA |
| C. QA/QC Practices and Criteria | Annual calibration or verification. | Routine inspection and maintenance and calibration. | Qualified personnel perform inspection |
| D. Monitoring Frequency | DCS monitors temperature continuously. | Continuous | Daily plant walk-throughs |
| Data Collection Procedures | Operators record DCS data. | Flame monitored by flame scanner. | Records are maintained to Document any excursion or equipment needing maintenance |
| Averaging Period | Times of Ethanol Loadout | Continuous | NA |

**COMPLIANCE ASSURANCE MONITORING PLAN:**
**THARALDSON ETHANOL PLANT I, LLC**
**CASSELTON, NORTH DAKOTA**
**EMISSION UNIT: EP17**
**TITLE V PERMIT NUMBER: AOP-28451**
**Updated: February 28, 2025**

I. Background

Emissions Unit (EP17):

| | |
|---|---|
| Description: | Natural Gas Fired Dryers 1-4 (45 MMBtu/hr ea)<br>Protein Ring Dryer (70 MMBtu/hr) |
| EPN: | RTOs (2) (18 MMBtu/hr ea) (Control Device)<br>EP17 |
| Control: | Control Devices are two (2) 18 MMBtu/hr recuperative thermal oxidizers |
| Limits: | VOC limit – 249 tpy (facility-wide)<br>CO limit – 249 tpy (facility-wide)<br>NOx limit – 249 tpy (facility-wide)<br>SO2 limit – 12.11 lb/hr (53.04 tpy)<br>PM/PM10 limit – 249 tpy (facility-wide)<br>Acetaldehyde – 9.9 tpy (facility-wide)<br>HAPS – 24 tpy (total HAPs – facility-wide) |

II. Monitoring Approach

See Table 1 – A reportable excursion occurs whenever the indicator range or parameter is exceeded for the prescribed monitoring period.

**MONITORING APPROACH JUSTIFICATION**

A. Background

The dryers/protein ring dyer/thermal oxidizer system (EPN: EP17) at the Tharaldson Ethanol Plant I, LLC facility is subject to the Compliance Assurance Monitoring (CAM) requirements as listed in 40 CFR Part 64. The four (4) dryers , one protein ring dryer and associated process vents are controlled by two (2) 18 MMBtu/hr recuperative thermal oxidizers (RTOs). The RTOs control the pollutants that trigger the CAM requirements including PM/PM10, VOC, HAPs and CO.

B. Rationale for Selection of Performance Indicators

The rate at which PM/PM10, VOC, HAPs and CO are controlled is greatly affected by temperature. As such, the monitoring approach relies on the fact that low temperatures indicate potential for insufficient destruction of applicable pollutants as well as the fact that higher temperatures are related to good performance. The proposed minimum RTO combustion chamber temperature and range are based on compliance testing data and engineering knowledge of RTOs being used. The RTOs will be maintained at a minimum

temperature of 1685°F (3-hour average). Should the temperature fall below this minimum, the problem will be investigated within 8 hours and corrected as soon as possible.

The RTO combustion chamber temperature is measured by a thermocouple in the combustion chamber outlet and is monitored on a constant basis using the Digital Control System (DCS). The temperature is monitored to assure the temperature does not go above or below the set range. A warning message is sent when the temperature falls out of the specified range.

Implementation of a thermal oxidizer inspection and maintenance (I/M) program provides assurance that this equipment is in good repair and is being properly operated. Once per day, a plant walk through is conducted. Any excursions or abnormalities noticed are inspected closer to determine if further maintenance or repair is needed. Proper operation of the thermal oxidizers facilitates proper pollutant reduction.

C. Rationale for Selection of Indicators

The indicator for minimum temperature was selected based performance testing and limits in the North Dakota Department of Environmental Quality construction permit. Baseline combustion temperature measurements are concurrent with emissions testing. The minimum temperature is listed in the background section above.

Operating according to manufacturer specifications and inspections was chosen as an indicator because this can ensure proper operations of the device, especially when combined with the temperature indicator listed above.

## TABLE 1 – MONITORING APPROACH

| EP17 | Indicator No. 1 | Indicator No. 2 |
|---|---|---|
| I. Indicator | RTO Combustion Chamber Temperature | Inspection/maintenance (I/M). |
| Measurement approach | Temperature of the RTO is monitored on a constant basis using a DCS. | Inspection/maintenance (I/M) |
| II. Indicator Range | The RTOs will be maintained at a minimum temperature of 1685 °F (3-hour average). Should the temperature fall below the minimum, the problem will be investigated within 8 hours and corrected as soon as possible. Also will be logged and reported as required by the TV permit. | Daily plant walk-throughs |
| III. Performance Criteria<br>A. Data Representativeness | Temperature is measured at the combustion chamber outlet using a thermocouple. | Maintenance as necessary, corrective action will be documented and completed per permit recommendation |
| B. Verification of Operational Status | NA | Daily plant walk-throughs |
| C. QA/QC Practices and Criteria | Annual calibration or certification. | NA |
| D. Monitoring Frequency | Constant via DCS | Qualified personnel perform inspection |
| Data Collection Procedures | Operators record DCS data. | Daily plant walk-throughs |
| Averaging Period | 3 – Hour average | Records are maintained to Document any excursion or equipment needing maintenance. |

**COMPLIANCE ASSURANCE MONITORING PLAN:**
**THARALDSON ETHANOL PLANT I, LLC**
**CASSELTON, NORTH DAKOTA**
**EMISSION UNIT: EP21**
**TITLE V PERMIT NUMBER: AOP-28451**
**Updated: June 2025**

I. Background

Emissions Unit (EP21):

| | |
|---|---|
| Description: | Natural Gas Fired Dryers (2) (45 MMBtu/hr ea)<br>Thermal Oxidizer (125 MMBtu/hr) (Control Device) |
| EPN: | EP21 |
| Control: | Control Devices is one (1) 125 MMBtu/hr thermal oxidizer |
| Limits: | VOC limit – 249 tpy (facility-wide)<br>CO limit – 249 tpy (facility-wide)<br>NOx limit –0.1 lb/MMBtu, 249 tpy (facility-wide)<br>SO2 limit – 12.11 lb/hr (53.06 tpy)<br>PM/PM10 limit – 249 tpy (facility-wide)<br>Acetaldehyde – 9.9 tpy (facility-wide)<br>HAPS – 24 tpy (total HAPs, facility-wide) |

II. Monitoring Approach

See Table 1 – A reportable excursion occurs whenever the indicator range or parameter is exceeded for the prescribed monitoring period.

**MONITORING APPROACH JUSTIFICATION**

A. Background

The dryers/thermal oxidizer system (EPN: EP21) at the Tharaldson Ethanol Plant I, LLC facility is subject to the Compliance Assurance Monitoring (CAM) requirements as listed in 40 CFR Part 64. The two (2) dryers and associated process vents are controlled by one (1) 125 MMBtu/hr thermal oxidizer (TO). The TO controls the pollutants that trigger the CAM requirements.

B. Rationale for Selection of Performance Indicators

The rate at which pollutants are controlled is greatly affected by temperature. As such, the monitoring approach relies on the fact that low temperatures indicate potential for insufficient destruction of applicable pollutants as well as the fact that higher temperatures are related to good performance. The proposed minimum TO combustion chamber temperature and range are based on compliance testing data and engineering knowledge of the TO being used. The TO will be maintained at a minimum temperature of 1545°F (3-hour average). Should the temperature fall below this minimum, the problem will be investigated within 8 hours and corrected as soon as possible.

The TO combustion chamber temperature is measured by a thermocouple in the combustion chamber outlet and is monitored on a constant basis using the Digital Control System (DCS). The temperature is monitored to assure the temperature does not go above or below the set range. A warning message is sent when the temperature falls out of the specified range.

Implementation of a thermal oxidizer inspection and maintenance (I/M) program provides assurance that this equipment is in good repair and is being properly operated. Once per day, a plant walk through is conducted. Any excursions or abnormalities noticed are inspected closer to determine if further maintenance or repair is needed. Proper operation of the thermal oxidizers facilitates proper pollutant reduction.

C. Rationale for Selection of Indicators

The indicator for minimum temperature was selected based performance testing and limits in the North Dakota Department of Environmental Quality construction permit. Baseline combustion temperature measurements are concurrent with emissions testing. The minimum temperature is listed in the background section above.

Operating according to manufacturer specifications and inspections was chosen as an indicator because this can ensure proper operations of the device, especially when combined with the temperature indicator listed above.

**TABLE 1 – MONITORING APPROACH**

| **EP21** | Indicator No. 1 | Indicator No. 2 |
|---|---|---|
| I. Indicator | TO Combustion Chamber Temperature | Inspection/maintenance (I/M). |
| Measurement approach | Temperature of the TO is monitored on a constant basis using a DCS. | Inspection/maintenance (I/M) |
| II. Indicator Range | The TO will be maintained at a minimum temperature of 1545 °F (3-hour average). Should the temperature fall below the minimum, the problem will be investigated within 8 hours and corrected as soon as possible. Also will be logged and reported as required by the TV permit | Daily plant walk-throughs |
| III. Performance Criteria<br>A. Data Representativeness | Temperrature is measured at the combustion chamber outlet using a thermocouple. | Maintenance as necessary, corrective action will be documented and completed per permit recommendation |
| B. Verification of Operational Status | NA | Daily plant walk-throughs |
| C. QA/QC Practices and Criteria | Annual calibration or certification. | NA |
| D. Monitoring Frequency | Constant via DCS | Qualified personnel perform inspection |
| Data Collection Procedures | Operators record DCS data. | Daily plant walk-throughs |
| Averaging Period | 3 – Hour average | Records are maintained to Document any excursion or equipment needing maintenance. |

Tharaldson Ethanol Plant I, LLC
Title V Permit to Operate No. AOP-28451 v4.0
**Statement of Basis**
(6/12/2025)

Facility Background: The Tharaldson Ethanol Plant I, LLC (Tharaldson) is a corn-based, fuel grade ethanol production facility currently rated at 165 million gallons of undenatured alcohol per year. Corn is the stock for the fermentation and distillation processes. Bulk ethanol is shipped primarily by railcar and spent grain is dried and sold as animal feed. The plant's significant process emission units include grain unloading, grain hammermilling, fermentation, distillation, distillers dry grains and solubles (DDGS) drying and handling, ethanol storage and handling, and steam generation.

The facility receives corn by truck and railcar. Receiving pits are aspirated to a baghouse to collect the dust generated during receiving operations. Corn is stored in bins prior to processing, reclaimed from storage, ground using hammermills, and conveyed to the mash process where the corn is mixed with water to create a slurry. The slurry is cooked, liquefacted with enzymes, and the resultant mash is cooled. The mash is mixed with yeast and more enzymes in a fermentation tank where the mash is allowed to ferment. After fermentation, the resultant liquid (beer) contains 12%-16% ethanol by weight. The beer is processed in a distillation system. The resultant products are ethanol (95% ethanol and 5% water, or 190-proof) and whole stillage consisting of solids and water. Using molecular sieves, the remaining 5% water is removed from the 190-proof ethanol resulting in 100% ethanol (200-proof). The product is then combined with 5% natural gasoline and sold as denatured ethanol.

Whole stillage is centrifuged to remove the water. The removed water is evaporated until a syrup remains. The syrup is combined with the spent grain prior to entering the dryer system. The dried grain, known as distiller's dried grain with solubles (DDGS), is then cooled and conveyed by drag conveyors to storage silos. The spent grain material is shipped out via truck and railcar. Emissions from the truck loading station are controlled by a retractable hood that is connected to a baghouse. The ethanol is shipped out by truck and railcar.

Emissions generated by the ethanol loading rack are controlled with an enclosed natural gas-fired flare. The emissions generated by the prefermentation/fermentation and distillation equipment are vented to a separate wet scrubber to control VOC emissions. The emissions generated from the distillers' grain solubles (DGS) dryers are vented to two regenerative thermal oxidizers (RTOs) and a thermal oxidizer (TO) for VOC control. The process boiler is a 480 million British thermal units per hour (MMBtu/hr) natural gas-fired unit. The boiler is equipped with ultra-low $NO_x$ burners (ULNB) and flue gas recirculation (FGR).

Chronology of significant events (not all inclusive):

December 20, 2007 - Tharaldson Ethanol Plant I, LLC, under ownership of Tharaldson Ethanol Plant I, LLC, received an initial Permit to Construct (ACP-17155; previously PTC07039).

February 27, 2009 - Amendment No. 1 to the PTC was issued to permit various site layout changes, gas stream routing and pollution control devices.

August 7, 2009 - ACP-17227 (previously PTC09027) was issued to permit the construction and temporary operation of a natural gas-fired wet cake drying system. The drying system was never constructed and the construction permit was terminated.

December 7, 2009 - Amendment No. 2 to ACP-17155 was issued to permit the construction of four new DGS dryers.

August 9, 2010 - Amendment No. 3 to ACP-17155 was issued to allow rerouting of various gas streams (evaporator emissions and bio-methanator off-gas), to establish the resultant revised emission limits, and to include a change to the DDGS cooler VOC emission limit.

December 30, 2010 - Amendment No. 4 to ACP-17155 was issued to increase undenatured alcohol production to 153 million gallons per year.

February 14, 2011 - The initial Title V Permit (ACP-28451 v1.0; previously T5-X10002) was issued, which incorporated all previously issued, active PTCs.

October 7, 2011 - Amendment No. 5 to ACP-17155 was issued to permit changes to several emission limits for the boiler (EU8) and the DGS dryers with the RTO (EU 68 through EU 71/EP 17) as a result of stack testing.

December 12, 2011 - Revision No. 1 (AOP-28451 v1.1; sig. mod.) of the Title V was issued for the addition of a second fermentation scrubber to improve the efficiency of the ethanol collection process, changes to emission limits in accordance with ACP-17155 (Amendment No. 5) and CAM indicator updates as supported by stack testing.

May 29, 2014 - An administrative amendment to the permit (AOP-28451 v1.2) was issued for CAM plan revisions (scrubber chemical additive and water flow rates updates verified by testing and suspension of the use of the smaller, parallel scrubber).

September 5, 2014 - The Department approved a request on to add a 4$^{th}$ Hammermill (including an additional surge bin) at the facility; a PTC was not required.

April 23, 2015 - ACP-17726 v1.0 (previously PTC15031) was issued for a fermenter project.

December 10, 2015 - ACP-17765 v1.0 (previously PTC15070) was issued for two more DGS dryers (with a thermal oxidizer) and another DDGS cooler.

February 1, 2016 - The first renewal of the Title V, AOP-28451 v2.0, was issued and incorporated the changes requested by the renewal application, the hammermill addition and ACP-17726 v1.0 (fermenter project).

September 6, 2016 - ACP-17787 v1.0 (previously PTC16015) was issued for additional grain handling, drying, and storage, revised emission limits for the prefermentaion & fermentation, boiler, DDGS cooling and DGS dryers (with a thermal oxidizer), as well as an increase in ethanol production (from 153,000,000 gal/yr to 165,000,000 gal/yr).

March 21, 2018 - ACP-17854 (previously PTC17042) was issued for clarifications on emission limits and emission point designations from ACP-17765 and ACP-17787. A total plant-wide acetaldehyde limit was also added for the facility. The $NO_x$ lb/hr emission limits on the boiler and DGS dryers/thermal oxidizer (EU53 and EP21) and the acetaldehyde emission limits on prefermentation & fermentation/scrubber and DGS dryers/thermal oxidizer (EP4 and EP21) were rescinded.

March 21, 2018 - AOP-28451 v2.1 (previously Renewal No. 1, Revision No. 2 of T5-X1002; sig. mod.) was issued and incorporated construction permits ACP-17765, ACP-17787 and ACP-17854.

June 24, 2019 - ACP-17895 v1.0 (previously PTC18039) was issued for the removal of the facility's ethanol production restriction and to add facility-wide criteria pollutant and HAPs emissions limits. The revised Title V, AOP-28451 v2.2 (sig. mod.), incorporating ACP-17895 v1.0 was issued at the same time.

April 27, 2021 - The Title V renewal, AOP-28451 v3.0, was issued, incorporating administrative updates.

June 16, 2022 - ACP-18156 v1.0 was issued for the construction and initial operation of a hi-protein process.

Current Action: On April 14, 2025, the Department received a timely application through CERIS-ND from the Tharaldson Ethanol Plant I, LLC for renewal of their Title V Permit to Operate No. AOP-28451. The draft permit incorporates ACP-18156 v1.0, insignificant units (EU 159 and 160), administrative updates to standard text and formatting and clarifications for emission units, emission control descriptions and applicable requirements.

The Department proposes to issue Title V Permit to Operate No. AOP-28451 v4.0 after the required 30-day public comment period and subsequent EPA 45-day review period. This statement of basis summarizes the relevant information considered during this renewal of the Title V permit. The legal basis for each permit condition is stated in the draft permit under the heading of "Applicable Requirement."

Applicable Programs/As-Needed Topics:

1. **Title V.** The facility requires a Title V permit to operate because potential emissions of $PM_{10}$, $NO_x$ and VOC each exceed 100 tons per year. The facility is considered a minor/area source of Hazardous Air Pollutants (HAP) emissions because individual and combined potential annual HAP emissions are below 10 tpy and 25 tpy, respectively (facility-wide emission limits Table 3.1 of the Title V permit restricts Tharaldson's HAP emissions). A potential to emit table is provided on the last page of this document.

2. **New Source Performance Standards (NSPS).** The following NDAC 33.1-15-12-02 and 40 CFR 60 subparts apply to the facility.

Subpart A, General Provisions, applies to each source unit to which another NSPS subpart applies.

Subpart Db, Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units [boiler (EU 53) is rated greater than 100 x $10^6$ Btu/hr of heat input and was constructed after 6/19/84 (built 2008) and the DGS dryers' TO (EP 21) because it makes additional steam and is rated at 125 x $10^6$ Btu/hr.

Subpart DD, Standards of Performance for Grain Elevators, [grain handling equipment (EU 1 through 10 and 79 through 82) is subject since all units were constructed after 8/3/78 (built 2008 and later)].

Subpart Kb, Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction or Modification Commenced After 7/23/84 [five storage tanks (EU TK1 through TK5) since they store volatile organic liquids with a maximum true vapor pressure equal to or greater than 3.5 kPa, have capacities greater than 39,890 gallons, and were constructed after 7/23/84 (built 2008)].

Subpart VVa, Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry for Which Construction, Reconstruction, or Modification Commenced After November 7, 2006 [various units throughout the plant because the facility has the design capacity to produce 1,102 tons/year or more of ethanol and was constructed after 11/7/06 (built 2008)].

Subpart IIII, Standards of Performance for Stationary Compression Ignition Internal Combustion Engines [emergency generator engine (EU 13) and emergency fire pump engine (159) are compression ignition engines manufactured after 4/1/06 (built 2/13/08)]. Compliance with this subpart constitutes compliance with 40 CFR 63, Subpart ZZZZ.

3. **National Emission Standards for Hazardous Air Pollutants (NESHAP).** No NDAC 33.1-15-13 and 40 CFR 61 subparts apply to the facility, with the possible exception of NDAC 33.1-15-13-02 (40 CFR 61), Subpart M, National Emission Standard for Asbestos, which may apply during facility modifications involving asbestos.

4. **Maximum Achievable Control Technology (MACT).** The following NDAC 33.1-15-22-03 and 40 CFR 63 subparts apply to the facility, which is an area source of HAP emissions.

Subpart A, General Provisions, applies to each source unit to which another MACT subpart applies.

Subpart ZZZZ, National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines [emergency generator engine (EU 13) because

the engine was constructed on or after 6/12/06 (built 2/13/08) and emergency fire pump engine was constructed in 2022]. There are no additional Subpart ZZZZ requirements for this engine since the facility is an area (minor) source of HAPs, and it meets Subpart ZZZZ requirements by complying with the requirements of 40 CFR 60, Subpart IIII. North Dakota has not adopted the area source provisions of this subpart; all required reports and documentation are to be sent to EPA Region 8.

Subpart FFFF, Miscellaneous Organic Chemical Manufacturing does not apply to the facility because the facility is not a major source of HAP emissions due to HAP emissions control by the regenerative thermal oxidizers and thermal oxidizer (RTOs and TO) and facility-wide emission limits.

5. **Acid Rain.** NDAC 33.1-15-21, 40 CFR 72, 73, 75 and 76 do not apply to the facility since it is not providing any electricity for sale.

6. **Prevention of Significant Deterioration (PSD).** The boiler (EU 53) and thermal oxidizer (EP 21) are a nested PSD major source within a PSD minor source (the facility as a whole). Therefore, a PSD Best Achievable Control Technology (BACT) review was previously accomplished on the boiler and the thermal oxidizer (EP 21) during the process of initially issuing ACP-17155 and ACP-17765, respectively. The remainder of the facility is a minor source under PSD because it is not one of the 28 named PSD source categories and the facility does not have the potential to emit more than 250 tons per year of a criteria pollutant. There are no changes contained in this draft permit that increase potential emissions by a PSD-significant amount. Thus, this draft permit is not subject to a PSD review.

7. **BACT.** A BACT review was required and previously accomplished for the nested boiler (EU 53) and thermal oxidizer (EP 21). Since there are no changes contained in this draft permit that increase potential emissions by a PSD-significant amount, a BACT review is not required.

8. **Gap Filling for Periodic Monitoring.** This permit contains gap filling for testing, monitoring or recordkeeping not otherwise required by rule, which have been updated for units associated with the incorporation of ACP-18156 v1.0. The gap filling conditions are generally identified by the applicable requirement: NDAC 33.1-15-14-06.5.a(3)(a).

9. **Streamlining Decisions.** Some emission limits that would have been otherwise applicable are not represented in the permit because more stringent limits apply.

   a. ND Air Pollution Control Rules (NDAC): For various units various emission limits from 33.1-15-03 (opacity), 33.1-15-05 (PM) and 33.1-15-06 ($SO_2$)

   b. NSPS Subpart Db: Boiler ($NO_x$)

10. **Compliance Assurance Monitoring (CAM).** CAM applies to the prefermentation & fermentation with scrubber, EP 4 (VOC & HAP); ethanol loadout, EP 11 (VOC); DGS

dryers and protein dryer with RTO, EP 17 ($PM/PM_{10}$, VOC & HAP); and DGS dryers with TO, EP 21 ($PM/PM_{10}$, VOC & HAP) because emissions from these source units would exceed 100 tons/year of criteria pollutants or 10/25 tons per year of HAPs without the add-on air pollution control equipment and no continuous emissions monitoring system is installed.

11. **Permit Shield.** This does not apply because the draft permit to operate does not contain a permit shield.

12. **New Conditions/Limits.** This draft permit contains new conditions or limits from ACP-18156 v1.0, applicable regulation clarification and standard condition updates. Specific changes in the draft permit are addressed in the Permit Changes by Section below.

13. **40 CFR 98 - Mandatory Greenhouse Gas Reporting.** This rule requires sources above certain emission thresholds or in certain supplier thresholds to calculate, monitor, and report greenhouse gas emissions. According to the definition of "applicable requirement" in 40 CFR 70.2, neither Subpart 98, nor Clean Air Act section 307(d)(1)(V), the CAA authority under which Subpart 98 was promulgated, are listed as applicable requirements for the purpose of Title V permitting. Although the rule is not an applicable requirement under 40 CFR 70, the source is not relieved from the requirement to comply with the rule separately from compliance with their Part 70 operating permit. It is the responsibility of each source to determine applicability to the subpart and to comply, if necessary.

Permit Changes by Section:

Note: Administrative changes were made to some sections to update to the current North Dakota (ND) format and to correct errors. These changes may not be specifically addressed below.

Cover: Dates and Renewal No. were updated.

Table of Contents: Page numbers and condition headings were updated as necessary.

1. **Emission Unit Identification**: Per ACP-18165 v1.0, the hi-protein units were added to Table 1.1 [protein ring dryer (EU 86/EP 3 and 17), MSC building (EP 17), degas column (EU 34/EP 17), protein cooling/storage/rail loadout/truck loadout (EU 153b, 154b, 155b, 157, 158 and 159/EP 25, 27 and 32), rail loadout fugitive emissions (EU FS17/EP FS17), hammermill #5 (EU 84/EP 2). The biogas-fired portion of the description for the boiler EU 53 was removed since biogas is no longer used and the bio-methanator (EU 12) has been removed. The grain storage bin EU FS16 was removed since it is no longer on site. Insignificant units EU 159 and 160 (emergency fire pump engine and associated diesel tank were added).

2. **Applicable Standards, Restrictions and Miscellaneous Conditions**: Fuel restrictions were added to this section and all subsequent section numbering was updated. Per ACP-18165 v1.0, fuel restrictions were added and the use of biogas from the bio-methanator was removed. The bio-methanator off gas restrictions and stack heights were removed. Per

ACP-18165 v1.0 DGS dryers operating scenarios were added. The fuel restriction and applicable regulations were indicated for EU 159 (emergency fire pump engine).

3. **Emission Unit Limits** (previously Condition 4): Per ACP-18165 v1.0, the hi-protein unit emission limits were added to Table 3.1 [protein ring dryer (EU 86/EP 3 and 17), MSC building (EP 17), degas column (EU 34/EP 17), protein cooling/storage/rail loadout/truck loadout (EU 153b, 154b, 155b, 157, 158 and 159/EP 25, 27 and 32), rail loadout fugitive emissions (EU FS17/EP FS17), hammermill #5 (EU 84/EP 2). Opacity limits were addressed in Table 3.1 and associated footnotes and removed as separate conditions within the section. The bio-methanator (EU 12) and grain storage bin (EU FS16) emission limits were removed. Emission limits were added for EU 159.

4. **Monitoring Requirements and Conditions** (previously Condition 5): Per ACP-18165 v1.0, the hi-protein unit monitoring requirements and conditions were added to Table 4.1 and subsequent areas of the section. Condition number references were updated as necessary. The bio-methanator (EU 12) and grain storage bin (EU FS16) monitoring was removed. CAM was updated based on recent testing and VEO monitoring was updated to the current ND standard. RTO and TO monitoring was updated to clarify purpose of testing. Table 4.3 and Condition 4.B.12 calculations were updated to include all pertinent emission units and formulas. Applicable regulations monitoring requirements were added under Condition 4.C. Monitoring was added for EU 159.

5. **Recordkeeping Requirements** (previously Condition 6): The hi-protein unit recordkeeping requirements were added to Table 5.1. Applicable requirement recordkeeping was added under Condition 5.B. Recordkeeping was added for EU 159.

6. **Reporting** (previously Condition 7): Applicable requirement reporting was added under Condition 6.A.

7. **Facility Wide Operating Conditions**(previously Condition 8): The Noncompliance Due to an Emergency condition (previously Condition 8.H) was removed per EPA's Affirmative Defense Provision Rule effective 8/21/23.

8. **General Conditions** (previously Condition 9): Conditions 8.E was revised to reflect the updated NDDEQ mailing address and current ND general conditions.

9. **State Enforceable Only Conditions (not Federally enforceable)** (previously Condition 10): No change.

**Attachment A – Compliance Assurance Monitoring (CAM) Plan**: CAM was updated to include appropriate units from ACP-18156 v1.0 and recent stack testing results.

Comments/Recommendations: It is recommended that AOP-28451 v4.0 be processed and considered for issuance following a 30-day public comment period and a subsequent 45-day EPA review period.

*Facility-wide Potential Emissions* [A]

| Pollutant | Tons Per Year Without Fugitives | Tons Per Year With Fugitives |
|---|---|---|
| **PM** | 110.8 | 147.6 |
| **$PM_{10}$** | 110.7 | 123.0 |
| **$PM_{2.5}$** | 97.9 | 108.6 |
| **$SO_2$** | 25.0 | 25.0 |
| **$NO_x$** | 227.7 | 227.7 |
| **CO** | 84.1 | 84.1 |
| **VOC** | 153.5 | 164.6 |
| **Total HAPs** | 23.0 | 23.9 |
| **Individual HAP (Acetaldehyde)** | 9.6 | 9.6 |

[A] Based upon Title V renewal application information submitted through CERIS-ND on 4/14/25. Additional emission unit/emission point specific potential emissions are provided in the renewal application.