Table of Contents

Air Title V Operating Permit (AOP) - Renewal

version 2.5

(Submission #: HQ9-V24F-FBGAN, version 2)

Details

Submission ID HQ9-V24F-FBGAN

Status In Process

CORRECTION REQUEST (APPROVED)

Red-lined Permit Required

A red line of the Title V Permit to Operate is required to address all applicable regulations and requirements since the project summary does not include all of the necessary details.
Please attach a marked-up permit to this application.
Created on 3/18/2025 11:36 AM by **Schneider, K.**

Form Input

Form Instructions

In accordance with 33.1-15-14-04.c. of the North Dakota Air Pollution Control Rules, a Title V permit renewal application must be submitted to the Department at least six months, but no more than eighteen months, prior to the expiration date. Permit renewal applications are incomplete unless all information requested in SFN 52824 is supplied. The current Title V permit will be the baseline reference for a renewal. The requirements (40 CFR 70.5(c) & NDAC 33.1-15-14-06.4.c) to include a citation and description of all applicable requirements and a description of or reference to any applicable test method for determining compliance with each applicable requirement may be met by accomplishing either or both of the following: 1) provide an annotated (red-lined) copy of the current permit indicating all changes needed to reflect the current facility configuration, applicable requirements and test methods; 2) provide a narrative that conveys all changes needed to the current permit to reflect the current facility configuration, all applicable requirements and test methods.

FOR ACID RAIN UNITS ONLY • Submit with the Title V permit renewal application all Acid Rain renewal applications (the Acid Rain Permit Application, the Phase II NOx Compliance Plan, and if applicable, the Phase II NOx Averaging Plan).

When completing the online application, if uploaded files are provided in each section (when indicated), do not include those same files in the General Document Upload/File Upload section. If uploading the application files in the General Document Upload/File Upload section, only fill out the required (asterisked) sections of the online application.

Section A - Permit Information

Permit Number
AOP-28451

Permit Version
3

Issue Date
04/27/2021

Expiration Date
02/14/2026

Permittee

Company Name
Tharaldson Ethanol Plant I, LLC

Address

3549 153rd Ave Southeast

Casselton, ND 58012

United States

Responsible Official

Prefix
NONE PROVIDED

First Name	Last Name
Corey	Aanenson

Title
NONE PROVIDED

Phone Type	Number	Extension
Business	7013473319	

Email
caanenson@tharaldsonethanol.com

Address

3549 - 153rd Ave SE

Casselton, ND 58012

United States

Contact Person for Air Pollution Matters

Prefix
NONE PROVIDED

First Name	Last Name
Corey	Aanenson

Title
EHS Manager

Phone Type	Number	Extension
Business	7013473319	

Email
caanenson@tharaldsonethanol.com

Address

3549 - 153rd Ave SE

Casselton, ND 58012

United States

Section B (Part 1) - Facility Information

Facility Name
Tharaldson Ethanol Plant I, LLC

Have you added, removed, or made any modifications to equipment since your last operating permit issuance?
Yes

Is this source subject to Title IV Acid Rain regulations?
No

Is this a portable source?
No

Facility Location

3549 - 153rd Ave SE
Casselton, ND 58012
United States

County
Cass

Facility Location:
46.89630000000000,-97.24230000000000

3549 - 153rd Ave SE, Casselton, ND

Please download the form linked here, complete it, and upload it to this application using the attachment control below.

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PERMIT APPLICATION FOR TITLE V PERMIT TO OPERATE (SFN52858)

Attach completed form here

SFN52858.pdf - 02/28/2025 03:11 PM
SFN52824.pdf - 02/28/2025 04:17 PM

Comment
NONE PROVIDED

Section B (Part 2) - Additional Location Information

Legal Description of Facility Site

Qtr Qtr	Qtr	Section	Township	Range
NONE PROVIDED	NW	33	140N	52W
NONE PROVIDED	SW	33	140N	52W

Land area at facility site (indicate whether measurement is in acres or sq. ft.)
NONE PROVIDED

MSL elevation at facility
NONE PROVIDED

Section C - Nature of Business

General Nature of Business

Describe Nature of Business	NAICS Code	SIC Code
Ethanol Production	325193	2869-08

Actual Start of Construction Date
NONE PROVIDED

Actual End of Construction Date
NONE PROVIDED

Facility Startup Date
NONE PROVIDED

Section D - Process Equipment Information (1 of 7)

Emission Unit -

Emission Unit ID
NONE PROVIDED

Emission Unit Description
NONE PROVIDED

Emission Point ID
NONE PROVIDED

Emission Point Description
NONE PROVIDED

Emission Process Description
NONE PROVIDED

Emission Unit Status
NONE PROVIDED

Applicable PTCs

PTC Number

Applicable Federal Air Programs

Program Code

Applicable State Regulations

Regulation

Emission Unit form

Download the emission unit form linked here, complete it, and upload it to this application using the attachment control below.

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EMISSION UNIT FOR TITLE V PERMIT TO OPERATE (SFN61006)

Attach Emission Unit Form
SFN61006_EP24.pdf - 02/28/2025 03:45 PM
Comment
NONE PROVIDED

Section D - Process Equipment Information (2 of 7)

Emission Unit -

Emission Unit ID
NONE PROVIDED

Emission Unit Description
NONE PROVIDED

Emission Point ID
NONE PROVIDED

Emission Point Description
NONE PROVIDED

Emission Process Description
NONE PROVIDED

Emission Unit Status
NONE PROVIDED

Applicable PTCs

PTC Number

Applicable Federal Air Programs

Program Code

Applicable State Regulations

Regulation

Emission Unit form

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EMISSION UNIT FOR TITLE V PERMIT TO OPERATE (SFN61006)

Attach Emission Unit Form
SFN61006_EU84.pdf - 02/28/2025 03:52 PM
Comment
NONE PROVIDED

Section D - Process Equipment Information (3 of 7)

Emission Unit -

Emission Unit ID
NONE PROVIDED

Emission Unit Description
NONE PROVIDED

Emission Point ID
NONE PROVIDED

Emission Point Description
NONE PROVIDED

Emission Process Description
NONE PROVIDED

Emission Unit Status
NONE PROVIDED

Applicable PTCs

PTC Number

Applicable Federal Air Programs

Program Code

Applicable State Regulations

Regulation

Emission Unit form

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EMISSION UNIT FOR TITLE V PERMIT TO OPERATE (SFN61006)

Attach Emission Unit Form
SFN61006_EU86.pdf - 02/28/2025 03:53 PM
Comment
NONE PROVIDED

Section D - Process Equipment Information (4 of 7)

Emission Unit -

Emission Unit ID
NONE PROVIDED

Emission Unit Description
NONE PROVIDED

Emission Point ID
NONE PROVIDED

Emission Point Description
NONE PROVIDED

Emission Process Description
NONE PROVIDED

Emission Unit Status
NONE PROVIDED

Applicable PTCs

PTC Number

Applicable Federal Air Programs

Program Code

Applicable State Regulations

Regulation

Emission Unit form

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EMISSION UNIT FOR TITLE V PERMIT TO OPERATE (SFN61006)

Attach Emission Unit Form
SFN61006_EU153b,154b,155b.pdf - 02/28/2025 03:56 PM
Comment
NONE PROVIDED

Section D - Process Equipment Information (5 of 7)

Emission Unit -

Emission Unit ID
NONE PROVIDED

Emission Unit Description
NONE PROVIDED

Emission Point ID
NONE PROVIDED

Emission Point Description
NONE PROVIDED

Emission Process Description
NONE PROVIDED

Emission Unit Status
NONE PROVIDED

Applicable PTCs

PTC Number

Applicable Federal Air Programs

Program Code

Applicable State Regulations

Regulation

Emission Unit form

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EMISSION UNIT FOR TITLE V PERMIT TO OPERATE (SFN61006)

Attach Emission Unit Form
SFN61006_EU157_158.pdf - 02/28/2025 03:58 PM
Comment
NONE PROVIDED

Section D - Process Equipment Information (6 of 7)

Emission Unit -

Emission Unit ID
NONE PROVIDED

Emission Unit Description
NONE PROVIDED

Emission Point ID
NONE PROVIDED

Emission Point Description
NONE PROVIDED

Emission Process Description
NONE PROVIDED

Emission Unit Status
NONE PROVIDED

Applicable PTCs

PTC Number

Applicable Federal Air Programs

Program Code

Applicable State Regulations

Regulation

Emission Unit form

Download the emission unit form linked here, complete it, and upload it to this application using the attachment control below.

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EMISSION UNIT FOR TITLE V PERMIT TO OPERATE (SFN61006)

Attach Emission Unit Form
SFN61006_EU159_EP25.pdf - 02/28/2025 04:01 PM
Comment
NONE PROVIDED

Section D - Process Equipment Information (7 of 7)

Emission Unit -

Emission Unit ID
NONE PROVIDED

Emission Unit Description
NONE PROVIDED

Emission Point ID
NONE PROVIDED

Emission Point Description
NONE PROVIDED

Emission Process Description
NONE PROVIDED

Emission Unit Status
NONE PROVIDED

Applicable PTCs

PTC Number

Applicable Federal Air Programs

Program Code

Applicable State Regulations

Regulation

Emission Unit form

Download the emission unit form linked here, complete it, and upload it to this application using the attachment control below.

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EMISSION UNIT FOR TITLE V PERMIT TO OPERATE (SFN61006)

Attach Emission Unit Form

SFN61006_FS17.pdf - 02/28/2025 04:03 PM

Comment

NONE PROVIDED

Section E - Control Equipment (1 of 4)

Emission Unit: `EU_ID` - `EU_DESC`

Control Equipment ID

NONE PROVIDED

Emission units being controlled by this control unit

NONE PROVIDED

Control Equipment Description

NONE PROVIDED

Control equipment form

Download the form linked here, complete it, and upload it to this application using the attachment control below.

When completing the online application, if uploaded files are provided in each section (when indicated), do not include those same files in the General Document Upload/File Upload section. If uploading the application files in the General Document Upload/File Upload section, only fill out the required (asterisked) sections of the online application.
PERMIT APPLICATION FOR AIR POLLUTION CONTROL EQUIPMENT (SFN8532)

Attach Control Equipment Form

Control Equipment_EP2.pdf - 02/28/2025 04:04 PM

Comment

NONE PROVIDED

Section E - Control Equipment (2 of 4)

Emission Unit: `EU_ID` - `EU_DESC`

Control Equipment ID

NONE PROVIDED

Emission units being controlled by this control unit

NONE PROVIDED

Control Equipment Description

NONE PROVIDED

Control equipment form

Download the form linked here, complete it, and upload it to this application using the attachment control below.

When completing the online application, if uploaded files are provided in each section (when indicated), do not include those same files in the General Document Upload/File Upload section. If uploading the application files in the General Document Upload/File Upload section, only fill out the required (asterisked) sections of the online application.
PERMIT APPLICATION FOR AIR POLLUTION CONTROL EQUIPMENT (SFN8532)

Attach Control Equipment Form

Control_EP25.pdf - 02/28/2025 04:04 PM

Comment

NONE PROVIDED

Section E - Control Equipment (3 of 4)

Emission Unit: `EU_ID` - `EU_DESC`

Control Equipment ID

NONE PROVIDED

Emission units being controlled by this control unit

NONE PROVIDED

Control Equipment Description

NONE PROVIDED

Control equipment form

Download the form linked here, complete it, and upload it to this application using the attachment control below.

When completing the online application, if uploaded files are provided in each section (when indicated), do not include those same files in the General Document Upload/File Upload section. If uploading the application files in the General Document Upload/File Upload section, only fill out the required (asterisked) sections of the online application.
PERMIT APPLICATION FOR AIR POLLUTION CONTROL EQUIPMENT (SFN8532)

Attach Control Equipment Form

Control_EP27.pdf - 02/28/2025 04:04 PM

Comment

NONE PROVIDED

Section E - Control Equipment (4 of 4)

Emission Unit: `EU_ID` - `EU_DESC`

Control Equipment ID

NONE PROVIDED

Emission units being controlled by this control unit

NONE PROVIDED

Control Equipment Description

NONE PROVIDED

Control equipment form

Download the form linked here, complete it, and upload it to this application using the attachment control below.

When completing the online application, if uploaded files are provided in each section (when indicated), do not include those same files in the General Document Upload/File Upload section. If uploading the application files in the General Document Upload/File Upload section, only fill out the required (asterisked) sections of the online application.
PERMIT APPLICATION FOR AIR POLLUTION CONTROL EQUIPMENT (SFN8532)

Attach Control Equipment Form

Control_EP32.pdf - 02/28/2025 04:05 PM

Comment

NONE PROVIDED

Section F - Facility-Wide Applicable Regulations and Potential to Emit (PTE)

Applicable Federal Air Programs

Program Code

Applicable State Regulations

Regulation

Potential to Emit (PTE)

Pollutant	Tons Per Year Without Fugitives	Tons Per Year With Fugitives
NOx	*NONE PROVIDED*	*NONE PROVIDED*
CO	*NONE PROVIDED*	*NONE PROVIDED*
VOCs	*NONE PROVIDED*	*NONE PROVIDED*
SO2	*NONE PROVIDED*	*NONE PROVIDED*
PM	*NONE PROVIDED*	*NONE PROVIDED*
PM10	*NONE PROVIDED*	*NONE PROVIDED*
PM2.5	*NONE PROVIDED*	*NONE PROVIDED*
Total HAPs	*NONE PROVIDED*	*NONE PROVIDED*

Emission Calculations Document Upload

Using the attachment control below, upload emission calculations documents.

When completing the online application, if uploaded files are provided in each section (when indicated), do not include those same files in the General Document Upload/File Upload section. If uploading the application files in the General Document Upload/File Upload section, only fill out the required (asterisked) sections of the online application.

Attach Emission Calculations Documents

Tharaldson_PTE Emission Calcs Hi_Pro_rev1.pdf - 02/28/2025 04:05 PM

Comment

NONE PROVIDED

Section G - Compliance Schedule

Will your facility be in compliance with all applicable requirements effective at the time of permit issuance?

Yes

Will your facility be in compliance with all applicable requirements effective after the time of permit issuance?

Yes

Section H - Flexible Permits

Are you requesting a flexible permit?

No

Section I - Compliance Assurance Monitoring (CAM)

To determine if your facility is subject to CAM, review the information provided at the following link.
Compliance Assurance Monitoring (CAM) Guidance

Is the facility identified in this application in compliance with applicable monitoring and compliance certification requirements?

Yes, the facility IS in compliance with applicable monitoring and compliance certification requirements.

Section K - Redline Permit Upload

Use the attachment control below to upload a redline version of your existing permit document, showing any changes.

When completing the online application, if uploaded files are provided in each section (when indicated), do not include those same files in the General Document Upload/File Upload section. If uploading the application files in the General Document Upload/File Upload section, only fill out the required (asterisked) sections of the online application.

Attach redline version of permit here

AOP28451v3_0_redline.docx - 04/10/2025 11:22 AM

Comment

NONE PROVIDED

Section L - General Document Upload

File Upload

Use the attachment control below to upload any other information necessary for application review, such as plot plans, process diagrams, maps, etc.

When completing the online application, if uploaded files are provided in each section (when indicated), do not include those same files in the General Document Upload/File Upload section. If uploading the application files in the General Document Upload/File Upload section, only fill out the required (asterisked) sections of the online application.

Attachments

SFN61008_EP27.pdf - 02/28/2025 04:14 PM
SFN61008_EP32.pdf - 02/28/2025 04:14 PM
SFN61008_FS17.pdf - 02/28/2025 04:14 PM
SFN61008_EP17.pdf - 02/28/2025 04:14 PM
SFN61008_EP24.pdf - 02/28/2025 04:14 PM
SFN61008_EP25.pdf - 02/28/2025 04:14 PM
CAM Plan_EP17_EP3 rev3.pdf - 04/10/2025 11:22 AM
Project Summary.pdf - 04/10/2025 11:22 AM

Comment

NONE PROVIDED

Additional Forms

NONE PROVIDED

Attachments

Date	Attachment Name	Context	User
4/10/2025 11:22 AM	Project Summary.pdf	Attachment	Grant Roach
4/10/2025 11:22 AM	AOP28451v3_0_redline.docx	Attachment	Grant Roach
4/10/2025 11:22 AM	CAM Plan_EP17_EP3 rev3.pdf	Attachment	Grant Roach
2/28/2025 4:17 PM	SFN52824.pdf	Attachment	Grant Roach
2/28/2025 4:14 PM	SFN61008_EP25.pdf	Attachment	Grant Roach
2/28/2025 4:14 PM	SFN61008_EP24.pdf	Attachment	Grant Roach
2/28/2025 4:14 PM	SFN61008_EP17.pdf	Attachment	Grant Roach
2/28/2025 4:14 PM	SFN61008_FS17.pdf	Attachment	Grant Roach
2/28/2025 4:14 PM	SFN61008_EP32.pdf	Attachment	Grant Roach
2/28/2025 4:14 PM	SFN61008_EP27.pdf	Attachment	Grant Roach
2/28/2025 4:05 PM	Tharaldson_PTE Emission Calcs Hi_Pro_rev1.pdf	Attachment	Grant Roach
2/28/2025 4:05 PM	Control_EP32.pdf	Attachment	Grant Roach
2/28/2025 4:04 PM	Control_EP27.pdf	Attachment	Grant Roach
2/28/2025 4:04 PM	Control_EP25.pdf	Attachment	Grant Roach

Date	Attachment Name	Context	User
2/28/2025 4:04 PM	Control Equipment_EP2.pdf	Attachment	Grant Roach
2/28/2025 4:03 PM	SFN61006_FS17.pdf	Attachment	Grant Roach
2/28/2025 4:01 PM	SFN61006_EU159_EP25.pdf	Attachment	Grant Roach
2/28/2025 3:58 PM	SFN61006_EU157_158.pdf	Attachment	Grant Roach
2/28/2025 3:56 PM	SFN61006_EU153b,154b,155b.pdf	Attachment	Grant Roach
2/28/2025 3:53 PM	SFN61006_EU86.pdf	Attachment	Grant Roach
2/28/2025 3:52 PM	SFN61006_EU84.pdf	Attachment	Grant Roach
2/28/2025 3:45 PM	SFN61006_EP24.pdf	Attachment	Grant Roach
2/28/2025 3:11 PM	SFN52858.pdf	Attachment	Grant Roach

Status History

	User	Processing Status
3/24/2025 7:07:53 AM	Corey Aanenson	Draft
4/14/2025 2:26:19 PM	Corey Aanenson	Signing
4/14/2025 2:26:19 PM	Corey Aanenson	Submitting
4/14/2025 2:27:58 PM	Corey Aanenson	Submitted
4/14/2025 2:28:02 PM	Corey Aanenson	In Process

Audit

Event	Event Description	Event By	Event Date
Submission Locked	Submission Locked	Schneider, Kyla K.	3/18/2025 11:12 AM
Submission Unlocked	Submission Unlocked	Schneider, Kyla K.	3/18/2025 11:38 AM
Submission Locked	Submission Locked	Schneider, Kyla K.	4/14/2025 4:06 PM

Revisions

Revision	Revision Date	Revision By
Revision 1	1/22/2025 12:18 PM	Grant Roach
Revision 2	3/24/2025 7:07 AM	Corey Aanenson

Agreements and Signature(s)

SUBMISSION AGREEMENTS

- [x] I am the owner of the account used to perform the electronic submission and signature.
- [x] I have the authority to submit the data on behalf of the facility I am representing.
- [x] I agree that providing the account credentials to sign the submission document constitutes an electronic signature equivalent to my written signature.
- [x] I have reviewed the electronic form being submitted in its entirety, and agree to the validity and accuracy of the information contained within it to the best of my knowledge.

I certify under penalty of law that the enclosed documents and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I also certify that the source(s) identified in this application is/are in compliance with all applicable requirements except those requirements for which a compliance schedule has been submitted in the Compliance Schedule Form or Compliance Schedule Section of the application . I understand that failure to comply with any term of a compliance schedule is considered to be a violation of regulation NDAC 33.1-15-14-06.1.e. The source will continue to comply with the current applicable requirements with which it is in compliance. The source will meet, on a timely basis, any applicable requirement, which becomes effective during the permit term. The source is properly implementing any required risk management plan in accordance with section 112(r) of the federal clean air act, if appropriate.

I certify, as the Responsible Official, that I have read and understood the above requirements and conditions applicable to my source/facility and that the information and attachments provided in this application are true, accurate, and complete to the best of my knowledge." Further, I agree to comply with the provisions of Chapter 23.1-06 of the North Dakota Century Code and all rules and regulations of the Department, or revisions thereof. I also understand a permit is nontransferable and, if granted a permit, I will promptly notify the Department upon sale or legal transfer of this permitted establishment.

Note: This certification must be signed by a "responsible official" as defined in NDAC 33.1-15-14-06.1.

Signed By Corey Aanenson on 04/14/2025 at 2:26 PM

1.0 Permit Action Summary

1.1 Project Overview

Tharaldson Ethanol Plant I, LLC (Tharaldson) operates an ethanol production facility in Casselton, North Dakota. The facility is permitted under Title V Permit AOP-28451 v3.0. Tharaldson is seeking to make a significant modification to their Title V permit by incorporating construction permit ACP-18156 v1.0 into the Title V Permit, adding one additional unit and removing several existing units. Permit ACP-18156 v1.0 for the GP Turkey Tharaldson Facility (GP Turnkey) was issued in June, 2022 with a requirement to submit a Title V application within 12 months of startup. GP Turnkey started up in February, 2024 and this application will satisfy the permit requirement. Tharaldson has detailed the changes that will needed for their current operating permit. Tharaldson is in conjunction with this modification renewing their Title V permit AOP28451 v3.0 which expires on 2/14/2026.

1.2 Modification

Permit ACP-18156 v1.0 was approved for the installation and operation of equipment for a new hi-protein process adjacent to the existing Tharaldson facility.

The following changes will need to be updated for their Emission Units

- Existing Emission Point (EP) 17 (RTO) – addition of the new protein ring dryer (EU 86, 70 Mmbtu/hr) will route emissions to this existing EP in addition to the existing EP's.
- Existing EP 2 – addition of new Hammermill #5 (EU 84)
- New EP 3 - new stack for venting startup emissions only from EU 86.
- New EP 25 – protein cyclone (EU 159) controlled by the protein cooling baghouse
- New EP 27 – two (2) protein storage silos (EU 153b & 154b) controlled by the protein silos aspiration dust collector
- New EP 32 – protein rail loadout (EU 157) and protein truck loadout (EU 158) controlled by the protein loadout baghouse
- New EP 24 – MSC centrate building vents emissions from the MSC process building
- New EP FS17 – rail loadout fugitive emission

Existing Emission Limit changes

- EP 17 – process unit updated to include the new protein ring dryer

New Emission Limits

- EP 3 – protein ring dryer – 20% Opacity limit
- EP 25 – protein cyclone - 20% Opacity limit
- EP 27 – protein storage silos - 20% Opacity limit
- EP 32 – protein truck and rail loadout - 20% Opacity limit
- FS17 – PM/PM10/Opacity BMP II.C

Fuel Restrictions

- EU 86 is restricted to combusting only natural gas contain no more than 2 grains of sulfur per 100 scf

Emission Testing

- Within 180 days of startup of the new equipment, testing on the following equipment
    - EP 17 (PM, NOx, VOC, CO, Acetaldehyde)
    - EP 24 (VOC)
    - EP 25 (PM, VOC)
    - EP 32 (PM)

Operating Limits

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

Scenario	Dryer	Is the Dryer Allowed to Operate?
1	A (EU68)	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

Changes to B.13 in the operating permit – Annual Emissions Restrictions

a. PM Emissions - Addition of EP's 3, 17, 25, 27, 32 & FS17 to the existing PM emissions in the operating permit

PM emissions (ton) = EP1 + EP2 + EP3 + EP8 + EP9 + EP11pilot + EP13 + EP15 + EP16 + EP17 + EP21 + EP22 + EP23 + EP25 + EP27 + EP32 + EPFS1 + EPFS2 + EPFS7 + EPFS9 + EPFS11A/B + EPFS12 + EPFS14 + EPFS16 + EPFS17

- EP3(ton)= natural gas combusted during startup (MMBtu) x PM EF (Ib/MMBtu) /2,000(Ib/ton)
- EP17(ton)= natural gas combusted in ring dryer (MMBtu) x RTO EF (Ib/MMBtu)/2,000(Ib/ton)
- EP25(ton)= hours of operation (hr) x baghouse EF (Ib/hr)/2,000(Ib/ton)
- EP27(ton)= hours of operation(hr) x dust collector EF (Ib/hr)/2,000(Ib/ton)
- EP32(ton)= Protein loaded x loading EF (Ib/ton)/2,000(Ib/ton)
- FS17(ton)= Protein loaded x fugitive EF (Ib/ton)/2,000(Ib/ton)

NOx emissions (ton) = EP3 + EP8 + EP11pilot + EP11product + EP12 + EP13 + EP17 + EP21 + EPFS14

- EP3(ton)= natural gas combusted in ring dryer during startup (MMBtu) x EF (Ib/MMBtu)/2,000(1b/ton)
- EPl7 (ton)—natural gas combusted in RTO, RTO Dryers and Ring Dryer (MMBtu) x RTO EF (Ib/MMBtu)12,000(Ib/ton)

VOC emissions (ton) = EP3 + EP4 + EP4ee + EP8 + EP11product + EP11 pilot + EP11fug +EP12 + EP13 + EP15 + EP17 + EP21 + EP22 - EPTK1throughEPTK5 + EP24 + EP25 + EPFS8 + EPFS10 + EPFS14 + EPFS15

- EP17 (ton) = natural gas consumed in RTO, RTO Dryers and ring dryer (MMBtu) x EF (Ib/MMBtu)/2,000(Ib/ton)
- EP3(ton)= natural gas combusted in ring dryer during startup (MMBtu) x EF (Ib/MMBtu)/2,000(Ib/ton)
- EP24(ton)= hours of operation (hr) x EF (Ib/hr)/2,000(Ib/ton)
- EP25(ton)= material processed (ton) x EF(Ib/ton)/2,000(Ib/ton)

CO Emissions (ton) = EP3 + EP8+EP11product4-EPllpilot+EP12+EP13+ EP17+EP21+EPFS14

- EP3 (ton) = natural gas combusted in ring dryer during startup (MMBtu) x EF (Ib/MMBtu) / 2,000(Ib/ton)
- EP17 (ton) = natural gas consumed in RTO, RTO Dryers and ring dryer (MMBtu) x EF (Ib/MMBtu)/2,000(Ib/ton)

HAP Emissions (ton) = EP3 + EP4 + EP4ee + EP8 + EP11fug + EP13 + EP15 + EP17 + EP21 + EP224-EPTK1throughEPTK5 + EP24 + EP25 + EPFS5 + EPFS8 + EPFS14

- EP3 (ton) = natural gas combusted in ring dryer during startup (MMBtu) x EF (Ib/MMBtu) 2,000(Ib/ton

- EP17 (ton) = DDGS Produced (ton)*Combined HAP EF[F] (lb/ton DDGS))/3*2000(lb/ton + (Natural Gas Consumed(MMBtu)*Formaldehyde EF(lb/MMBtu)/2000(lb/ton)) + Natural Gas Consumed(MMBtu)* Combined HAP EF[B] (lb/MMscf)/Heat Content (Btu/scf) * 2000 (lb/ton) + natural gas combusted in ring dryer(MMBtu) x EF(Ib/MMBtu)/2,000(Ib/ton)
- EP24 (ton) = hours of operation (hr) x EF (Ib/hr)/2,000(Ib/ton)
- EP25 (ton) = material processed (ton) x EF(Ib/ton)/2,000(Ib/ton)

Acetaldehyde Emissions (ton) = EP3 + EP4 + EP11 + EP13 + EP15 + EP17 + EP21 + EP22 + EP24 + EP25 + EPTK1 through EPTK5 + EPFS5 + EPFS8

- EP3 (ton) = natural gas combusted in ring dryer during startup (MMBtu) x EF (Ib/MMBtu) / 2,000(Ib/ton
- EP17 (ton) = Hours of Operation (hr) * RTO EF (lb/hr)/ 2,000 (lb/ton) + natural gas combusted in ring dryer (MMBtu) x EF (lb/MMBtu)/2,000 (lb/ton)
- EP24 (ton) = hours of operation (hr) x EF (lb/hr) / 2,000 (lb/ton)
- EP25 (ton) = material processed (ton) x EF (lb/ton) / 2,000 (lb/ton)

1.3 Plant Changes

- One additional protein storage silo (155b) was installed and is controlled by the protein silo dust collector (EP27). In the application material for construction permit ACP-18156 v1.0 Tharaldson submitted application forms for three protein silos. In the final permit only two protein silos were permitted. Tharaldson would like to correct this, by including the third protein silo (EU 155b). There are no changes to the control device (EP27) for these silos, changes to emissions or product throughputs.
- The bio-methanator and flare (EU12 & EP12) has been removed from the site and Tharaldson requests to remove this emission unit and control device from the permit
- The 60,000 bushel grain storage bin (FS16) has been removed from the site and Tharaldson requests to remove this emission unit from the permit.

1.4 Emission Calculations

Emission calculations from Permit ACP-18156 v1.0 are attached to this application.

1.5 Compliance Assurance Monitoring (CAM)

Tharaldson has updated the CAM plan for EP 17 to include the ring protein dryer EU86. EU86 will be controlled by the same RTO's as EP17 and the revised CAM plan is attached.

AIR POLLUTION CONTROL
TITLE V PERMIT TO OPERATE

Permittee: **Name**: Tharaldson Ethanol Plant I, LLC **Address**: 3549 - 153rd Avenue SE Casselton, ND 58012	**Permit Number**: AOP-28451 v3.0 **Source Name**: Tharaldson Ethanol Plant I, LLC
Source Location: 3549 - 153rd Avenue SE Casselton, ND Cass County	**Source Type**: Ethanol Production

Expiration Date:

February 14, 2026

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: 4/27/2021

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:

Process Unit	Emission Unit Description	Emission Unit (EU)	Emission Point (EP)	Air Pollution Control Equipment
Grain handling	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 Scrubber
	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		

Process Unit	Emission Unit Description	Emission Unit (EU)	Emission Point (EP)	Air Pollution Control Equipment
Distillation	Degas column	34	17	Regenerative thermal oxidizer (RTO) (2) rated at 18 x 10^6 Btu/hr each and fired on natural gas
	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	Regenerative thermal oxidizer (RTO) (2) rated at 18 x 10^6 Btu/hr each and fired on natural gas
	Evaporator #2	46		
	Evaporator #3	47		
Final evaporation	Final evaporator	48		
	Syrup tank	49 [A]	7	None
Boiler	Boiler rated at 480 x 10^6 Btu/hr and fired on natural gas & ~~biogas~~ (built 2008)	53	8	Ultra-low NO_x burners (ULNB) with flue gas recirculation (w/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 flare	67		
~~Bio-methanator~~	~~Bio-methanator~~	~~12~~	~~8 & 12~~	~~Boiler & Flare~~
Emergency generator engine	Diesel engine-driven emergency generator rated at 2,682 bhp (manuf. 2/13/08)	13 [B]	13	None
DDGS cooling	DDGS cooler 1	15a	15	Baghouse
	DDGS cooler 2	15b	22	Baghouse
Long term storage	Long term storage	16a	16	Baghouse

Process Unit	Emission Unit Description	Emission Unit (EU)	Emission Point (EP)	Air Pollution Control Equipment
DGS dryers (4)	Four direct-fired natural gas dryers rated at 11.6 tph of wet cake each. The dryer burners are rated at 45 x 10^6 Btu/hr each.	68, 69, 70, 71	17	Regenerative thermal oxidizer (RTO) (2) rated at 18 x 10^6 Btu/hr each and fired on natural gas
Protein Ring Dryer (1)	One natural gas protein ring dryer rated at 70 x 10^6 Btu/hr each.	86	17	Regenerative thermal oxidizer (RTO) (2) rated at 18 x 10^6 Btu/hr each and fired on natural gas
	Protein ring dryer startup stack		3	None
DGS dryers (2)	Two direct-fired natural gas dryers rated at 11.6 tph of wet cake each. The dryer burners are rated at 45 x 10^6 Btu/hr each.	77, 78	21	Thermal oxidizer (TO) rated at 125 x 10^6 Btu/hr and fired on natural gas
Grain Handling 2	Truck Dump Pit #3	79	23	Baghouse
	Reclaim conveyor	80		
	Bulk weigher	81		
	Receiving conveyor	82		
Storage tanks	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 & reporting (LDAR)
Roads	Truck traffic	FS6 [A]	FS6	Paved Roads
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	Grain silo #1	FS11A [A]	FS11A	None

Process Unit	Emission Unit Description	Emission Unit (EU)	Emission Point (EP)	Air Pollution Control Equipment
silos	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
~~Grain storage bin~~	~~Grain bin (60,000 bu)~~	~~FS16~~ [A]	~~FS16~~	~~None~~
Rail loadout	Rail loadout fugitive emissions	FS17	FS17	None
Protein cooling	Protein cyclone	159	25	Baghouse
Protein storage silos	Protein storage silo #1	153b	27	Aspiration dust collector
	Protein storage silo #2	154b		
	Protein storage silo #3	155b		
Protein rail loadout	Protein rail loadout	157	32	Baghouse
Protein truck loadout	Protein truck loadout	158		
MSC	MSC centrate building vents	N/A	24	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. **Fuel Restrictions**:

A. The emergency generator engine (EU13) is 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: NDAC 33.1-15-12-02, Subpart IIII & NDAC 33.1-15-06-01.2

B. The boiler (EU53) is restricted to combusting only pipeline quality natural gas containing no more than 2 grains of sulfur per 100 standard cubic feet ~~and biogas from the bio-methanator.~~ 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: Air Construction Permit (ACP)-17155 v1.0 & NDAC 33.1-15-06-01.2

C. The two RTOs (EP17) and the TO (EP21) are restricted to combusting only pipeline quality natural gas containing no more than 2 grains of sulfur per 100 standard cubic feet, biogas from the bio-methanator (EU12) and VOCs from the DGS dryers (EU68 through EU71, EU77, EU78, EU86) and distillation – evaporation (EU34 through EU41 and EU45 through EU48).

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

D. The DGS dryers (EU68 through EU71, EU77 through EU78, EU86) 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), and biogas from the bio-methanator.

Applicable Requirements: NDAC 33.1-15-14-06.5.b(1) & NDAC 33.1-15-06-01.2

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

A. **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

B. **Loading Rack Vapor Collection**: 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

C. **Process/Operational Restrictions**:

1) Bio-methanator Off-Gas: The off-gas from the bio-methanator shall be routed to the DGS dryers (EU68 through EU71, EU77, EU78) or to the boiler (EU53) when it is technically and operationally feasible. When the off-gas is not routed to the dryers or boiler, it shall be routed to a flare that is operated and monitored in accordance with this permit.

Applicable Requirement: NDAC 33.1-15-15-01.2

2) Cooling Tower Mist Eliminators (EUFS7): 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

3) Original DGS Steam Dryer: The original DGS steam dryer (EU50) shall not be operated.

Applicable Requirements: NDAC 33.1-15-14-02.9.f & ACP-18108 v1.0

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

Scenario	Dryer	Is the Dryer Allowed to Operate?
1	A (EU68)	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

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

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 / ~~Bio-methanator~~	8	100
Distillers dry grains & soluble (DDGS) handling & loadout	9	130
Ethanol loadout	11	35
~~Bio-methanator~~	~~12~~	~~20~~
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

E. **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 (EU53 and EP21).

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

2) Subpart DD – Standards of Performance for Grain Elevators (EU1 through EU 10 and EU79 through EU82).

Applicable Requirements: NDAC 33.1-15-12-02, Subparts A & DD

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 (EUTK1 through EUTK5).

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

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.

Applicable Requirements: NDAC 33.1-15-12-02, Subparts A & VVa

5) Subpart IIII - Standards of Performance for Stationary Internal Combustion Engines (EU13). Note: As an area source of HAPs, compliance with this subpart constitutes compliance with 40 CFR 63, Subpart ZZZZ.

Applicable Requirements: NDAC 33.1-15-12-02, Subparts A & IIII

F. **Flares**:

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

2) The flares 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

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

Applicable Requirement: NDAC 33.1-15-07-01.3

H. **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)

4. **Emission Unit Limits**:

A. **Emission Unit Limits and Applicable Requirements**: The emission limits and work practice standards specified in this permit apply at all times including startup, shutdown and malfunction.

Process Unit	EP	Pollutant/ Parameter [A]	Emission Limit	NDAC Applicable Requirement
Grain handling	1	PM	0.01 gr/dscf	33.1-15-12-02, Subpart DD
		Opacity	See Condition 4.B.5	33.1-15-12-02, Subpart DD
Hammermilling	2	PM/PM_{10}/Opacity	20% (6-min. avg.) (see Cond. 4.B.1)	33.1-15-03-02
Protein Ring Dryer Startup Stack	3	Opacity	20% (6-min. avg.) (see Cond. 4.B.1)	33.1-15-03-02
Prefermentation & fermentation	4	VOC	98% reduction or 20 ppmvd [B]	33.1-15-14-02.9 & ACP-17787 v1.0
		Opacity	20% (6-min. avg.) (see Cond. 4.B.1)	33.1-15-03-02

Process Unit	EP	Pollutant/ Parameter [A]	Emission Limit	NDAC Applicable Requirement
Boiler	8	PM [C]	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.) (see Cond. 4.B.4)	33.1-15-15-01.2 (BACT) & ACP-17155 v1.0
DDGS handling & loadout	9	Opacity	20% (6-min. avg.) (see Cond. 4.B.1)	33.1-15-03-02
Ethanol loadout flare	11	VOC	98% reduction (see Cond. 3.B)	33.1-15-14-02.9 & ACP-17155 v1.0
		Opacity	0% (see Cond. 4.B.2)	ACP-18105 v1.0
~~Bio-methanator flare~~	~~12~~	~~SO_2~~	~~3.48 lb/hr (1-hr avg.)~~	~~33.1-15-15-01.2 & ACP-17155 v1.0~~
		~~Opacity~~	~~0% (see Cond. 4.B.2)~~	~~33.1-15-03-04.3~~
Emergency generator engine	13	SO_2	Low Sulfur Diesel Fuel (see Cond. 2.A)	33.1-15-15-01.2, ACP-17155 v1.0 & 33.1-15-12-02, Subpart IIII
		Opacity	20% (6-min. avg.) (see Cond. 4.B.1)	33.1-15-03-02
		Operating Hours	Hours of Operation (see Cond. 1 Footnote B)	33.1-15-12-02, Subpart IIII
DDGS cooling	15	Opacity	20% (6-min. avg.) (see Cond. 4.B.1)	33.1-15-03-02
	22	Opacity	20% (6-min. avg.) (see Cond. 4.B.1)	33.1-15-03-02
Long term storage	16	Opacity	20% (6-min. avg.) (see Cond. 4.B.1)	33.1-15-03-02

Process Unit	EP	Pollutant/ Parameter [A]	Emission Limit	NDAC Applicable Requirement
DGS dryers (4) [D] Protein Ring Dryer (1)	17	SO_2	12.11 lb/hr (1-hr avg.)	33.1-15-15-01.2, ACP-17155 v1.0, ACP-18156v1.0
		Opacity	20% (6-min avg.) (see Cond. 4.B.1)	33.1-15-03-02
DGS dryers (2) [E]	21	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.) (see Cond. 4.B.1)	33.1-15-03-02 & 33.1-15-12-02, Subpart Db
Grain handling 2	23	Opacity	20% (6-min avg.) (see Cond. 4.B.1)	33.1-15-03-02
Protein cooling	25	Opacity	20% (6-min avg.)	33.1-15-03-02
Protein storage silos (3)	27	Opacity	(see Cond. 4.B.1)	33.1-15-03-02
Protein rail loadout	32	Opacity	20% (6-min avg.)	33.1-15-03-02
Protein truck loadout		Opacity	(see Cond. 4.B.1)	33.1-15-03-02
Storage tanks	TK1 through TK5	VOC	See Cond. 3.E.3	33.1-15-12-02, Subpart Kb
Grain handling	FS1	PM/PM_{10}/Opacity	BMP (see Cond. 3.A & 4.B.3)	33.1-15-17
DDGS handling	FS2	PM/PM_{10}/Opacity	BMP (see Cond. 3.A & 4.B.3)	33.1-15-17
Process equipment leaks	FS5	VOC	See Cond. 3.E.4	33.1-15-12-02, Subpart VVa
Roads - Truck traffic	FS6	PM/PM_{10}/Opacity	BMP (see Cond. 3.A & 4.B.3)	33.1-15-17
Cooling towers	FS7	PM/PM_{10}/Opacity	Mist Eliminators/BMP (see Cond. 3.A & 4.B.3)	33.1-15-15-01.2 & ACP-17155 v1.0
Wet cake storage	FS8	PM/PM_{10}/Opacity	BMP (see Cond. 3.A & 4.B.3)	33.1-15-17
Wet storage bin	FS9	PM/PM_{10}/Opacity	BMP (see Cond. 3.A & 4.B.3)	33.1-15-17
Miscellaneous process sources	FS10	VOC	BMP (see Cond. 3.A & 4.B.3)	33.1-15-17
Grain storage silos	FS11A & FS11B	PM/PM_{10}/Opacity	BMP (see Cond. 3.A & 4.B.3)	33.1-15-17

Process Unit	EP	Pollutant/ Parameter [A]	Emission Limit	NDAC Applicable Requirement
DDGS storage silos	FS12	PM/PM_{10}/Opacity	BMP (see Cond. 3.A & 4.B.3)	33.1-15-17
Grain drying	FS14	PM/PM_{10}/Opacity	BMP (see Cond. 3.A & 4.B.3)	33.1-15-17
~~Grain storage bin~~	~~FS16~~	~~PM/PM_{10}/Opacity~~	~~BMP (see Cond. 3.A & 4.B.3)~~	~~33.1-15-17~~
Rail loadout fugitives	FS17	PM/PM_{10}/Opacity	BMP (see Cond. 3.A & 4.B.3)	33.1-15-17
Plant-wide	--	PM [C]/SO_2/NO_x/ VOC/Opacity	BMP (see Cond. 3.A & 4.B.3)	33.1-15-14-02.9 & 33.1-15-14-03.6
		PM [C]	249 tons/yr (12-month r.a.) [see Cond. 5.B.13)a)]	33.1-15-15-01.2 & ACP-17895 v1.0
		NO_x	249 tons/yr (12-month r.a.) [see Cond. 5.B.13)b)]	33.1-15-15-01.2 & ACP-17895 v1.0
		VOC	249 tons/yr (12-month r.a.) [see Cond. 5.B.13)d)]	33.1-15-15-01.2 & ACP-17895 v1.0
		CO	249 tons/yr (12-month r.a.) [see Cond. 5.B.13)e)]	33.1-15-15-01.2 & ACP-17895 v1.0
		HAPs	24 tons/yr (12-month r.a.) [see Cond. 5.B.13)f)]	33.1-15-14-03.1.e & ACP-17895 v1.0
		Acetaldehyde	9.9 tons/yr (12-month r.a.) [see Cond. 5.B.13)g)]	33.1-15-14-03.1.e & ACP-17895 v1.0
Boiler & TO for DGS Dryers (2)	8 & 21	NO_x (Nested)	99 tons/yr (12-month r.a.) [see Condition 5.B.13)c)]	33.1-15-15-01.2 & ACP-17895 v1.0

[A] VOC emission rates are as total VOC.
[B] 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).
[C] Includes filterable (PM, PM_{10}, and $PM_{2.5}$) and condensable (CPM) fractions.
[D] Emission limits are the total for the four dryers and the protein ring dryer.
[E] Emission limits are the total for the two dryers.

B. **Opacity Limits**:

1) Point Sources: Twenty percent, except that a maximum of forty percent 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 this 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).

Applicable Requirement: NDAC 33.1-15-03-02

2) Flares: Flares 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.

Applicable Requirements: NDAC 33.1-15-03-05.2 & ACP-18105 v1.0

3) Fugitive Emissions: Except as provided in Condition 4.B.5, 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.

Applicable Requirement: NDAC 33.1-15-03-03

4) Boiler (EP8): The permittee shall not discharge into the atmosphere any gases that exhibit greater than 10% opacity (six-minute average), except for one six-minute period per hour of not more than 27% opacity.

Applicable Requirements: NDAC 33.1-15-15-01.4.c(2) - BACT, NDAC 33.1-15-12-02, Subpart Db, & ACP-17155 v1.0

5) Grain Handling Equipment (EU1 through EU10) and Grain Handling Equipment (EU79 through EU82): The permittee shall not cause to be discharged into the atmosphere any fugitive emissions from:

a) Any individual truck unloading station, railcar unloading station, or railcar loading station, which exhibits greater than five percent opacity.

b) Any grain handling operation which exhibits greater than zero percent opacity.

c) Any truck loading station which exhibits greater than ten percent opacity.

Applicable Requirements: NDAC 33.1-15-12-02, Subpart DD & ACP-17787 v1.0

5. **Monitoring Requirements and Conditions**:

A. **Requirements**:

Process Unit	EP	Pollutant/ Parameter	Monitoring Requirement (Method)	Condition Number	NDAC Applicable Requirement
Grain handling	1	PM (see Plant-wide Monitoring)/ Opacity	Visible Emissions Observations (VEO)	5.B.9	33.1-15-14-02.9.a

Process Unit	EP	Pollutant/ Parameter	Monitoring Requirement (Method)	Condition Number	NDAC Applicable Requirement
Hammermilling	2	PM (see Plant-wide Monitoring)/ Opacity	VEO	5.B.9	33.1-15-14-02.9.a
Protein Ring Dryer Startup	3	Opacity	VEO	5.B.9	33.1-15-14-02.9.a
Prefermentation & fermentation	4	VOC (see Plant-wide Monitoring) HAPs/ Acetaldehyde (see Plant-wide Monitoring) Opacity	CAM & Emissions Test CAM & Emissions Test VEO	5.B.1 & 5.B.10 5.B.1 & 5.B.10 5.B.9	33.1-15-14-06.10 & 33.1-15-14-02.9.a 33.1-15-14-06.10 & 33.1-15-14-02.9.a 33.1-15-14-02.9.a
Boiler	8	PM [A] (see Plant-wide Monitoring) SO_2 NO_x (see Plant-wide Monitoring) VOC (see Plant-wide Monitoring) CO (see Plant-wide Monitoring) Opacity	Recordkeeping Recordkeeping CEMS Emissions Test Emissions Test Recordkeeping	5.B.2 5.B.2 5.B.4 5.B.3 5.B.3 5.B.2	33.1-15-14-06.5.a(3)(a) 33.1-15-14-06.5.a(3)(a) 33.1-15-12-02, Subpart Db, 33.1-15-14-06.5a(3)(a) & ACP-17155 v1.0 33.1-15-14-06.5.a(3)(a) 33.1-15-14-06.5.a(3)(a) 33.1-15-14-06.5.a(3)(a)
DDGS handling & loadout	9	PM (see Plant-wide Monitoring)/ Opacity	VEO	5.B.9	33.1-15-14-02.9.a
Ethanol loadout	11	VOC (see Plant-wide Monitoring) PM (see Plant-wide Monitoring)/ Opacity	CAM & Thermocouple VEO	5.B.1 & 5.B.5 5.B.9	33.1-15-14-06.10 & 33.1-15-14-06.5.a(3)(a) 33.1-15-14-06.5.a(3)(a)
~~Bio-methanator~~	~~8 & 12~~	~~SO_2~~ ~~Opacity~~	~~Thermocouple~~ ~~VEO~~	~~5.B.6~~ ~~5.B.9~~	~~33.1-15-14-06.5.a(3)(a)~~ ~~33.1-15-14-06.5.a(3)(a)~~

Process Unit	EP	Pollutant/ Parameter	Monitoring Requirement (Method)	Condition Number	NDAC Applicable Requirement
Emergency generator engine	13	SO_2/Opacity	Recordkeeping	5.B.2	33.1-15-14-06.5.a(3)(a)
		Operating Hours	Recordkeeping	5.B.7	33.1-15-12-02, Subpart IIII & 33.1-15-14-06.5.a(3)(a)
DDGS cooling	15 & 22	VOC (see Plant-wide Monitoring)	Emissions Test	5.B.3	33.1-15-14-06.5.a(3)(a)
		PM (see Plant-wide Monitoring)/ Opacity	VEO	5.B.9	33.1-15-14-02.9.a
Long term storage	16	PM (see Plant-wide Monitoring)/ Opacity	VEO	5.B.9	33.1-15-14-02.9.a
DGS dryers (4) , DGS dryers (2), Protein Ring Dryer	17 & 21	PM [A] (see Plant-wide Monitoring)	CAM, Recordkeeping, Emissions Test & VEO	5.B.1, 5.B.2, 5.B.9 & 5.B.11	33.1-15-14-06.5.a(3)(a) & 33.1-15-14-02.9.a
		SO_2	Recordkeeping	5.B.2	33.1-15-14-06.5.a(3)(a)
		NO_x (EP17; see Plant-wide Monitoring)	Emissions Test	5.B.3	33.1-15-14-06.5.a(3)(a)
		NO_x (EP21) (see Plant-wide Monitoring)	CEMS	5.B.4	33.1-15-12-02, Subpart Db, 33.1-15-14-06.5a(3)(a) & ACP-17854 v1.0
		VOC (see Plant-wide Monitoring)	CAM, Recordkeeping & Emissions Test	5.B.1 & 5.B.11	33.1-15-14-06.10 & 33.1-15-14-02.9.a
		CO (see Plant-wide Monitoring)	CAM, Recordkeeping & Emissions Test	5.B.1 & 5.B.11	33.1-15-14-06.10& 33.1-15-14-02.9.a
		Acetaldehyde (see Plant-wide Monitoring)	CAM, Recordkeeping & Emissions Test	5.B.11	33.1-15-14-06.5.a(3)(a) & 33.1-15-14-02.9.a
		Opacity	Recordkeeping	5.B.2	33.1-15-14-06.5.a(3)(a)
Grain handling 2	23	PM (see Plant-wide Monitoring)/ Opacity	VEO	5.B.9	33.1-15-14-02.9.a

Process Unit	EP	Pollutant/ Parameter	Monitoring Requirement (Method)	Condition Number	NDAC Applicable Requirement
Protein cyclone	25	Opacity	VEO	5.B.9	33.1-15-14-02.9.a
Protein storage silos	27	Opacity	VEO	5.B.9	33.1-15-14-02.9.a
Protein rail/truck loadout	32	Opacity	VEO	5.B.9	33.1-15-14-02.9.a
Storage tanks	TK1 through TK5	VOC (see Plant-wide Monitoring)	Inspections/ Recordkeeping	3.A.4	33.1-15-12-02, Subpart Kb
Grain handling	FS1	PM/PM_{10}/Opacity (see Plant-wide Monitoring)	Fugitive Emissions Management Plan (FEMP)	5.B.8	33.1-15-14-06.5.a(3)(a)
DDGS handling	FS2	PM/PM_{10}/Opacity (see Plant-wide Monitoring)	FEMP	5.B.8	33.1-15-14-06.5.a(3)(a)
Process equipment leaks	FS5	VOC (see Plant-wide Monitoring)	Inspections	3.A.5	33.1-15-12-02, Subpart VVa
Roads	FS6	PM/PM_{10}/Opacity	FEMP	5.B.8	33.1-15-14-06.5.a(3)(a)
Cooling towers	FS7	PM/PM_{10}/Opacity (see Plant-wide Monitoring)	FEMP	5.B.8	33.1-15-14-06.5.a(3)(a)
Wet cake storage	FS8	PM/PM_{10}/Opacity (see Plant-wide Monitoring)	FEMP	5.B.8	33.1-15-14-06.5.a(3)(a)
Wet storage bin	FS9	PM/PM_{10}/Opacity (see Plant-wide Monitoring)	FEMP	5.B.8	33.1-15-14-06.5.a(3)(a)
Miscellaneous process sources	FS10	VOC (see Plant-wide Monitoring)	FEMP	5.B.8	33.1-15-14-06.5.a(3)(a)
Grain storage silos	FS11A & FS11B	PM/PM_{10}/Opacity (see Plant-wide Monitoring)	FEMP	5.B.8	33.1-15-14-06.5.a(3)(a)
DDGS storage silos	FS12	PM/PM_{10}/Opacity (see Plant-wide Monitoring)	FEMP	5.B.8	33.1-15-14-06.5.a(3)(a)
Grain drying	FS14	PM/PM_{10}/Opacity (see Plant-wide Monitoring)	FEMP	5.B.8	33.1-15-14-06.5.a(3)(a)
~~Grain storage bin~~	~~FS16~~	~~PM/PM_{10}/Opacity (see Plant-wide Monitoring)~~	~~FEMP~~	~~5.B.8~~	~~33.1-15-14-06.5.a(3)(a)~~
Rail loadout fugitives	FS17	PM/PM_{10}/Opacity (see Plant-wide Monitoring)	FEMP	5.B.8	33.1-15-14-06.5.a(3)(a)

Process Unit	EP	Pollutant/ Parameter	Monitoring Requirement (Method)	Condition Number	NDAC Applicable Requirement
Plant-wide	--	PM [A]/Opacity	FEMP	5.B.8	33.1-15-14-06.5.a(3)(a)
		PM [A]	Recordkeeping	5.B.13	33.1-15-14-06.5.a(3)(a) & ACP-17895 v1.0
		NO_x	Recordkeeping	5.B.13	33.1-15-14-06.5.a(3)(a) & ACP-17895 v1.0
		VOC	Recordkeeping	5.B.13	33.1-15-14-06.5.a(3)(a) & ACP-17895 v1.0
		CO	Recordkeeping	5.B.13	33.1-15-14-06.5.a(3)(a) & ACP-17895 v1.0
		HAPs	Recordkeeping	5.B.13	33.1-15-14-06.5.a(3)(a) & ACP-17895 v1.0
		Acetaldehyde	Recordkeeping	5.B.13	33.1-15-14-06.5.a(3)(a) & ACP-17895 v1.0
Boiler & TO for DGS dryers (2)	8 & 21	NO_x (Nested)	Recordkeeping	5.B.13	33.1-15-14-06.5.a(3)(a) & ACP-17895 v1.0

[A] 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 the 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:

Indicators

Process Unit / EP	Control (Pollutant)	Indicator	Indicator Range	Frequency
Prefermentation & fermentation 4	Wet Scrubber (VOC)	Water Flow Rate	≥130 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 Inspection/Maintenance	≥ 750ºF N/A	During Times of Ethanol Loadout Daily
DGS dryers (4), Protein Ring Dryer 17	RTO (VOC)	RTO Combustion Temperature Inspection/Maintenance	>1679º F N/A	3-Hour Average Daily
DGS dryers (2) 21	TO (VOC)	TO Combustion Temperature Inspection/Maintenance	>1513º F N/A	3-Hour Average Daily

2) For purposes of compliance monitoring, burning of fuels as outlined in Condition 2, shall be considered credible evidence of compliance with any applicable 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, for evidence of compliance or noncompliance with any applicable opacity, particulate and SO_2 emission limit, in the event of enforcement action.

3) Twice during the term of the permit, the permittee shall conduct an emissions test to measure NO_x (for EP17 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 test shall consist of three runs, with each run at least 20 minutes in length. 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) The permittee shall conduct monitoring of NO_x emissions in accordance with 40 CFR 60, Subpart Db.

   a) 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. Data obtained from the CEMS shall be used in conjunction with boiler monitoring or calculations to obtain a pound per hour emission rate.

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

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.

e) The CEMS shall be used to determine compliance with the NO_x concentration ($lb/10^6$ Btu) emission limits applicable to the boiler (EU53) and the TO (EP21) stacks. The CEMS shall be certified to comply with the applicable requirements of 40 CFR 60, Appendix B, Performance Specification 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.

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. During the first test that shows compliance, the permittee shall establish an operating temperature range 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. After the temperature range is established, the permittee shall measure and record the operating temperature continuously when the emission unit is operated. If the temperature is below the established operating range, the permittee shall investigate the problem within eight hours. Any malfunctions shall be corrected as soon as possible.

~~6) Bio-methanator Flare: The presence of a flame shall be monitored using a thermocouple or any other equivalent device approved by the Department. If the flare is equipped with an electronic igniter, assist gas will not be required.~~

7) Engine Operating Hours: The 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. Records shall be maintained to differentiate annual emergency vs. non-emergency/maintenance/etc. hours of operation.

8) 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. 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 4.A and all other fugitive dust sources. The plan shall be submitted to the Department whenever it is revised.

9) Visible Emissions Observations (VEO): At least once per week in which the emission unit is operated, a company representative who is certified or has received Department approved visible emissions training (requires a one-time visible emissions session, plus one hour visible emissions field training; need not be certified) shall observe the emission points. If no visible emissions are present, the permittee shall record the date, time and observation results. If the observation indicates visible emissions are present, the permittee

must investigate the problem within eight hours. Any malfunctions shall be corrected as soon as practicable. If the correction of the situation is expected to take longer than 24 hours, the permittee shall follow procedures as outlined in Condition 8.G. All instances of visible emissions observed, associated investigations of malfunctions, and corrective actions taken shall be recorded. Following corrective maintenance, a visible emissions observation shall be made. The permittee shall comply with the opacity and particulate limits in Condition 4.A and nothing in this condition authorizes noncompliance.

For flares only, if corrective action fails to eliminate the visible emissions, the permittee shall conduct a RM 22 test in accordance with Condition 4.B.2.

10) Prefermentation & Fermentation and Distillation Scrubber: The permittee shall install, calibrate, operate and maintain a flow meter to continuously measure the liquid flow rate to the scrubber. The flow meter shall be guaranteed to be accurate within ±5%.

a) During the initial test that shows compliance, the permittee shall establish a liquid flow rate operating range. This flow rate shall be an indicator of compliance with the VOC emission limits specified in Condition 4.A. 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. If the flow rate is outside the indicator range, the permittee shall investigate the problem within eight hours. 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 chemical approved by the Department) concentration in the scrubber water used to control emissions from the fermentation systems (EP4). 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.

c) During the final two years of each 5-year permit period, prior to submitting each Title V permit renewal application, the permittee shall conduct stack tests on the fermentation scrubber (EP4) to ensure compliance with the emission limit for acetaldehyde and to verify or revise the VOC emission factor. Any resulting changes to CAM indicators will be reflected in a revised CAM Plan submitted as a part of the Title V renewal application.

11) 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. During the initial test that shows compliance for EP17 and EP21, the permittee shall establish an operating temperature range for the RTO and TO combustion chambers. After the indicator range is established, the permittee 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.

b) 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. Any resulting changes to CAM indicators will be reflected in a revised CAM Plan submitted as a part of the Title V renewal application.

12) The permittee shall record the amount of 200 proof ethanol produced on a monthly and 12-month rolling total basis.

13) 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. 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. 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.

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.

Emission Factor Sources

EP	PM	NO_x	VOC	CO	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]
~~12~~	~~---~~	~~AP-42~~	~~AP-42~~	~~AP-42~~	~~---~~	~~---~~
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]

EP	PM	NO_x	VOC	CO	HAPs	Acetaldehyde
22	Testing [A]	---	Testing [A]	---	Testing [A]	Testing [A]
23	Testing [A]	---	---	---	---	---
24	---	---	Testing [A]	---	Engineering Estimate	Engineering Estimate
25	---	---	Testing [A]	---	Engineering Estimate	Engineering Estimate
27	Engineering Estimate	---	---	---	---	---
32	Testing [A]	---	---	---	---	---
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]	---	---	---
~~FS16~~	~~AP-42~~	~~---~~	~~---~~	~~---~~	~~---~~	~~---~~
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.

a) 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, ring dryer startup, protein cyclone, protein storage silos, protein loadout and fugitive emissions from other various equipment (EPs 1, 2, 3, 8, 9, 11, 13, 15, 16, 17, 21, 22, 23, 25,27,32, FS1, FS2, FS7, FS9, FS11A/B, FS12, FS14, ~~FS16~~, 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:

$$\text{PM Emissions(ton)} = \text{EP1} + \text{EP2} + \text{EP3} + \text{EP8} + \text{EP9} + \text{EP11}_{\text{pilot}} + \text{EP13} + \text{EP15} + \text{EP16} + \text{EP17} + \text{EP21} + \text{EP22} + \text{EP23} + \text{EP25} + \text{EP27} + \text{EP32} + \text{EPFS1} + \text{EPFS2} + \text{EPFS7} + \text{EPFS9} + \frac{\text{EPFS11A}}{\text{B}} + \text{EPFS12} + \text{EPFS14} + \text{EPFS16} + \text{EPFS17}$$

Where:

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

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

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

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

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

$$\text{EP11}_{\text{pilot}}\text{(ton)} = \frac{\text{Hours of Operation(hr)} * \text{Pilot EF}\left(\frac{\text{lb}}{\text{MMBtu}}\right) * \text{Pilot Rating}\left(\frac{\text{MMBtu}}{\text{hr}}\right)}{2{,}000\left(\frac{\text{lb}}{\text{ton}}\right)}$$

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

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

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

$$EP17(ton) = \frac{\text{Natural Gas Consumed in RTO, RTO Dryers and ring dryer}(MMBtu) * \text{RTO EF}\left(\frac{lb}{MMBtu}\right)}{2{,}000\left(\frac{lb}{ton}\right)}$$

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

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

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

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

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

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

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

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

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

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

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

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

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

~~$EPFS16(ton) = \frac{\text{Grain in Storage(ton)} * \text{Storage EF}\left(\frac{lb}{ton}\right) * (1 - \text{Control Efficiency EF})}{2{,}000\left(\frac{lb}{ton}\right)}$~~

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

b) 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, ~~bio-methanator flare~~, emergency generator, regenerative thermal oxidizer (RTO), thermal oxidizer (TO) and grain dryer (Eps 3, 8, 11, ~~12~~, 13, 17, 21 and FS14, respectively). Emissions shall be calculated monthly in a method as shown below:

$$NO_x \text{ Emissions(ton)} = EP3 + EP8 + EP11_{product} + EP11_{pilot} + \sout{EP12} + EP13 + EP17 + EP21 + EPFS14$$

Where:

$$EP3(ton) = \frac{\text{Natural Gas Combusted in ring dryer during startup(MMBtu)} * EF\left(\frac{lb}{MMBtu}\right)}{2{,}000\left(\frac{lb}{ton}\right)}$$

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

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

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

~~$$EP12(ton) = \frac{\text{Hours of Operation(hr)} * \text{Flare EF}\left(\frac{lb}{MMBtu}\right) * \text{Heat Input}\left(\frac{MMBtu}{hr}\right)}{2{,}000\left(\frac{lb}{ton}\right)}$$~~

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

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

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

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

A These emission points are subject to additional NO_x limits; see Condition 5.B.13)c.

c) Nested NO_x Emissions: Combined NO_x emissions from the boiler and TO (EPs 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 5.B.13)b. For EP 21, only the natural gas consumed by the TO (no dryers) shall contribute to the nested limit.

d) VOC Emissions: Combined VOC emissions from the following emission points are restricted to 249 tons per year: the wet scrubber, boiler, ethanol loadout and loadout flare, ~~bio-methanator flare~~, emergency generator, baghouses, RTO, TO, DDGS cooler, ring dryer startup, MSC centrate fan, protein cyclone and fugitive emissions from storage tanks and other various equipment (Eps 3, 4, 8, 11, ~~12~~, 13, 15, 17, 21, 22, 24, 25, TK1 through TK5, FS8, FS10, FS14 and FS15). Emissions shall be calculated monthly in a method as shown below:

$$\begin{aligned}\text{VOC Emissions(ton)} = {} & \text{EP3} + \text{EP4} + \text{EP4}_{\text{EE}} + \text{EP8} + \text{EP11}_{\text{product}} + \\ & \text{EP11}_{\text{pilot}} + \text{EP11}_{\text{fug}} + \text{EP12} + \text{EP13} + \text{EP15} + \\ & \text{EP17} + \text{EP21} + \text{EP22} + \text{EP24} + \text{EP25} + \\ & \text{EPTK1 through EPTK5} + \text{EPFS8} + \text{EPFS10} + \\ & \text{EPFS14} + \text{EPFS15}\end{aligned}$$

Where:

$$\text{EP3(ton)} = \frac{\text{Natural Gas Combusted in ring dryer during startup(MMBtu)} * \text{EF}\left(\frac{\text{lb}}{\text{MMBtu}}\right)}{2{,}000\left(\frac{\text{lb}}{\text{ton}}\right)}$$

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

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

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

$$\text{EP11}_{\text{product}}\text{(ton)} = \frac{\text{Hours of Operation(hr)} * \text{Flare EF}\left(\frac{\text{lb}}{\text{MMBtu}}\right) * \text{Flare Rating}\left(\frac{\text{MMBtu}}{\text{hr}}\right)}{2{,}000\left(\frac{\text{lb}}{\text{ton}}\right)}$$

$$\text{EP11}_{\text{pilot}}\text{(ton)} = \frac{\text{Hours of Operation(hr)} * \text{Pilot EF}\left(\frac{\text{lb}}{\text{MMBtu}}\right) * \text{Pilot Rating}\left(\frac{\text{MMBtu}}{\text{hr}}\right)}{2{,}000\left(\frac{\text{lb}}{\text{ton}}\right)}$$

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

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

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

~~$EP12(ton) = \frac{Hours\ of\ Operation(hr) * Flare\ EF\left(\frac{lb}{MMBtu}\right) * Heat\ Input\left(\frac{MMBtu}{hr}\right)}{2{,}000\left(\frac{lb}{ton}\right)}$~~

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

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

$$EP17(ton) = \frac{Natural\ Gas\ Consumed\ in\ RTO, RTO\ Dryers\ and\ ring\ dryer(MMBtu) * RTO\ EF\left(\frac{lb}{MMBtu}\right)}{2{,}000\left(\frac{lb}{ton}\right)}$$

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

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

$$EP24(ton) = \frac{Hours\ of\ Operation(hr) * EF\left(\frac{lb}{hr}\right)}{2{,}000\left(\frac{lb}{ton}\right)}$$

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

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

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

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

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

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

e) CO Emissions: Combined CO emissions from the following emission points are restricted to 249 tons per year: the boiler, ethanol loadout flare, ~~bio-methanator flare~~, emergency generator, regenerative thermal oxidizer (RTO), thermal oxidizer (TO), ring dryer startup and grain dryer (Eps 3, 8, 11, ~~12,~~ 13, 17, 21 and FS14, respectively). Emissions shall be calculated monthly in a method as shown below:

$$\text{CO Emissions(ton)} = \text{EP3} + \text{EP8} + \text{EP11}_{\text{product}} + \text{EP11}_{\text{pilot}} + \text{~~EP12~~} + \text{EP13} + \text{EP17} + \text{EP21} + \text{EPFS14}$$

Where:

$$\text{EP3(ton)} = \frac{\text{Natural Gas Combusted in ring dryer during startup(MMBtu)} * \text{EF}\left(\frac{\text{lb}}{\text{MMBtu}}\right)}{2{,}000\left(\frac{\text{lb}}{\text{ton}}\right)}$$

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

$$\text{EP11}_{\text{product}}\text{(ton)} = \frac{\text{Hours of Operation(hr)} * \text{Flare EF}\left(\frac{\text{lb}}{\text{MMBtu}}\right) * \text{Flare Rating}\left(\frac{\text{MMBtu}}{\text{hr}}\right)}{2{,}000\left(\frac{\text{lb}}{\text{ton}}\right)}$$

$$\text{EP11}_{\text{pilot}}\text{(ton)} = \frac{\text{Hours of Operation(hr)} * \text{Pilot EF}\left(\frac{\text{lb}}{\text{MMBtu}}\right) * \text{Pilot Rating}\left(\frac{\text{MMBtu}}{\text{hr}}\right)}{2{,}000\left(\frac{\text{lb}}{\text{ton}}\right)}$$

~~$$EP12(ton) = \frac{\text{Hours of Operation(hr)} * \text{Flare EF}\left(\frac{lb}{MMBtu}\right) * \text{Heat Input}\left(\frac{MMBtu}{hr}\right)}{2{,}000\left(\frac{lb}{ton}\right)}$$~~

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

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

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

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

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

$$\text{HAP Emissions(ton)} = EP3 + EP4 + EP4_{EE} + EP8 + EP11_{fug} + EP13 + EP15 + EP17 + EP21 + EP22 + EP24 + EP25 + EPTK1 \text{ through } EPTK5 + EPFS5 + EPFS8 + EPFS14$$

Where:

$$EP3(ton) = \frac{\text{Natural Gas Combusted in ring dryer during startup(MMBtu)} * \text{EF}\left(\frac{lb}{MMBtu}\right)}{2{,}000\left(\frac{lb}{ton}\right)}$$

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

$$EP4_{EE}(ton) = \frac{\text{Scrubber Downtime(hr)} * \text{Combined HAP EF}^{A}\left(\frac{lb}{hr}\right)}{2{,}000\left(\frac{lb}{ton}\right)}$$

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

$$EP11_{fugTD}(ton) = \frac{EtOH_{Truck}(gal) * \text{VOC Truck EF}\left(\frac{lb}{Mgal\ EtOH}\right) * \text{Mass Fraction VOC}^{\mathbf{C}}}{1{,}000\left(\frac{gal}{Mgal}\right) * 2{,}000\left(\frac{lb}{ton}\right)} + \frac{\text{Denaturant(gal)} * \text{VOC Truck EF}\left(\frac{lb}{Mgal\ EtOH}\right) * \text{Mass Fraction VOC}^{\mathbf{D}}}{1{,}000\left(\frac{gal}{Mgal}\right) * 2{,}000\left(\frac{lb}{ton}\right)}$$

$$EP11_{fugRD}(ton) = \frac{EtOH_{Rail}(gal) * \text{ Rail EF}\left(\frac{lb}{Mgal\ EtOH}\right) * \text{Mass Fraction VOC}^{\mathbf{C}}}{1{,}000\left(\frac{gal}{Mgal}\right) * 2{,}000\left(\frac{lb}{ton}\right)} + \frac{\text{Denaturant(gal)} * \text{ Rail EF}\left(\frac{lb}{Mgal\ EtOH}\right) * \text{Mass Fraction VOC}^{\mathbf{D}}}{1{,}000\left(\frac{gal}{Mgal}\right) * 2{,}000\left(\frac{lb}{ton}\right)}$$

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

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

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

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

$$+\frac{\text{Natural Gss combusted Ring Dryer(MMBtu)} * \text{EF}\left(\frac{lb}{MMBtu}\right)}{2{,}000\left(\frac{lb}{ton}\right)}$$

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

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

$$\text{EP24(ton)} = \frac{\text{Hours of Operation(hr)} * \text{EF}\left(\frac{\text{lb}}{\text{hr}}\right)}{2{,}000\left(\frac{\text{lb}}{\text{ton}}\right)}$$

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

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

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

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

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

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) Acetaldehyde Emissions: Combined acetaldehyde emissions from the following emission points are restricted to 9.9 tons per year: the fermentation scrubber, ethanol loadout, emergency generator, RTO, TO, DDGS coolers, storage tanks, fugitive emissions, ring dryer startup, MSC centrate fan, protein cyclone and wetcake storage (EPs 3 ,4, 11, 13, 15, 17, 21, 22, 24,25, TK1 through TK5, EPFS5 and FS8). Emissions shall be calculated monthly in a method as shown below:

$$\text{Acetaldehyde Emissions(ton)} = \text{EP3} + \text{EP4} + \text{EP11} + \text{EP13} + \text{EP15} + \text{EP17} + \text{EP21} + \text{EP22} + \text{EP24} + \text{EP25} + \text{EPTK1 through EPTK5} + \text{EPFS5} + \text{EPFS8}$$

Where:

$$\text{EP3(ton)} = \frac{\text{Natural Gas Combusted in ring dryer during startup(MMBtu)} * \text{EF}\left(\frac{\text{lb}}{\text{MMBtu}}\right)}{2{,}000\left(\frac{\text{lb}}{\text{ton}}\right)}$$

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

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

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

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

$$\text{EP17(ton)} = \frac{\text{Hours of Operation(hr)} * \text{RTO EF}\left(\frac{\text{lb}}{\text{hr}}\right)}{2{,}000\left(\frac{\text{lb}}{\text{ton}}\right)}$$

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

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

$$\text{EP24(ton)} = \frac{\text{Hours of Operation(hr)} * \text{EF} \left(\frac{\text{lb}}{\text{hr}}\right)}{2{,}000 \left(\frac{\text{lb}}{\text{ton}}\right)}$$

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

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

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

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

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

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

6. **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]

Monitoring Records

Process Unit	EP	Pollutant/Parameter	Compliance Monitoring Record
Grain handling	1	PM/Opacity	Visible Emissions Observations (VEO) Data
Hammermilling	2	Opacity	VEO Data
Prefermentation & fermentation	4	VOC Opacity	CAM Data VEO Data
Boiler	8	PM [A] SO_2 NO_x VOC CO Opacity	Type of Fuel Used Data Type of Fuel Used Data CEMS Data Emissions Test Data Emissions Test Data Type of Fuel Used Data
DDGS handling & loadout	9	Opacity	VEO Data
Ethanol loadout	11	VOC Opacity	CAM Temperature Data VEO Data
~~Bio-methanator~~	~~8 & 12~~	~~SO_2~~ ~~Opacity~~	~~Temperature Data~~ ~~VEO Data~~
Emergency generator Engine	13	SO_2/Opacity Operating Hours	Type of Fuel Used Data Hours of Operation Data
DDGS cooling	15 & 22	VOC (Plant-wide Monitoring) Opacity	Emissions Test Data VEO Data
Long term storage	16	Opacity	VEO Data

Process Unit	EP	Pollutant/Parameter	Compliance Monitoring Record
DGS dryers, Protein Dryer	17 & 21	PM [A] (Plant-wide Monitoring) SO_2 NO_x (EP17) (Plant-wide Monitoring) NO_x (EP21) VOC (Plant-wide Monitoring) CO (Plant-wide Monitoring) Acetaldehyde Opacity	CAM, Recordkeeping, Emissions Test & VEO Data Type of Fuel Used Data Emissions Test Data CEMS Data CAM, Recordkeeping & Emissions Test Data CAM & Emissions Test Data Emissions Test Data Type of Fuel Used Data
Grain Handling	23	Opacity	VEO Data
MSC centrate fan	24	VOC	Emissions Test Data
Protein cyclone	25	PM VOC	Emissions Test Data
Protein rail/truck loadout	32	PM	Emissions Test Data
Storage tanks	TK1 through TK5	VOC	Recordkeeping
Grain handling	FS1	PM/PM_{10}/Opacity	Fugitive Emissions Management Plan
DDGS handling	FS2	PM/PM_{10}/Opacity	Fugitive Emissions Management Plan
Process equipment	FS5	VOC	See Cond. 3.E.4 Monitoring/Recordkeeping
Roads	FS6	PM/PM_{10}/Opacity	Fugitive Emissions Management Plan
Cooling towers	FS7	PM/PM_{10}/Opacity	Fugitive Emissions Management Plan
Wet cake storage	FS8	PM/PM_{10}/Opacity	Fugitive Emissions Management Plan
Wet storage bin	FS9	PM/PM_{10}/Opacity	Fugitive Emissions Management Plan
Miscellaneous process sources	FS10	VOC (Plant-wide Monitoring)	Fugitive Emissions Management Plan
Grain storage silos	FS11A & FS11B	PM/PM_{10}/Opacity	Fugitive Emissions Management Plan
DDGS storage silos	FS12	PM/PM_{10}/Opacity	Fugitive Emissions Management Plan
Grain drying	FS14	PM/PM_{10}/Opacity	Fugitive Emissions Management Plan
~~Grain storage bin~~	~~FS16~~	~~PM/PM_{10}/Opacity~~	~~Fugitive Emissions Management Plan~~

Process Unit	EP	Pollutant/Parameter	Compliance Monitoring Record
Plant-wide	--	PM [A]/ Opacity	Emissions Data/Recordkeeping & Fugitive Emissions Management Plan
		NO_x	Emissions Data/Recordkeeping
		VOC	Emissions Data/Recordkeeping
		CO	Emissions Data/Recordkeeping
		HAPs	Emissions Data/Recordkeeping
		Acetaldehyde	Emissions Data/Recordkeeping
Boiler & TO for DGS dryers (2)	8 & 21	NO_x (Nested)	Emissions Data/Recordkeeping

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

B. Recordkeeping for emission units subject to CAM (NDAC 33.1-15-14-06.10) shall be in accordance with 40 CFR 64, §64.9 - Reporting and Recordkeeping Requirements, Paragraph (b) General Recordkeeping Requirements.

Applicable Requirement: NDAC 33.1-15-14-06.10

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]

7. **Reporting**:

A. Reporting for emission units subject to CAM (NDAC 33.1-15-14-06.10) shall be in accordance with 40 CFR 64, §64.9 - Reporting and Recordkeeping Requirements, Paragraph (a) General Reporting Requirements.

Applicable Requirement: 33.1-15-14-06.10

B. Quarterly excess emission reports for the boiler and thermal oxidizer (EP8 and EP21) 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 6 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 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

8. **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 shutdown 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. **Noncompliance Due to an Emergency**: The permittee may seek to establish that noncompliance with a technology-based emission limitation under this permit was due to an emergency. To do

so, the permittee shall demonstrate the affirmative defense of emergency through properly signed, contemporaneous operating logs, or other relevant evidence that:

1) An emergency occurred, and that the permittee can identify the cause(s) of the emergency;

2) The permitted facility was at the time being properly operated;

3) During the period of the emergency the permittee took all reasonable steps to minimize levels of emissions that exceeded the emissions standards, or other requirements in this permit; and

4) The permittee submitted notice of the emergency to the Department within one working day of the time when emission limitations were exceeded longer than 24-hours due to the emergency. This notice must contain a description of the emergency, any steps taken to mitigate emissions, and corrective actions taken. Those emergencies not reported within one working day, as well as those that were, will be included in the semi-annual report.

In any enforcement proceeding, the permittee seeking to establish the occurrence of an emergency has the burden of proof.

Technology-based emission limits are those established on the basis of emission reductions achievable with various control measures or process changes (e.g., a New Source Performance Standard) rather than those established to attain a health-based air quality standard.

An "emergency" means any situation arising from sudden and reasonably unforeseeable events beyond the control of this source, including acts of God, which requires immediate corrective action to restore normal operation, and that causes this source to exceed a technology-based emission limitation under this permit, due to unavoidable increases in emissions attributable to the emergency. An emergency shall not include noncompliance to the extent caused by improperly designed equipment, lack of preventative maintenance, careless or improper operation, or operator error.

Applicable Requirement: NDAC 33.1-15-14-06.5.g

I. **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

J. **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

K. **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)

L. **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

M. **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

N. **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

O. **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

P. **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)

Q. **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

9. **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
918 E Divide Avenue, 2nd Floor
Bismarck, ND 58501-1947

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 Modification**: 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

10. **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 (Previously T5-X10002)

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: EP17
TITLE V PERMIT NUMBER: T5X10002
Updated: February 28, 2025

I. Background

Emissions Unit (EP17):

Description:	Natural Gas Fired Dryers 1-4 (45 MMBtu/hr ea) Protein Ring Dryer (70 MMBtu/hr) RTOs (2) (18 MMBtu/hr ea) (Control Device)
EPN:	EP17
Control:	Control Devices are two (2) 18 MMBtu/hr recuperative thermal oxidizers
Limits:	VOC limit – 10.00 lb/hr (43.80 tpy) CO limit – 22.00 lb/hr (96.36 tpy) NOx limit – 16.42 lb/hr (71.90 tpy) SO2 limit – 12.11 lb/hr (53.04 tpy) PM/PM10 limit – 12.17 lb/hr (53.30 tpy) 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 dryers/protein ring dryer/thermal oxidizer system (EPN: EP17) at the Tharaldson Ethanol Plant I, LLC facility are 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 1679°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 pending North Dakota Department of Health 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 1679 ˚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 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.

TITLE V PERMIT TO OPERATE - RENEWAL APPLICATION

NORTH DAKOTA DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF AIR QUALITY
SFN 52824 (9-2021)

In accordance with 33.1-15-14-04.c. of the North Dakota Air Pollution Control Rules, a Title V permit renewal application must be submitted to the Department at least six months, but no more than eighteen months, prior to the expiration date. Permit renewal applications are incomplete unless all information requested herein is supplied. The current Title V permit will be the baseline reference for this renewal. The requirements (40 CFR 70.5(c) & NDAC 33.1-15-14-06.4.c) to include a citation and description of all applicable requirements and a description of or reference to any applicable test method for determining compliance with each applicable requirement may be met by accomplishing either or both of the following: 1) enclose an annotated (red-lined) copy of the current permit indicating all changes needed to reflect the current facility configuration, applicable requirements and test methods; 2) enclose a narrative that conveys all changes needed to the current permit to reflect the current facility configuration, all applicable requirements and test methods.

FOR ACID RAIN UNITS ONLY – Submit with the Title V permit renewal application all Acid Rain renewal applications (the Acid Rain Permit Application, the Phase II NO_x Compliance Plan, and if applicable, the Phase II NO_x Averaging Plan).

PART 1. GENERAL APPLICATION INFORMATION

Owner's Name: Tharaldson Ethanol Plant I LLC

Facility Name: Tharaldson Ethanol Plant I LLC

Name of Person Completing Application: Corey Aanenson Phone: (701) 347-3319

Title: EHS Manager Email: caanenson@tharaldsonethanol.com

Current Operating Permit Number: AOP28451 v3.0

Expiration Date of Current Operating Permit: 2 / 14 / 2026

PART 2. COMPLIANCE CERTIFICATION

A. Schedule for Submission of Compliance Certifications During the Term of the Permit

Frequency of Submittal	Date Beginning (month/day/year)
Annual	01/17/2022

B. Statement of Compliance with Compliance Assurance Monitoring (CAM) and Compliance Certification Requirements

The facility identified in this application is in compliance with applicable monitoring and compliance certification requirements.

- ☑ Yes
- ☐ No - Describe below which requirements are not being met:
- ☐ CAM not applicable

C. Certification of Compliance with all Applicable Requirements

This certification must be signed by a "responsible official" as defined in NDAC 33.1-15-14-06.1. Forms without a signed certification will be returned as incomplete.

Except for requirements identified in Compliance Schedule and Plan (Section G) of Title V Permit to Operate application forms for which compliance is not achieved, I hereby certify that, based on information and belief formed after reasonable inquiry, the air contaminant source identified in this form is in compliance with all applicable requirements.

Signed	Date 02/28/2025
Typed Name Corey Aanenson	

PART 3. STATUS OF SOURCE

Has there been any change to the source since the most recent initial or renewal permit application, minor permit modification, significant modification or administrative permit amendment?

☐ No ☑ Yes

If yes, complete and submit appropriate sections of Title V Permit to Operate application forms.

PART 4. CERTIFICATION OF TRUTH, ACCURACY AND COMPLETENESS

Note: This certification must be signed by a "responsible official" as defined in NDAC 33.1-15-14-06.1. Applications without a signed certification will be returned as incomplete.

I certify under penalty of law that, based on information and belief formed after reasonable inquiry, the statements and information contained in this application are true, accurate and complete.

Name (typed) Corey Aanenson

(Signed) _____ Date 2 / 28 / 25

Telephone Number (701) 347-3319

Send original renewal application to:

North Dakota Department of Environmental Quality
Division of Air Quality
4201 Normandy Street, 2nd Floor
Bismarck, ND 58503-1324
(701)328-5188

Send copy of renewal application to:

Air Program (8P-AR)
Office of Partnerships & Regulatory Assistance
US EPA Region 8
1595 Wynkoop Street
Denver, CO 80202-1129

COMPLIANCE SCHEDULE AND PLAN FOR TITLE V PERMIT TO OPERATE

NORTH DAKOTA DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF AIR QUALITY
SFN 61008 (3-2019)

SECTION A1 – COMPLIANCE SCHEDULE AND PLAN

Will your facility be in compliance with all applicable requirements effective at the time of permit issuance? ■Yes ☐No

Protein Cyclone EP25

If No, identify applicable requirement for which compliance is not achieved:

If No, provide a narrative description of how compliance will be achieved with this applicable requirement:

If No, provide a detailed schedule of compliance:

Regulation/Condition not in compliance with	Action	Date Expected

Frequency for submittal of progress reports (6-month minimum):	Starting Date of Progress Reports

SECTION A2 – COMPLIANCE SCHEDULE AND PLAN

Will your facility be in compliance with all applicable requirements effective after the time of permit issuance? ■Yes ☐No

If No, identify applicable requirement for which compliance will not be compiled with:

If No, provide a detailed schedule leading to compliance:

Regulation/Condition not in compliance with	Action	Date Expected

SECTION A3 – COMPLIANCE CERTIFICATION (METHOD OF COMPLIANCE)

Compliance Method Type	Compliance Method is Based On:
☐Monitoring ■Recordkeeping	☐Compliance Assurance Monitoring (CAM) ☐Applicable Requirement ☐Gap-Filling Requirement

SECTION A4 –METHOD OF COMPLIANCE REFERENCE TEST METHOD

Reference Test Method:

EPA Reference Methods

Reference Test Method Citation:

40 CFR 60, Appendix A

SECTION A5 –METHOD OF COMPLIANCE MONITORING

Monitoring Device Type: ■Stack Test ☐Parameter Monitoring ☐CEM ☐Ambient Monitoring	Monitor Location Description:
Regulated Air Pollutant(s) Monitored:	Monitoring frequency and duration of sampling: (Example: every 15 min, 1 min instantaneous readings are taken to produce an hourly average.)
PM	One initial stack test 180 days after startup of Permit to Construct ACP-18156 v1.0
VOC	One initial stack test 180 days after startup of Permit to Construct ACP-18156 v1.0

SECTION B1 –METHOD OF COMPLIANCE RECORDKEEPING

Data (Parameter) Being Recorded	Frequency of Reporting (6 mo, quarterly, etc.)
Hours of operation for calculating monthly emissions	Annual Emissions Inventory Report/Yearly

SECTION B2 –METHOD OF COMPLIANCE REPORTING

Data (Parameter) Being Recorded	Beginning Date (month/day/year)	Frequency of Reporting (6 mo, quarterly, etc.)
PM Emissions	Upon Startup	Calculated Monthly
VOC Emissions	Upon Startup	Calculated Monthly
HAP Emissions	Upon Startup	Calculated Monthly
Acetaldehyde Emissions	Upon Startup	Calculated Monthly

SECTION B3 –COMPLIANCE CERTIFICATION

Certification Parameter	Beginning Date (month/day/year)	Frequency of Submittal (6 mo, quarterly, etc.)
N/A		

The air contaminant source identified in this application is in compliance with applicable monitoring and compliance certification requirements? ■Yes ☐Not Applicable ☐No--Describe Below:

COMPLIANCE SCHEDULE AND PLAN FOR TITLE V PERMIT TO OPERATE

NORTH DAKOTA DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF AIR QUALITY
SFN 61008 (3-2019)

SECTION A1 – COMPLIANCE SCHEDULE AND PLAN

Will your facility be in compliance with all applicable requirements effective at the time of permit issuance? ■Yes ☐No

MSC Centrate Fan EP24

If No, identify applicable requirement for which compliance is not achieved:

If No, provide a narrative description of how compliance will be achieved with this applicable requirement:

If No, provide a detailed schedule of compliance:

Regulation/Condition not in compliance with	Action	Date Expected

Frequency for submittal of progress reports (6-month minimum):	Starting Date of Progress Reports

SECTION A2 – COMPLIANCE SCHEDULE AND PLAN

Will your facility be in compliance with all applicable requirements effective after the time of permit issuance? ■Yes ☐No

If No, identify applicable requirement for which compliance will not be compiled with:

If No, provide a detailed schedule leading to compliance:

Regulation/Condition not in compliance with	Action	Date Expected

SECTION A3 – COMPLIANCE CERTIFICATION (METHOD OF COMPLIANCE)

Compliance Method Type	Compliance Method is Based On:
☐Monitoring ■Recordkeeping	☐Compliance Assurance Monitoring (CAM) ☐Applicable Requirement ☐Gap-Filling Requirement

SECTION A4 –METHOD OF COMPLIANCE REFERENCE TEST METHOD

Reference Test Method:

EPA Reference Methods

Reference Test Method Citation:

40 CFR 60, Appendix A

SECTION A5 –METHOD OF COMPLIANCE MONITORING

Monitoring Device Type: ■Stack Test ☐Parameter Monitoring ☐CEM ☐Ambient Monitoring	Monitor Location Description:
Regulated Air Pollutant(s) Monitored:	Monitoring frequency and duration of sampling: (Example: every 15 min, 1 min instantaneous readings are taken to produce an hourly average.)
VOC	One initial stack test 180 days after startup of Permit to Construct ACP-18156 v1.0

SECTION B1 –METHOD OF COMPLIANCE RECORDKEEPING

Data (Parameter) Being Recorded	Frequency of Reporting (6 mo, quarterly, etc.)
Hours of Operation for calculating monthly emissions	Annual Emissions Inventory Report/Yearly

SECTION B2 –METHOD OF COMPLIANCE REPORTING

Data (Parameter) Being Recorded	Beginning Date (month/day/year)	Frequency of Reporting (6 mo, quarterly, etc.)
VOC Emissions	Upon Startup	Calculated Monthly
HAP Emissions	Upon Startup	Calculated Monthly
Acetaldehyde Emissions	Upon Startup	Calculated Monthly

SECTION B3 –COMPLIANCE CERTIFICATION

Certification Parameter	Beginning Date (month/day/year)	Frequency of Submittal (6 mo, quarterly, etc.)
N/A		

The air contaminant source identified in this application is in compliance with applicable monitoring and compliance certification requirements? ■Yes ☐Not Applicable ☐No--Describe Below:

COMPLIANCE SCHEDULE AND PLAN FOR TITLE V PERMIT TO OPERATE

NORTH DAKOTA DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF AIR QUALITY
SFN 61008 (3-2019)

SECTION A1 – COMPLIANCE SCHEDULE AND PLAN

Will your facility be in compliance with all applicable requirements effective at the time of permit issuance? ■Yes ☐No

Ring Dryer EP17

If No, identify applicable requirement for which compliance is not achieved:

If No, provide a narrative description of how compliance will be achieved with this applicable requirement:

If No, provide a detailed schedule of compliance:

Regulation/Condition not in compliance with	Action	Date Expected

Frequency for submittal of progress reports (6-month minimum):	Starting Date of Progress Reports

SECTION A2 – COMPLIANCE SCHEDULE AND PLAN

Will your facility be in compliance with all applicable requirements effective after the time of permit issuance? ■Yes ☐No

If No, identify applicable requirement for which compliance will not be compiled with:

If No, provide a detailed schedule leading to compliance:

Regulation/Condition not in compliance with	Action	Date Expected

SECTION A3 – COMPLIANCE CERTIFICATION (METHOD OF COMPLIANCE)

Compliance Method Type	Compliance Method is Based On:
☐Monitoring ■Recordkeeping	☐Compliance Assurance Monitoring (CAM) ☐Applicable Requirement ☐Gap-Filling Requirement

SECTION A4 –METHOD OF COMPLIANCE REFERENCE TEST METHOD

Reference Test Method:

EPA Reference Methods

Reference Test Method Citation:

40 CFR 60, Appendix A

SECTION A5 –METHOD OF COMPLIANCE MONITORING

Monitoring Device Type: ■Stack Test ☐Parameter Monitoring ☐CEM ☐Ambient Monitoring	Monitor Location Description:
Regulated Air Pollutant(s) Monitored:	Monitoring frequency and duration of sampling: (Example: every 15 min, 1 min instantaneous readings are taken to produce an hourly average.)
PM	One initial stack test 180 days after startup of Permit to Construct ACP-18156 v1.0
NOx	One initial stack test 180 days after startup of Permit to Construct ACP-18156 v1.0
VOC	One initial stack test 180 days after startup of Permit to Construct ACP-18156 v1.0
CO	One initial stack test 180 days after startup of Permit to Construct ACP-18156 v1.0
Acetaldehyde	One initial stack test 180 days after startup of Permit to Construct ACP-18156 v1.0

SECTION B1 –METHOD OF COMPLIANCE RECORDKEEPING

Data (Parameter) Being Recorded	Frequency of Reporting (6 mo, quarterly, etc.)
Natural gas combusted in ring dryer for calculating monthly emissions	Annual Emissions Inventory Report/Yearly

SECTION B2 –METHOD OF COMPLIANCE REPORTING

Data (Parameter) Being Recorded	Beginning Date (month/day/year)	Frequency of Reporting (6 mo, quarterly, etc.)
PM Emissions	Upon Startup	Calculated Monthly
NOx Emissions	Upon Startup	Calculated Monthly
VOC Emissions	Upon Startup	Calculated Monthly
CO Emissions	Upon Startup	Calculated Monthly
HAP & Acetaldehyde Emissions	Upon Startup	Calculated Monthly

SECTION B3 –COMPLIANCE CERTIFICATION

Certification Parameter	Beginning Date (month/day/year)	Frequency of Submittal (6 mo, quarterly, etc.)
N/A		

The air contaminant source identified in this application is in compliance with applicable monitoring and compliance certification requirements? ■Yes ☐Not Applicable ☐No--Describe Below:

COMPLIANCE SCHEDULE AND PLAN FOR TITLE V PERMIT TO OPERATE

NORTH DAKOTA DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF AIR QUALITY
SFN 61008 (3-2019)

SECTION A1 – COMPLIANCE SCHEDULE AND PLAN

Will your facility be in compliance with all applicable requirements effective at the time of permit issuance? ■Yes ☐No

Rail Loadout Fugitive Emissions FS17

If No, identify applicable requirement for which compliance is not achieved:

If No, provide a narrative description of how compliance will be achieved with this applicable requirement:

If No, provide a detailed schedule of compliance:

Regulation/Condition not in compliance with	Action	Date Expected

Frequency for submittal of progress reports (6-month minimum):	Starting Date of Progress Reports

SECTION A2 – COMPLIANCE SCHEDULE AND PLAN

Will your facility be in compliance with all applicable requirements effective after the time of permit issuance? ■Yes ☐No

If No, identify applicable requirement for which compliance will not be compiled with:

If No, provide a detailed schedule leading to compliance:

Regulation/Condition not in compliance with	Action	Date Expected

SECTION A3 – COMPLIANCE CERTIFICATION (METHOD OF COMPLIANCE)

Compliance Method Type	Compliance Method is Based On:
☐Monitoring ■Recordkeeping	☐Compliance Assurance Monitoring (CAM) ☐Applicable Requirement ☐Gap-Filling Requirement

SECTION A4 –METHOD OF COMPLIANCE REFERENCE TEST METHOD

Reference Test Method:

N/A

Reference Test Method Citation:

SECTION A5 –METHOD OF COMPLIANCE MONITORING

Monitoring Device Type: ☐Stack Test ☐Parameter Monitoring ☐CEM ☐Ambient Monitoring	Monitor Location Description:
Regulated Air Pollutant(s) Monitored:	Monitoring frequency and duration of sampling: (Example: every 15 min, 1 min instantaneous readings are taken to produce an hourly average.)
N/A	

SECTION B1 –METHOD OF COMPLIANCE RECORDKEEPING

Data (Parameter) Being Recorded	Frequency of Reporting (6 mo, quarterly, etc.)
Protein loaded for calculating monthly emissions	Annual Emissions Inventory Report/Yearly

SECTION B2 –METHOD OF COMPLIANCE REPORTING

Data (Parameter) Being Recorded	Beginning Date (month/day/year)	Frequency of Reporting (6 mo, quarterly, etc.)
PM Emissions	Upon Startup	Calculated Monthly

SECTION B3 –COMPLIANCE CERTIFICATION

Certification Parameter	Beginning Date (month/day/year)	Frequency of Submittal (6 mo, quarterly, etc.)
N/A		

The air contaminant source identified in this application is in compliance with applicable monitoring and compliance certification requirements? ■Yes ☐Not Applicable ☐No--Describe Below:

COMPLIANCE SCHEDULE AND PLAN FOR TITLE V PERMIT TO OPERATE

NORTH DAKOTA DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF AIR QUALITY
SFN 61008 (3-2019)

SECTION A1 – COMPLIANCE SCHEDULE AND PLAN

Will your facility be in compliance with all applicable requirements effective at the time of permit issuance? ■Yes ☐No

Protein Loadout Dust Collector EP32

If No, identify applicable requirement for which compliance is not achieved:

If No, provide a narrative description of how compliance will be achieved with this applicable requirement:

If No, provide a detailed schedule of compliance:

Regulation/Condition not in compliance with	Action	Date Expected

Frequency for submittal of progress reports (6-month minimum):	Starting Date of Progress Reports

SECTION A2 – COMPLIANCE SCHEDULE AND PLAN

Will your facility be in compliance with all applicable requirements effective after the time of permit issuance? ■Yes ☐No

If No, identify applicable requirement for which compliance will not be compiled with:

If No, provide a detailed schedule leading to compliance:

Regulation/Condition not in compliance with	Action	Date Expected

SECTION A3 – COMPLIANCE CERTIFICATION (METHOD OF COMPLIANCE)

Compliance Method Type	Compliance Method is Based On:
☐Monitoring ■Recordkeeping	☐Compliance Assurance Monitoring (CAM) ☐Applicable Requirement ☐Gap-Filling Requirement

SECTION A4 –METHOD OF COMPLIANCE REFERENCE TEST METHOD

Reference Test Method:

EPA Reference Methods

Reference Test Method Citation:

40 CFR 60, Appendix A

SECTION A5 –METHOD OF COMPLIANCE MONITORING

Monitoring Device Type: ■Stack Test ☐Parameter Monitoring ☐CEM ☐Ambient Monitoring	Monitor Location Description:
Regulated Air Pollutant(s) Monitored:	Monitoring frequency and duration of sampling: (Example: every 15 min, 1 min instantaneous readings are taken to produce an hourly average.)
PM	One initial stack test 180 days after startup of Permit to Construct ACP-18156 v1.0

SECTION B1 –METHOD OF COMPLIANCE RECORDKEEPING

Data (Parameter) Being Recorded	Frequency of Reporting (6 mo, quarterly, etc.)
Protein loaded for calculating monthly emissions	Annual Emissions Inventory Report/Yearly

SECTION B2 –METHOD OF COMPLIANCE REPORTING

Data (Parameter) Being Recorded	Beginning Date (month/day/year)	Frequency of Reporting (6 mo, quarterly, etc.)
PM Emissions	Upon Startup	Calculated Monthly

SECTION B3 –COMPLIANCE CERTIFICATION

Certification Parameter	Beginning Date (month/day/year)	Frequency of Submittal (6 mo, quarterly, etc.)
N/A		

The air contaminant source identified in this application is in compliance with applicable monitoring and compliance certification requirements? ■Yes ☐Not Applicable ☐No--Describe Below:

COMPLIANCE SCHEDULE AND PLAN FOR TITLE V PERMIT TO OPERATE

NORTH DAKOTA DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF AIR QUALITY
SFN 61008 (3-2019)

SECTION A1 – COMPLIANCE SCHEDULE AND PLAN

Will your facility be in compliance with all applicable requirements effective at the time of permit issuance? ■Yes ☐No

Protein Storage Silos (EU153b,154b,155b) EP27

If No, identify applicable requirement for which compliance is not achieved:

If No, provide a narrative description of how compliance will be achieved with this applicable requirement:

If No, provide a detailed schedule of compliance:

Regulation/Condition not in compliance with	Action	Date Expected

Frequency for submittal of progress reports (6-month minimum):	Starting Date of Progress Reports

SECTION A2 – COMPLIANCE SCHEDULE AND PLAN

Will your facility be in compliance with all applicable requirements effective after the time of permit issuance? ■Yes ☐No

If No, identify applicable requirement for which compliance will not be compiled with:

If No, provide a detailed schedule leading to compliance:

Regulation/Condition not in compliance with	Action	Date Expected

SECTION A3 – COMPLIANCE CERTIFICATION (METHOD OF COMPLIANCE)

Compliance Method Type	Compliance Method is Based On:
☐Monitoring ■Recordkeeping	☐Compliance Assurance Monitoring (CAM) ☐Applicable Requirement ☐Gap-Filling Requirement

SECTION A4 –METHOD OF COMPLIANCE REFERENCE TEST METHOD

Reference Test Method:
N/A

Reference Test Method Citation:

SECTION A5 –METHOD OF COMPLIANCE MONITORING

Monitoring Device Type: ☐Stack Test ☐Parameter Monitoring ☐CEM ☐Ambient Monitoring	Monitor Location Description:
Regulated Air Pollutant(s) Monitored:	Monitoring frequency and duration of sampling: (Example: every 15 min, 1 min instantaneous readings are taken to produce an hourly average.)
N/A	

SECTION B1 –METHOD OF COMPLIANCE RECORDKEEPING

Data (Parameter) Being Recorded	Frequency of Reporting (6 mo, quarterly, etc.)
Hours of operation for calculating monthly emissions	Annual Emissions Inventory Report/Yearly

SECTION B2 –METHOD OF COMPLIANCE REPORTING

Data (Parameter) Being Recorded	Beginning Date (month/day/year)	Frequency of Reporting (6 mo, quarterly, etc.)
PM Emissions	Upon Startup	Calculated Monthly

SECTION B3 –COMPLIANCE CERTIFICATION

Certification Parameter	Beginning Date (month/day/year)	Frequency of Submittal (6 mo, quarterly, etc.)
N/A		

The air contaminant source identified in this application is in compliance with applicable monitoring and compliance certification requirements? ■Yes ☐Not Applicable ☐No--Describe Below:

Tharaldson Ethanol Plant I, LLC
Hi-Protein Process Additions (GP Turnkey Tharaldson)

Table 1 - New Emission Unit PTE									
EPN	New Emission Units (tpy)	PM	PM10	PM2.5	NO_X	CO	SO_2	VOC	HAPs
EP1	Protein Ring Dryer to Existing RTO System								
EP3	Dryer Startup Stack	0.07	0.07	0.07	0.38	0.47	0.01	0.05	0.02
EP23	MSC Centrate Fan							3.62	0.37
EP25	Protein Cooling Baghouse	5.52	5.52	5.52				10.96	1.47
EP27	Protein Silos Aspiration Dust Collector	2.29	2.29	2.29					
EP32	Protein Loadout Dust Collector	3.52	3.52	3.52					
FS05	Protein Loadout & Fugitive Handling/Storage	0.24	0.10	0.02					
Total		**11.63**	**11.49**	**11.41**	**0.38**	**0.47**	**0.01**	**14.62**	**1.86**

Table 2 - Facility-Wide Changes in PTE									
EPN	Emission Units (tpy)	PM	PM10	PM2.5	NO_X	CO	SO_2	VOC	HAPs
Pre-project Emissions		**235.56**	**204.51**	**190.24**	**233.83**	**241.58**	**129.22**	**245.21**	**24.92**
EP1	Grain Unloading Baghouse	14.64	14.64	14.64					
EP2	Hammermill Baghouse	4.20	4.20	4.20					
EP4	Preferm/Fermentation Scrubber							70.08	5.26
EP7,18-20	Evaporation								
EP8	Boiler	14.72	14.72	14.72	52.56	30.66	1.27	6.57	2.84
EP9	DDGS Handling Baghouse	2.28	2.28	2.28					
EP11	Product loading and flare2	0.00	0.00	0.00	2.01	9.00	0.02	6.23	0.03
EP12	Biomethanator Flare				1.85	8.42	15.24	3.80	
EP13	Emergency Generator	0.05	0.05	0.05	8.40	0.66	0.16	0.08	0.02
EP15	DDGS Cooler 1	8.76	8.76	8.76				53.48	1.27
EP16	Long Term Storage	5.65	5.65	5.65					
EP17	RTOs/Dryers	53.30	53.30	53.30	71.92	96.36	53.04	43.80	9.01
EP21	TO/Dryers	60.35	60.35	60.35	67.45	87.59	59.42	24.68	4.54
EP22	DDGS Cooler 2	5.26	5.26	5.26				17.04	0.91
EP23	Grain Unloading Baghouse 2	4.13	4.13	4.13					
TK1-5	Liquid Storage Tanks							2.98	0.47
FS1	Grain Handling Fugitives	1.65	0.37	0.06					
FS2	DDGS Handling Fugitives	0.10	0.02	0.02					
FS5	Fugitive Components							10.12	0.14
FS6	Paved Roads (fugitive dust)	7.00	1.40	0.34					
FS7	Cooling Tower	1.84	1.84	1.84					
FS8	Wetcake Storage							0.23	0.23
FS9	Wet Bin	7.00	1.76	0.31					
FS10	Misc. Process Sources							4.51	
FS11A&B	Grain Storage Silos	11.80	5.90	5.90					
FS12	DDGS Storage Silos	3.83	1.91	1.91					
FS14	Grain Dryer	22.00	16.20	3.44	29.65	8.89	0.06	0.58	0.20
FS15	Tricanter Tanks and Loadout							1.02	
FS16	Grain Bin/Additional Storage	7.00	1.76	3.08					
Post-project emissions (Total)		**147.54**	**122.98**	**108.62**	**227.69**	**84.12**	**25.04**	**164.64**	**23.90**
EP1	Grain Unloading Baghouse 1	14.64	14.64	14.64					
EP2	Hammermill Baghouse	4.20	4.20	4.20					
EP4	Preferm/Fermentation Scrubber							30.27	3.56
EP7,18-20	Evaporation								
EP8	Boiler	14.72	14.72	14.72	52.56	30.66	1.27	6.57	2.84
EP9	DDGS Handling Baghouse	2.28	2.28	2.28					
EP11	Product loading and flare2	0.00	0.00	0.00	2.01	9.00	0.02	6.23	0.03
EP12	Biomethanator Flare				1.85	8.42	15.24	3.80	
EP13	Emergency Generator	0.05	0.05	0.05	8.40	0.66	0.16	0.08	0.02
EP15	DDGS Cooler 1	3.13	8.76	8.76				18.72	0.88
EP16	Long Term Storage	5.65	5.65	5.65					
EP17	RTOs/Dryers	17.82	17.82	17.82	77.22	23.96	7.72	44.48	6.57
EP21	TO/Dryers	3.71	3.71	3.71	55.63	2.06	0.57	3.37	2.62
EP22	DDGS Cooler 2	5.26	5.26	5.26				17.28	3.96
EP23	Grain Unloading Baghouse 2	4.13	4.13	4.13					
TK1-5	Liquid Storage Tanks							2.98	0.47
FS1	Grain Handling Fugitives	1.65	0.37	0.06					
FS2	DDGS Handling Fugitives	0.05	0.01	0.01					
FS5	Fugitive Components							10.12	0.90
FS6	Paved Roads (fugitive dust)	7.00	1.40	0.34					
FS7	Cooling Tower	1.84	1.84	1.84					
FS8	Wetcake Storage							0.00	0.00
FS9	Wet Bin	7.00	1.76	0.31					
FS10	Misc. Process Sources							4.51	
FS11A&B	Grain Storage Silos	11.80	5.90	5.90					
FS12	DDGS Storage Silos	2.03	1.01	1.01					
FS14	Grain Dryer	22.00	16.20	3.44	29.65	8.89	0.06	0.58	0.20
FS15	Tricanter Tanks and Loadout							1.02	
FS16	Grain Bin/Additional Storage	7.00	1.76	3.08					
EP1	Protein Ring Dryer to Existing RTO System								
EP3	Dryer Startup Stack	0.07	0.07	0.07	0.38	0.47	0.01	0.05	0.02
EP23	MSC Centrate Fan							3.62	0.37
EP25	Protein Cooling Baghouse	5.52	5.52	5.52				10.96	1.47
EP27	Protein Silos Aspiration Dust Collector	2.27	2.29	2.29					
EP32	Protein Loadout Dust Collector	3.49	3.52	3.52					
FS05	Protein Loadout & Fugitive Handling/Storage	0.24	0.10	0.02					
Increase or Decrease (+ / -)									
EP1	Grain Unloading Baghouse	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EP2	Hammermill Baghouse	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EP4	Preferm/Fermentation Scrubber	0.00	0.00	0.00	0.00	0.00	0.00	-39.81	-1.70
EP7,18-20	Evaporation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EP8	Boiler	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EP9	DDGS Handling Baghouse	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EP11	Product loading and flare2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EP12	Biomethanator Flare	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EP13	Emergency Generator	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EP15	DDGS Cooler 1	-5.63	0.00	0.00	0.00	0.00	0.00	-34.76	-0.39
EP16	Long Term Storage	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EP17	RTOs/Dryers	-35.48	-35.48	-35.48	5.30	-72.40	-45.32	0.68	-2.44
EP21	TO/Dryers	-56.63	-56.63	-56.63	-11.83	-85.53	-58.86	-21.31	-1.93
EP22	DDGS Cooler 2	0.00	0.00	0.00	0.00	0.00	0.00	0.24	3.04
EP23	Grain Unloading Baghouse 2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TK1-5	Liquid Storage Tanks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FS1	Grain Handling Fugitives	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FS2	DDGS Handling Fugitives	-0.05	-0.01	-0.01	0.00	0.00	0.00	0.00	0.00
FS5	Fugitive Components	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.76
FS6	Paved Roads (fugitive dust)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FS7	Cooling Tower	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FS8	Wetcake Storage	0.00	0.00	0.00	0.00	0.00	0.00	-0.23	-0.23
FS9	Wet Bin	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FS10	Misc. Process Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FS11A&B	Grain Storage Silos	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FS12	DDGS Storage Silos	-1.80	-0.90	-0.90	0.00	0.00	0.00	0.00	0.00
FS14	Grain Dryer	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FS15	Tricanter Tanks and Loadout	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FS16	Grain Bin/Additional Storage	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EP1	Protein Ring Dryer to Existing RTO System	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EP3	Dryer Startup Stack	0.07	0.07	0.07	0.38	0.47	0.01	0.05	0.02
EP23	MSC Centrate Fan	0.00	0.00	0.00	0.00	0.00	0.00	3.62	0.37
EP25	Protein Cooling Baghouse	5.52	5.52	5.52	0.00	0.00	0.00	10.96	1.47
EP27	Protein Silos Aspiration Dust Collector	2.27	2.29	2.29	0.00	0.00	0.00	0.00	0.00
EP32	Protein Loadout Dust Collector	3.49	3.52	3.52	0.00	0.00	0.00	0.00	0.00
FS05	Protein Loadout & Fugitive Handling/Storage	0.24	0.10	0.02	0.00	0.00	0.00	0.00	0.00
Total change in Pollutant (Facility-Wide)		**-88.01**	**-81.53**	**-81.62**	**-6.15**	**-157.46**	**-104.18**	**-80.57**	**-1.02**

Table 3 - Facility-Wide PTE Post-Project									
EPN	Emission Units (tpy) (All)	PM	PM10	PM2.5	NO_X	CO	SO_2	VOC	HAPs
EP1	Grain Unloading Baghouse 1	14.64	14.64	14.64					
EP2	Hammermill Baghouse	4.20	4.20	4.20					
EP4	Preferm/Fermentation Scrubber							30.27	3.56
EP7,18-20	Evaporation								
EP8	Boiler	14.72	14.72	14.72	52.56	30.66	1.27	6.57	2.84
EP9	DDGS Handling Baghouse	2.28	2.28	2.28					
EP11	Product loading and flare2	0.00	0.00	0.00	2.01	9.00	0.02	6.23	0.03
EP12	Biomethanator Flare				1.85	8.42	15.24	3.80	
EP13	Emergency Generator	0.05	0.05	0.05	8.40	0.66	0.16	0.08	0.02
EP15	DDGS Cooler 1	3.13	8.76	8.76				18.72	0.88
EP16	Long Term Storage	5.65	5.65	5.65					
EP17	RTOs/Dryers	17.82	17.82	17.82	77.22	23.96	7.72	44.48	6.57
EP21	TO/Dryers	3.71	3.71	3.71	55.63	2.06	0.57	3.37	2.62
EP22	DDGS Cooler 2	5.26	5.26	5.26				17.28	3.96
EP23	Grain Unloading Baghouse 2	4.13	4.13	4.13					
TK1-5	Liquid Storage Tanks							2.98	0.47
FS1	Grain Handling Fugitives	1.65	0.37	0.06					
FS2	DDGS Handling Fugitives	0.05	0.01	0.01					
FS5	Fugitive Components							10.12	0.90
FS6	Paved Roads (fugitive dust)	7.00	1.40	0.34					
FS7	Cooling Tower	1.84	1.84	1.84					
FS8	Wetcake Storage							0.00	0.00
FS9	Wet Bin	7.00	1.76	0.31					
FS10	Misc. Process Sources							4.51	
FS11A&B	Grain Storage Silos	11.80	5.90	5.90					
FS12	DDGS Storage Silos	2.03	1.01	1.01					
FS14	Grain Dryer	22.00	16.20	3.44	29.65	8.89	0.06	0.58	0.20
FS15	Tricanter Tanks and Loadout							1.02	
FS16	Grain Bin/Additional Storage	7.00	1.76	3.08					
EP1	Protein Ring Dryer to Existing RTO System								
EP3	Dryer Startup Stack	0.07	0.07	0.07	0.38	0.47	0.01	0.05	0.02
EP23	MSC Centrate Fan							3.62	0.37
EP25	Protein Cooling Baghouse	5.52	5.52	5.52				10.96	1.47
EP27	Protein Silos Aspiration Dust Collector	2.27	2.29	2.29					
EP32	Protein Loadout Dust Collector	3.49	3.52	3.52					
FS05	Protein Loadout & Fugitive Handling/Storage	0.24	0.10	0.02					
Total PTE		**147.54**	**122.98**	**108.62**	**227.69**	**84.12**	**25.04**	**164.64**	**23.90**

Potential to Emit Emission Estimate:

Tharaldson Ethanol Plant I, LLC, Casselton, North Dakota

NOTE: THE PTC APPLICATION IS REQUESTING LIMITS BASED ON EMISSIONS, NOT PRODUCTION. EMISSIONS ARE BASED ON FACILITY PRODUCING 185 MMGPY OF ETHANOL TO DEMONSTRATE HOW EMISSIONS WILL BE DETERMINED.

188.78 MMGPY Denatured Ethanol

185 MMGPY Undenatured Ethanol

EPN	Emission Source(s)	PM (tpy)	PM10 (tpy)	PM2.5 (tpy)	SO2 (tpy)	NOx (tpy)	CO (tpy)	VOC (tpy)	Highest Single HAP[1] (tpy)	Total HAP (tpy)	CO2e (tpy)
EP1	Grain Unloading Baghouse 1	14.64	14.64	14.64							
EP2	Hammermill Baghouse	4.20	4.20	4.20							
EP4	Preferm/Fermentation Scrubber							30.27	2.72	3.56	
EP7,18-20	Evaporation					Emissions are routed to the RTO					
EP8	Boiler	14.72	14.72	14.72	1.27	52.56	30.66	6.57		2.84	179,375.97
EP9	DDGS Handling Baghouse	2.28	2.28	2.28							
EP11	Product loading and flare[2]	0.0033	0.0033	0.0033	0.0178	2.01	9.00	6.23	0.0004	0.03	3,383.42
EP12	Biomethanator Flare				15.24	1.85	8.42	3.80			3,130.22
EP13	Emergency Generator	0.05	0.05	0.05	0.16	8.40	0.66	0.08	0.002	0.02	478.78
EP15	DDGS Cooler 1	3.13	8.76	8.76				18.72	0.536	0.88	
EP16	Long Term Storage	5.65	5.65	5.65							
EP17	RTOs/Dryers	17.82	17.82	17.82	7.72	77.22	23.96	44.48	1.87	6.57	110,700.60
EP21	TO/Dryers	3.71	3.71	3.71	0.57	55.63	2.06	3.37	0.28	2.62	110,188.10
EP22	DDGS Cooler 2	5.26	5.26	5.26				17.28	2.88	3.96	
EP23	Grain Unloading Baghouse 2	4.13	4.13	4.13							
TK1-5	Liquid Storage Tanks							2.98	0.000	0.47	
FS1	Grain Handling Fugitives	1.65	0.37	0.06							
FS2	DDGS Handling Fugitives	0.05	0.01	0.01							
FS5	Fugitive Components							10.12	0.002	0.90	
FS6	Paved Roads (fugitive dust)	7.00	1.40	0.34							
FS7	Cooling Tower	1.84	1.84	1.84							
FS8	Wetcake Storage								0.00		
FS9	Wet Bin	7.00	1.76	0.31							
FS10	Misc. Process Sources							4.51			
FS11A&B	Grain Storage Silos	11.80	5.90	5.90							
FS12	DDGS Storage Silos	2.03	1.01	1.01							
FS14	Grain Dryer	22.00	16.20	3.44	6.35E-02	2.96E+01	8.89E+00	5.82E-01		2.00E-01	12,635.85
FS15	Tricanter Tanks and Loadout							1.02			
FS16	Grain Bin/Additional Storage	7.00	1.76	3.08							
GP Turnkey Proposed Equipment											
EP1	Protein Ring Dryer to Existing RTO System[4]	-	-	-	-	-	-	-	-	-	-
EP3	Dryer Startup Stack	0.07	0.07	0.07	0.01	0.38	0.47	0.05		0.02	32,508.32
EP23	MSC Centrate Fan							3.62	0.30	0.37	
EP25	Protein Cooling Baghouse	5.52	5.52	5.52				10.96	1.04	1.47	
EP27	Protein Silos Aspiration Dust Collector	2.29	2.29	2.29							
EP32	Protein Loadout Dust Collector	3.52	3.52	3.52							
FS05	Protein Loadout & Fugitive Handling/Storage	0.24	0.10	0.02							
	Totals, Existing Equipment	**135.96**	**111.49**	**97.22**	**25.04**	**227.31**	**83.65**	**150.02**	**8.28**	**22.04**	**419,892.93**
	Totals, New Equipment	**11.63**	**11.49**	**11.41**	**0.01**	**0.38**	**0.47**	**14.62**	**1.34**	**1.86**	**32,508.32**
	Total, Post Project without fugitives	**110.82**	**110.65**	**97.89**	**25.04**	**227.69**	**84.12**	**153.49**	**9.62**	**23.00**	**452,401.25**
	Total, Post Project	**147.59**	**122.98**	**108.62**	**25.04**	**227.69**	**84.12**	**164.64**	**9.62**	**23.90**	**452,401.25**
	REQUESTED PERMIT LIMITS:	**<249**	**<249**	**<249**	**<249**	**<249**	**<249**	**<249**	**<9.99**	**<24.99**	**-**
	REQUESTED PERMIT LIMIT FOR BOILERS[3]:	**<100**	**<100**	**<100**	**<100**	**<100**	**<100**	**<100**	**<9.99**	**<24.99**	**-**

NOTES:

[1] Highest Single HAP is Acetaldehyde.

[2] Product loadout fugitives are based on 100% by truck as this represents worst case emissions.

[3] Requested limit for Boilers include the Boiler (EP8) and the TO HRSG (EP21).

[4] Protein Dryer vents to existing RTO system EP-17

Indicates new or modified equipment

Hazardous Air Pollutant Emissions Summary

Existing Equipment

Compound	EP04 Preferm./ Ferm Scrubbers	EP08 Boiler	EP11 Product Loadout	EP13 Emergency Generator	EP15 DDGS Cooler	EP17 RTO/ Dryers	EP21 TO/Dryers	EP22 DDGS Cooler 2	TK01-05 Tanks	FS5 Equip. Leaks	FS8 Wetcake Storage	FS14 Grain Dryer	TOTAL
	(tpy)	(tpy)	(tpy)	(tpy)	(tpy)	(tpy)	(tpy)	(tpy)	(tpy)	(tpy)	(tpy)	(tpy)	**(tpy)**
1,3-Butadiene				1.14E-04									**1.14E-04**
2-Methylnaphthalene		3.61E-05				2.22E-05	2.22E-05					2.54E-06	**8.29E-05**
Acenaphthene				4.16E-06									**4.16E-06**
Acenaphthylene				1.48E-05									**1.48E-05**
Acetaldehyde	2.72E+00		4.26E-04	2.24E-03	5.36E-01	1.87E+00	2.79E-01	2.88E+00	4.18E-04	2.02E-03			**8.28E+00**
Acrolein	3.50E-01		2.13E-04	2.71E-04	7.42E-02	1.12E-01	1.62E-01	9.09E-02	2.09E-04	1.01E-03			**7.92E-01**
Anthracene				5.47E-06									**5.47E-06**
Arsenic		3.01E-04				1.85E-04	1.85E-04					2.12E-05	**6.91E-04**
Benzene		3.16E-03	1.39E-03	2.73E-03		1.94E-03	1.94E-03		2.26E-02	5.55E-03		2.22E-04	**3.96E-02**
Benzo(a)anthracene				4.92E-06									**4.92E-06**
Benzo(a)pyrene				5.50E-07									**5.50E-07**
Benzo(b)fluoranthene				2.90E-07									**2.90E-07**
Benzo(g,h,I)perylene				1.43E-06									**1.43E-06**
Benzo(k)fluoranthene				4.54E-07									**4.54E-07**
Cadmium		1.65E-03				1.02E-03	1.02E-03					1.16E-04	**3.80E-03**
Chromium		2.10E-03				1.29E-03	1.29E-03					1.48E-04	**4.84E-03**
Chrysene				1.03E-06									**1.03E-06**
Cobalt		1.26E-04				7.76E-05	7.76E-05					8.89E-06	**2.90E-04**
Dibenz(a,h)anthracene				1.71E-06									**1.71E-06**
Dichlorobenzene		1.80E-03				1.11E-03	1.11E-03					1.27E-04	**4.15E-03**
Ethylbenzene			1.39E-03						2.26E-02	5.55E-03			**2.96E-02**
Ethylene Glycol									3.01E-03				**3.01E-03**
Flourene				8.55E-05									**8.55E-05**
Fluoranthene		4.51E-06				2.77E-06	2.77E-06					3.18E-07	**1.04E-05**
Fluoranthene				1.76E-05									**1.76E-05**
Fluorene		4.21E-06				2.59E-06	2.59E-06					2.96E-07	**9.67E-06**
Formaldehyde	1.88E-01	1.13E-01	2.13E-04	3.45E-03	7.42E-02	1.79E+00	1.75E-01	1.17E-01	2.09E-04	1.01E-03		7.94E-03	**2.47E+00**
Hexane		2.71E+00	2.45E-02			1.67E+00	1.66E+00		4.00E-01	9.79E-02		1.91E-01	**6.75E+00**
Indeno(1,2,3-cd)pyrene				1.10E-06									**1.10E-06**
Manganese		5.71E-04				3.51E-04	3.51E-04					4.02E-05	**1.31E-03**
Mercury		3.91E-04				2.40E-04	2.40E-04					2.75E-05	**8.98E-04**
Methanol	3.07E-01		4.26E-04		1.97E-01	1.12E+00	3.25E-01	8.70E-01	4.18E-04	2.02E-03			**2.82E+00**
Naphthalene		9.17E-04		2.48E-04		5.63E-04	5.63E-04					6.46E-05	**2.36E-03**
Nickel		3.16E-03				1.94E-03	1.94E-03					2.22E-04	**7.26E-03**
Phenanthrene		2.56E-05				1.57E-05	1.57E-05					1.80E-06	**5.87E-05**
Phenanthrene				8.60E-05									**8.60E-05**
Propylene				7.55E-03									**7.55E-03**
Pyrene		7.51E-06				4.62E-06	4.62E-06					5.29E-07	**1.73E-05**
Pyrene				1.43E-05									**1.43E-05**
Toluene		5.11E-03	1.39E-03	1.20E-03		3.14E-03	3.14E-03		2.26E-02	5.55E-03		3.60E-04	**4.25E-02**
Xylene				8.34E-04						7.74E-01			**7.75E-01**
TOTALS:	***3.56***	***2.84***	***0.03***	***0.019***	***0.88***	***6.5700***	***2.62***	***3.96***	***0.47***	***0.90***	***0.00***	***0.200***	**22.04**

Hazardous Air Pollutant Emissions Summary

Proposed Equipment

Compound	EP3 Startup Stacks	EP23 Centrate Fan	EP25 Protein Cooling Baghouse	TOTAL
	(tpy)	(tpy)	(tpy)	**(tpy)**
1,3-Butadiene				**0.00E+00**
2-Methylnaphthalene	2.06E-07			**2.06E-07**
Acenaphthene				**0.00E+00**
Acenaphthylene				**0.00E+00**
Acetaldehyde		3.04E-01	1.04E+00	**1.34E+00**
Acrolein		1.45E-02	5.03E-02	**6.48E-02**
Anthracene				**0.00E+00**
Arsenic	1.72E-06			**1.72E-06**
Benzene	1.80E-05			**1.80E-05**
Benzo(a)anthracene				**0.00E+00**
Benzo(a)pyrene				**0.00E+00**
Benzo(b)fluoranthene				**0.00E+00**
Benzo(g,h,I)perylene				**0.00E+00**
Benzo(k)fluoranthene				**0.00E+00**
Cadmium	9.44E-06			**9.44E-06**
Chromium	1.20E-05			**1.20E-05**
Chrysene				**0.00E+00**
Cobalt	7.21E-07			**7.21E-07**
Dibenz(a,h)anthracene				**0.00E+00**
Dichlorobenzene	1.03E-05			**1.03E-05**
Ethylbenzene				**0.00E+00**
Ethylene Glycol				**0.00E+00**
Flourene	2.40E-08			**2.40E-08**
Fluoranthene	2.57E-08			**2.57E-08**
Fluoranthene				**0.00E+00**
Fluorene				**0.00E+00**
Formaldehyde	6.43E-04	3.40E-02	5.82E-02	**9.28E-02**
Hexane	1.54E-02			**1.54E-02**
Indeno(1,2,3-cd)pyrene				**0.00E+00**
Manganese	3.26E-06			**3.26E-06**
Mercury	2.23E-06			**2.23E-06**
Methanol		1.85E-02	3.25E-01	**3.43E-01**
Naphthalene	5.23E-06			**5.23E-06**
Nickel	1.80E-05			**1.80E-05**
Phenanthrene	1.46E-07			**1.46E-07**
Phenanthrene				**0.00E+00**
Propylene				**0.00E+00**
Pyrene	4.29E-08			**4.29E-08**
Pyrene				**0.00E+00**
Toluene	2.92E-05			**2.92E-05**
Xylene				**0.00E+00**
TOTALS:	***0.016***	***0.371***	***1.472***	**1.86**

Hazardous Air Pollutant Emissions Summary

Total Post Project

Compound	TOTAL
	(tpy)
1,3-Butadiene	**1.14E-04**
2-Methylnaphthalene	**8.31E-05**
Acenaphthene	**4.16E-06**
Acenaphthylene	**1.48E-05**
Acetaldehyde	**9.62E+00**
Acrolein	**8.56E-01**
Anthracene	**5.47E-06**
Arsenic	**6.93E-04**
Benzene	**3.96E-02**
Benzo(a)anthracene	**4.92E-06**
Benzo(a)pyrene	**5.50E-07**
Benzo(b)fluoranthene	**2.90E-07**
Benzo(g,h,I)perylene	**1.43E-06**
Benzo(k)fluoranthene	**4.54E-07**
Cadmium	**3.81E-03**
Chromium	**4.85E-03**
Chrysene	**1.03E-06**
Cobalt	**2.91E-04**
Dibenz(a,h)anthracene	**1.71E-06**
Dichlorobenzene	**4.16E-03**
Ethylbenzene	**2.96E-02**
Ethylene Glycol	**3.01E-03**
Flourene	**8.55E-05**
Fluoranthene	**1.04E-05**
Fluoranthene	**1.76E-05**
Fluorene	**9.67E-06**
Formaldehyde	**2.56E+00**
Hexane	**6.76E+00**
Indeno(1,2,3-cd)pyrene	**1.10E-06**
Manganese	**1.32E-03**
Mercury	**9.01E-04**
Methanol	**3.16E+00**
Naphthalene	**2.36E-03**
Nickel	**7.27E-03**
Phenanthrene	**5.89E-05**
Phenanthrene	**8.60E-05**
Propylene	**7.55E-03**
Pyrene	**1.73E-05**
Pyrene	**1.43E-05**
Toluene	**4.26E-02**
Xylene	**7.75E-01**
TOTALS:	**23.90**

Coolers (EP15 & EP22 & EP25):

DDGS Produced: 324,760 tons/year
Protein Produced: 98,840 tons/year

PM/PM_{10}/$PM_{2.5}$ Controlled Emissions:

ID	Emission Source	Potential Hours of Operation	Airflow (cfm)	Emission Factor (gr/cf)	PM Emission Factor (lbs/hr)	PM_{10} Emission Factor (lbs/hr)	$PM_{2.5}$ Emission Factor (lbs/hr)	Controlled PM Emissions (tons)	Controlled PM_{10} Emissions (tons)	Controlled $PM_{2.5}$ Emissions (tons)
EP15	DDGS Cooler 1	8,760	94,000	-	0.71	2.00	2.00	**3.13**	**8.76**	**8.76**
EP22	DDGS Cooler 2	8,760	28,000	0.005	1.20	1.20	1.20	**5.26**	**5.26**	**5.26**
EP25	Protein Cooler 1	8,760	31,379	0.005	1.26	1.26	1.26	**5.52**	**5.52**	**5.52**

EP15 based on 5/2011 Test Data.
EP22 based on engineering estimate.
EP25 based on engineering estimate of 29,426 dscfm volumentric flow.

VOC/HAP Emissions Emissions:

EP15 - DDGS Cooler 1 162,380 tons/year

Pollutant	Emission Factor (lbs/hr)	Emission Factor (lbs/ton)	Total Emissions (tons/yr)
VOC[1]	8.07	0.2306	**18.72**
Individual HAPs			
Acetaldehyde[1]	0.231	0.0066	**0.54**
Acrolein[1]	0.032	0.0009	**0.07**
Methanol[1]	0.085	0.0024	**0.20**
Formaldehyde[1]	0.032	0.0009	**0.07**
TOTAL HAPS[1]	0.380	0.011	**0.88**

[1]Based on 10/2021 Test DDGS Production 35 tons/hr

EP22 - DDGS Cooler 2 162,380 tons/year

Pollutant	Emission Factor (lbs/hr)	Emission Factor (lbs/ton)	Total Emissions (tons/yr)
VOC[2]	2.66	0.2128	**17.28**
Individual HAPs			
Acetaldehyde[2]	0.443	0.0354	**2.88**
Acrolein[2]	0.014	0.0011	**0.09**
Methanol[2]	0.134	0.0107	**0.87**
Formaldehyde[2]	0.018	0.0014	**0.12**
TOTAL HAPS[2]	0.609	0.049	**3.96**

[2]Based on 10/2021 Test DDGS Production 12.5 tons/hr

EP25 - Protein Cooler 98,840 tons/year

Pollutant	Emission Factor (lbs/hr)	Emission Factor (lbs/ton)	Total Emissions (tons/yr)
VOC[3]	2.50	0.2217	**10.96**
Individual HAPs			
Acetaldehyde[3]	0.202	0.0210	**1.04**
Acrolein[3]	0.026	0.0010	**0.05**
Methanol[3]	0.059	0.0066	**0.32**
Formaldehyde[3]	0.055	0.0012	**0.06**
Total HAPs:			**1.47**

[3]Based on average of 10/2021 Test DDGS Production for EP15 and EP22

RTOs (x2), DDGS Dryers (x2), Protein Dryer (x1) Emissions (EP17):

Criteria Pollutant Emissions

Basis: Emission factor source listed below.
Based on 100% Natural Gas Combustion.

Natural Gas Combusted:	36.00	MMBtu/hr (2 RTOs @ 18 MMBtu/hr (existing))
	90.00	MMBtu/hr (Dryers A/B @ 45 MMBtu/hr (existing))
	90.00	MMBtu/hr (Dryers C/D @ 45 MMBtu/hr (existing))
	70.00	MMBtu/hr (1 Protein Ring Dryer (new))
	216.00	**MMBtu/hr** (Based on Worst-case, operating existing dryers)
Hours of Operation:	8,760	Hours/year
DDGS/Protein:	162,380	tons DDGS/yr
	98,840	tons Protein/yr
Heat Content of NG:	1,020	Btu/scf

ID	Emission Factor Source	Pollutant	Emission Factor (lbs/hr)	Emission Factor (lbs/ton)	Controlled Emissions (tons/yr)
EP17	10/2021 Test Data	NOx*	17.63	-	**77.22**
	10/2021 Test Data	VOC**	11.92	0.341	**44.48**
	10/2021 Test Data	CO*	5.47	-	**23.96**
	6/2011 Test Data	SO2*	1.762	-	**7.72**
	10/2021 Test Data	PM/PM10/PM2.5**	4.776	0.136	**17.82**

* No expected change in NOx, CO, and SO2 emissions due to no change in maximum natural gas combustion.
**Based on 10/2021 Test DDGS Production 35 tons/hr

DDGS / Protein Production HAP Emissions

DDGS / Protein Production:	261,220	tons/year
Hours of Operation:	8,760	Hours/years

Basis:

ID	Emission Factor Source	Pollutant	Emission Factor (lbs/hr)	Emission Factor (lbs/ton)	Controlled Emissions (tons/yr)
EP17	10/2021 Test Data	Acetaldehyde	0.50	0.0143	**1.866**
	10/2021 Test Data	Acrolein	0.03	0.0009	**0.112**
	10/2021 Test Data	Methanol	0.30	0.0086	**1.120**
	10/2021 Test Data	Formaldehyde	0.48	0.0137	**1.791**
	Total HAPs:		1.31	**0.0374**	**4.889**

Based on 10/2021 Test DDGS Production 35 tons/hr

RTOs and Dryers Emissions (cont)

Natural Gas Combustion HAPS:

Basis: Emission factors taken from AP-42, Table 1.4-3 and 1.4-4 (7/98)
Only factors for pollutants noted as HAPs as defined by Section 112(b) of the Clean Air Act listed
Factors marked as "less than" are omitted as emissions are considered negligible
Butane, ethane, propane and pentane are assumed to be combusted and therefore negligible.
The following metals are not listed as HAPs; barium, copper, molybdenum, vanadium, zinc

Organic Compound	Emission Factor (lb/million ft3)	Amount Per Year (MMscf)	Emissions (lb/hr)	Emissions (tpy)
Hexane	1.8	0.21	0.38	1.6696
Formaldehyde	0.00E+00		0.00	0.0000
Toluene	3.40E-03		0.00	0.0032
Benzene	2.10E-03		0.00	0.0019
Nickel	2.10E-03		0.00	0.0019
Chromium	1.40E-03		0.00	0.0013
Dichlorobenzene	1.20E-03		0.00	0.0011
Cadmium	1.10E-03		0.00	0.0010
Naphthalene	6.10E-04		0.00	0.0006
Manganese	3.80E-04		0.00	0.0004
Mercury	2.60E-04		0.00	0.0002
Arsenic	2.00E-04		0.00	0.0002
Cobalt	8.40E-05		0.00	0.0001
2-Methylnaphthalene	2.40E-05		0.00	0.0000
Phenanthrene	1.70E-05		0.00	0.0000
Pyrene	5.00E-06		0.00	0.0000
Fluoranthene	3.00E-06		0.00	0.0000
Fluorene	2.80E-06		0.00	0.0000
		Totals:	**0.38**	**1.682**

GHG Combustion Emissions

Total NG Combusted: 216.00 MMBtu/hr
Conversion Factor: 2.20462 lbs/kg

RTO/Dryers NG Combustion Emissions				
Pollutant	**Emission Factor (kg/MMBtu)[1]**	**Emission Factor (lbs/MMBtu)[2]**	**Hourly Emissions (lbs/hr)**	**Annual Emissions (tons/yr)**
GHGs				
CO_2	53.020	116.89	25,248.01	**110,586**
CH_4	0.0010	0.0022	0.48	**2.08575**
N_2O	0.00010	0.00022	0.048	**0.20857**
GHGs (MB)	53.021	116.891	25,248.54	**110,589**
CO_2e			25,274	**110,701**

NOTES:
[1]GHG Emissions are based on 40 CFR 98, Tables A-1, C-1 and C-2
[2]Conversions from Table A-2 to Subpart A of Part 98 - Units of Measure Conversion

TO and Dryers (2) Emissions (EP21):

Natural Gas Combustion Emissions

NOTE: REQUESTING LIMITS FOR CRITERIA POLLUTANTS TO BE LESS THAN 100 TPY FOR AGGREGATE BOILERS ONSITE.

Basis: Emission factor source listed below.
Based on 100% Natural Gas Combustion.
Updated Emission Factors

TO Natural Gas Combusted:	125.00	MMBtu/hr
DGS Dryers Natural Gas Combusted:	90.00	MMBtu/hr
DDGS Production:	162,380.00	tons/yr
Hours of Operation:	8,760	Hours/yr
Heat Content of NG:	1,020	Btu/scf

ID	Emission Factor Source	Pollutant	MMBtu/hr	Emission Factor (lbs/MMBtu)	Emission Factor (lbs/hr)	Controlled Emissions (tons/year)
EP21 TO + Dryer E-F	10/2021 Test Data	CO	215.0	0.0028	0.47	**2.06**
	10/2021 Test Data	NOx		0.074	12.70	**55.63**
	10/2021 Test Data	VOC		-	0.77	**3.37**
	AP-42	SO2		0.0006	0.13	**0.57**
	10/2021 Test Data	PM/PM10/PM2.5		-	0.848	**3.71**

DDGS Production HAPs

ID	Emission Factor Source	Pollutant	Emission Factor (lbs/hr)	Emission Factor (lbs/ton)	Controlled Emissions (tons)
EP21 TO + Dryer E-F	10/2021 Test Data	Acetaldehyde	0.043	0.0034	**0.28**
	10/2021 Test Data	Acrolein	0.025	0.0020	**0.16**
	10/2021 Test Data	Methanol	0.050	0.0040	**0.32**
	10/2021 Test Data	Formaldehyde	0.027	0.0022	**0.18**
		Total HAPs:	0.145		**0.94**

DDGS Production= 12.5 tons/hr

Natural Gas Combustion HAPS:

Basis: Emission factors taken from AP-42, Table 1.4-3 and 1.4-4 (7/98)
Only factors for pollutants noted as HAPs as defined by Section 112(b) of the Clean Air Act listed
Factors marked as "less than" are omitted as emissions are considered negligible
Butane, ethane, propane and pentane are assumed to be combusted and therefore negligible.
The following metals are not listed as HAPs; barium, copper, molybdenum, vanadium, zinc

Hazardous Air Pollutant	Emission Factor (lb/million ft3)	Amount Per Year (MMscf/hr)	Emissions (lb/hr)	Emissions (tpy)
Hexane	1.8	0.21	0.38	1.6618
Formaldehyde	0.00E+00		0.00	0.0000
Toluene	3.40E-03		0.00	0.0031
Benzene	2.10E-03		0.00	0.0019
Nickel	2.10E-03		0.00	0.0019
Chromium	1.40E-03		0.00	0.0013
Dichlorobenzene	1.20E-03		0.00	0.0011
Cadmium	1.10E-03		0.00	0.0010
Naphthalene	6.10E-04		0.00	0.0006
Manganese	3.80E-04		0.00	0.0004
Mercury	2.60E-04		0.00	0.0002
Arsenic	2.00E-04		0.00	0.0002
Cobalt	8.40E-05		0.00	0.0001
2-Methylnaphthalene	2.40E-05		0.00	0.0000
Phenanthrene	1.70E-05		0.00	0.0000
Pyrene	5.00E-06		0.00	0.0000
Fluoranthene	3.00E-06		0.00	0.0000
Fluorene	2.80E-06		0.00	0.0000
		Totals:	**0.38**	**1.67**

TO and Dryers (2) Emissions (cont.)

GHG Combustion Emissions

Total NG Combusted: 215.00 MMBtu/year
Conversion Factor: 2.20462 lbs/kg

TO/Dryers NG Combustion Emissions				
Pollutant	**Emission Factor (kg/MMBtu)[1]**	**Emission Factor (lbs/MMBtu)[2]**	**Hourly Emissions (lbs/hr)**	**Annual Emissions (tons/yr)**
GHGs				
CO_2	53.020	116.89	25,131.12	**110,074**
CH_4	0.0010	0.0022	0.47	**2.07609**
N_2O	0.00010	0.00022	0.047	**0.20761**
GHGs (MB)	53.021	116.891	25,131.65	**110,077**
CO_2e				**110,188**

NOTES:
[1]GHG Emissions are based on 40 CFR 98, Tables A-1, C-1 and C-2
[2]Conversions from Table A-2 to Subpart A of Part 98 - Units of Measure Conversion

GP MSC Centrate Fan (EP-23)

Airflow 67,772 SCFM
Hours of Operation: 8,760 Hours/year

ID	Emission Factor Source	Pollutant	Potential Hours of Operation	Airflow (cfm)	Emission Factor (lbs/hr)	Emission Factor (tons/yr)
EP23	Eng. Estimate	VOC	8,760	67,772	0.826	3.62

ID	Emission Factor Source	Pollutant	Emission Factor (lbs/hr)	Controlled Emissions (tons)
EP25/26	Eng. Estimate	Acetaldehyde	0.069	**0.30**
	Eng. Estimate	Acrolein	0.0033	**0.01**
	Eng. Estimate	Methanol	0.0042	**0.02**
	Eng. Estimate	Formaldehyde	0.0078	**0.03**
	Total HAPs:			**0.37**

Dryer Startup Stack (EP3)

Criteria Pollutant Emissions

Basis: Emission factor source listed below.
Based on 100% Natural Gas Combustion.

Natural Gas Combusted: 70 MMBtu/hr (Ring Dryer)
Hours of Operation: 250 Hours/year

Heat Content of NG: 1,020 Btu/scf

ID	Emission Factor Source	Pollutant	Emission Factor (lbs/MMBtu)	Emission Factor (lbs/hr)	Controlled Emissions (tons/yr)
EP3	Eng. Estimate	NOx	0.0440	3.045	**0.3806**
	Eng. Estimate	VOC	0.0050	0.377	**0.0471**
	Eng. Estimate	CO	0.0530	3.731	**0.4664**
	Eng. Estimate	SO2	0.0010	0.041	**0.0051**
	Eng. Estimate	PM/PM10/PM2.5	0.0070	0.522	**0.0653**

Basis: Emission factors taken from AP-42, Table 1.4-3 and 1.4-4 (7/98)
Only factors for pollutants noted as HAPs as defined by Section 112(b) of the Clean Air Act listed
Factors marked as "less than" are omitted as emissions are considered negligible
Butane, ethane, propane and pentane are assumed to be combusted and therefore negligible.
The following metals are not listed as HAPs; barium, copper, molybdenum, vanadium, zinc

Hazardous Air Pollutant	Emission Factor (lb/million ft3)	Amount Per Year (MMscf)	Emissions (lb/hr)	Emissions (tpy)
Hexane	1.8	0.07	0.12	0.0154
Formaldehyde	7.50E-02	0.07	0.01	0.0006
Toluene	3.40E-03	0.07	0.00	0.0000
Benzene	2.10E-03	0.07	0.00	0.0000
Nickel	2.10E-03	0.07	0.00	0.0000
Chromium	1.40E-03	0.07	0.00	0.0000
Dichlorobenzene	1.20E-03	0.07	0.00	0.0000
Cadmium	1.10E-03	0.07	0.00	0.0000
Naphthalene	6.10E-04	0.07	0.00	0.0000
Manganese	3.80E-04	0.07	0.00	0.0000
Mercury	2.60E-04	0.07	0.00	0.0000
Arsenic	2.00E-04	0.07	0.00	0.0000
Cobalt	8.40E-05	0.07	0.00	0.0000
2-Methylnaphthalene	2.40E-05	0.07	0.00	0.0000
Phenanthrene	1.70E-05	0.07	0.00	0.0000
Pyrene	5.00E-06	0.07	0.00	0.0000
Fluoranthene	3.00E-06	0.07	0.00	0.0000
Fluorene	2.80E-06	0.07	0.00	0.0000
		Totals:	**0.13**	**0.016**

Dryer Startup Stack (EP3) (cont.)

GHG Combustion Emissions

Total NG Combusted: 70.00 MMBtu/year
Conversion Factor: 2.20462 lbs/kg

TO/Dryers NG Combustion Emissions				
Pollutant	**Emission Factor (kg/MMBtu)[1]**	**Emission Factor (lbs/MMBtu)[2]**	**Hourly Emissions (lbs/hr)**	**Annual Emissions (tons/yr)**
GHGs				
CO_2	53.020	3,711.40	259,798.00	**32,475**
CH_4	0.0010	0.07	4.90	**1**
N_2O	0.00010	0.01	0.490	**0**
GHGs (MB)	53.021	3,711.477	259,803.39	**32,475**
CO_2e				**32,508**

NOTES:

[1]GHG Emissions are based on 40 CFR 98, Tables A-1, C-1 and C-2

[2]Conversions from Table A-2 to Subpart A of Part 98 - Units of Measure Conversion

Protein Silos Aspiration Dust Collector (EP-27, 32)

Hours of Operation: 8,760 Hours/year

PM/PM_{10}/$PM_{2.5}$ Controlled Emissions:

ID	Emission Source	Hours of Operation	Airflow (cfm)	Emission Factor (gr/cf)	PM Emission Factor (lbs/hr)	PM_{10} Emission Factor (lbs/hr)	$PM_{2.5}$ Emission Factor (lbs/hr)	PM Emissions (tons/yr)	PM_{10} Emissions (tons/yr)	$PM_{2.5}$ Emissions (tons/yr)
EP27	Protein Silos Aspiration Dust Collector	8,760	12,176	0.005	0.52	0.52	0.52	**2.29**	**2.29**	**2.29**
EP32	Protein Loadout Dust Collector	8,760	18,732	0.005	0.80	0.80	0.80	**3.52**	**3.52**	**3.52**

Protein Loadout Emission / Fugitive Emissions (EP58):

Protein Produced: 98,840 tons/year
Capture Efficiency 95.00%

$PM/PM_{10}/PM_{2.5}$ Fugitive Emissions:

ID	Emission Source	Protein Throughput (ton/year)	PM Emission Factor (lbs/ton)	PM_{10} Emission Factor (lbs/ton)	$PM_{2.5}$ Emission Factor (lbs/ton)	Control Efficiency (%)	Potential uncontrolled PM Emissions (tons/yr)	Potential Uncontrolled PM_{10} Emissions (tons/yr)	Potential Uncontrolled $PM_{2.5}$ Emissions (tons)	Controlled PM Emissions (tons)	Controlled PM_{10} Emissions (tons)	Controlled $PM_{2.5}$ Emissions (tons)
EP58	Protein Loadout	98,840	0.035	0.0078	0.0013	95%	**1.730**	**0.385**	**0.064**	**0.086**	**0.019**	**0.003**
FS-05	Fugitive Handling/Storage	98,840	0.061	0.0340	0.0058	95%	**3.015**	**1.680**	**0.287**	**0.151**	**0.084**	**0.014**
						TOTAL:	**4.74**	**2.07**	**0.351**	**0.237**	**0.103**	**0.018**

PERMIT APPLICATION FOR AIR POLLUTION CONTROL EQUIPMENT

NORTH DAKOTA DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF AIR QUALITY
SFN 8532 (9-2021)

NOTE: READ INSTRUCTIONS BEFORE COMPLETING THIS FORM.
- Must also include forms SFN 8516 or SFN 52858

SECTION A – GENERAL INFORMATION

Name of Firm or Organization	Facility Name
THARALDSON ETHANOL PLANT I, LLC	THARALDSON ETHANOL PLANT I, LLC
Source ID No. of Equipment being Controlled EP-32 Protein Loadout Dust Collector	

SECTION B – EQUIPMENT

Type: ☐ Cyclone ☐ Multiclone ☐ Baghouse ☐ Electrostatic Precipitator
☐ Wet Scrubber ☐ Spray Dryer ☐ Flare/Combustor
☒ Other – Specify: Dust Collector

Name of Manufacturer	Model Number	Date to Be Installed

Application:
☐ Boiler ☐ Kiln ☐ Engine ☒ Other – Specify: Dust Collector

Pollutants Removed	PM/PM10/PM2.5			
Design Efficiency (%)	95%			
Operating Efficiency (%)	95%			

Describe method used to determine operating efficiency:
Manufacturer specifications for operating efficiency.

SECTION CD – GAS CONDITIONS

Gas Conditions			Inlet	Outlet
Gas Volume (SCFM; 68°F; 14.7 psia)				18,571
Gas Temperature (°F)				100
Gas Pressure (in. H_2O)				
Gas Velocity (ft/sec)				
Pollutant Concentration (Specify Pollutant and Unit of Concentration)	Pollutant	Unit of Concentration		
	PM/PM10/PM2.5			0.80 lbs/hr
Pressure Drop Through Gas Cleaning Device (in. H_2O)				

PERMIT APPLICATION FOR AIR POLLUTION CONTROL EQUIPMENT

NORTH DAKOTA DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF AIR QUALITY
SFN 8532 (9-2021)

NOTE: READ INSTRUCTIONS BEFORE COMPLETING THIS FORM.
- Must also include forms SFN 8516 or SFN 52858

SECTION A – GENERAL INFORMATION

Name of Firm or Organization	Facility Name
THARALDSON ETHANOL PLANT I, LLC	THARALDSON ETHANOL PLANT I, LLC
Source ID No. of Equipment being Controlled EP-27 Protein Silos Aspiration Dust Collector	

SECTION B – EQUIPMENT

Type: ☐ Cyclone ☐ Multiclone ☐ Baghouse ☐ Electrostatic Precipitator
☐ Wet Scrubber ☐ Spray Dryer ☐ Flare/Combustor
☒ Other – Specify: Dust collector

Name of Manufacturer	Model Number	Date to Be Installed

Application:
☐ Boiler ☐ Kiln ☐ Engine ☒ Other – Specify: Dust collector

Pollutants Removed	PM/PM10/PM2.5			
Design Efficiency (%)				
Operating Efficiency (%)				

Describe method used to determine operating efficiency:
Provided outlet stream of emissions

SECTION CD – GAS CONDITIONS

Gas Conditions			Inlet	Outlet
Gas Volume (SCFM; 68°F; 14.7 psia)				13,000
Gas Temperature (°F)				100
Gas Pressure (in. H_2O)				
Gas Velocity (ft/sec)				
Pollutant Concentration (Specify Pollutant and Unit of Concentration)	Pollutant	Unit of Concentration		
	PM/PM10/PM2.5			0.52 lbs/hr
Pressure Drop Through Gas Cleaning Device (in. H_2O)				

PERMIT APPLICATION FOR AIR POLLUTION CONTROL EQUIPMENT

NORTH DAKOTA DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF AIR QUALITY
SFN 8532 (9-2021)

NOTE: READ INSTRUCTIONS BEFORE COMPLETING THIS FORM.
- Must also include forms SFN 8516 or SFN 52858

SECTION A – GENERAL INFORMATION

Name of Firm or Organization	Facility Name
THARALDSON ETHANOL PLANT I, LLC	THARALDSON ETHANOL PLANT I, LLC
Source ID No. of Equipment being Controlled EP-25 Protein Cooling Baghouse	

SECTION B – EQUIPMENT

Type: ☐ Cyclone ☐ Multiclone ■ Baghouse ☐ Electrostatic Precipitator
☐ Wet Scrubber ☐ Spray Dryer ☐ Flare/Combustor
☐ Other – Specify:

Name of Manufacturer	Model Number	Date to Be Installed

Application: ☐ Boiler ☐ Kiln ☐ Engine ■ Other – Specify: Baghouse

Pollutants Removed	PM/PM10/PM2.5			
Design Efficiency (%)				
Operating Efficiency (%)				

Describe method used to determine operating efficiency:
Provided outlet stream of emissions

SECTION CD – GAS CONDITIONS

Gas Conditions			Inlet	Outlet
Gas Volume (SCFM; 68°F; 14.7 psia)				31,379
Gas Temperature (°F)				120
Gas Pressure (in. H_2O)				
Gas Velocity (ft/sec)				
Pollutant Concentration (Specify Pollutant and Unit of Concentration)	Pollutant	Unit of Concentration		
	PM/PM10/PM2.5			1.261 lbs/hr
	VOC			2.50 lbs/hr
Pressure Drop Through Gas Cleaning Device (in. H_2O)				

PERMIT APPLICATION FOR AIR POLLUTION CONTROL EQUIPMENT

NORTH DAKOTA DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF AIR QUALITY
SFN 8532 (9-2021)

NOTE: READ INSTRUCTIONS BEFORE COMPLETING THIS FORM.
- Must also include forms SFN 8516 or SFN 52858

SECTION A – GENERAL INFORMATION

Name of Firm or Organization	Facility Name
THARALDSON ETHANOL PLANT I, LLC	THARALDSON ETHANOL PLANT I, LLC

Source ID No. of Equipment being Controlled
EU84 (Hammermill #5) being controlled by EP2 (Hammermill Baghouse)

SECTION B – EQUIPMENT

Type: ☐ Cyclone ☐ Multiclone ■ Baghouse ☐ Electrostatic Precipitator
☐ Wet Scrubber ☐ Spray Dryer ☐ Flare/Combustor
☐ Other – Specify:

Name of Manufacturer	Model Number	Date to Be Installed
	Custom	Emission Unit TBD, baghouse already installed

Application:
☐ Boiler ☐ Kiln ☐ Engine ■ Other – Specify: Fabric Filter Baghouse

Pollutants Removed	PM/PM10			
Design Efficiency (%)	99%			
Operating Efficiency (%)				

Describe method used to determine operating efficiency:
Hammermill baghouse already installed. Facility is adding an additional hammermill which will be adequately controlled by the existing hammermill baghouse.

SECTION CD – GAS CONDITIONS

Gas Conditions			Inlet	Outlet
Gas Volume (SCFM; 68°F; 14.7 psia)				28,000
Gas Temperature (°F)				Ambient
Gas Pressure (in. H_2O)				
Gas Velocity (ft/sec)				37.14
Pollutant Concentration (Specify Pollutant and Unit of Concentration)	Pollutant	Unit of Concentration		
	PM/PM10/PM2.5			0.96 lb/hr

Pressure Drop Through Gas Cleaning Device (in. H_2O)
1-6

EMISSION UNIT FOR TITLE V PERMIT TO OPERATE

NORTH DAKOTA DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF AIR QUALITY
SFN 61006 (3-2019)

SECTION A – EQUIPMENT INFORMATION

Type of Unit or Process (rotary dryer, cupola furnace, crusher, pelletizer, engine, etc.)	Emission Unit Number:	Emission Point Number:
Rail Loadout Fugitive Emissions	FS17	FS17
Make	Model	Installation or manufacture date: 03/04/2024
Capacity (manufacturer's or designer's guaranteed maximum)	Operating Capacity (specific units)	
Brief description of operation of unit or process: Protein is transferred to loadout into truck and railcars, during this process fugitive emissions occur.		
Brief description of alternative operating scenario (see Section M1 & M2 to elaborate):	Alternative Emission Point:	

SECTION B –OPERATING SCHEDULE

Are you agreeing to a limit on the operating schedule for this unit? ☐Yes ■No

Hours Per Day	Days Per Week	Weeks Per Year	Peak Production Season (if any)	Dates of Annual Shutdown
24	7	52	N/A	varied

SECTION C – PRODUCTION RATES (THROUGHPUT LIMITS)

Are you agreeing to a limit on the production for this unit? ☐Yes ■No (If No, show normal operating schedule.)

Material	Process Time Frame			Specify Units (tons, Btu, Gal., etc)
	Hour	Week	Year	
Protein				98,840 tpy

SECTION D1 – APPLICABLE REQUIREMENTS

Generally describe all applicable requirements.

Regulations (i.e. SIP, NESHAP, PSD, NSPS, etc)	Monitoring Requirements	Recordkeeping Requirements	Reporting Requirements	Testing Requirements	Applicable Emission Standards (include units)

SECTION D2 – IDENTIFICATION OF AIR CONTAMINANTS

Has emission unit testing been done at the facility? ☐ Yes ■ No			
Emission Unit ID	Last Date when a Testing Program was Completed	If Program is Continuous, Give Approximate Testing Frequency	Regulation requiring frequency (NSPS, MACT, Permit Requirement-list permit number)

Add additional pages if necessary

SECTION E – PRODUCTS OF UNIT OR PROCESS

Include all, even those not usable because they do not meet specifications					
	Hourly Process Weight (Pounds Per Hour)				
Material	Average	Maximum	Minimum	Average Annual (Specify Units)	Intermittent Operation Only (Average Hours Per Week)
Protein				98,840 tpy	

SECTION F – FUELS USED

Coal (Tons/Yr)	% Sulfur	% Ash	Oil (Gal/Yr)	% Sulfur	Grade No.
Natural Gas (Thousand CF/Yr)		LP Gas (Gal/Yr)		Other (Specify)	

SECTION G – STACK PARAMETERS

List each pollutant separately.					
Pollutant (use CAS for HAPs)	Stack Height (ft)	Stack Diameter (ft at top)	Gas Volume (ACFM)	Exit Temp (°F)	Gas Velocity (fps)
N/A					
Stack Base UTM Coordinate X:			Stack Base UTM Coordinate Y:		

SECTION H – ALTERNATIVE STACK PARAMETERS

List each pollutant separately.

Pollutant (use CAS for HAPs)	Stack Height (ft)	Stack Diameter (ft at top)	Gas Volume (ACFM)	Exit Temp (°F)	Gas Velocity (fps)
N/A					

Stack Base UTM Coordinate X:	Stack Base UTM Coordinate Y:

SECTION I – AIR CONTAMINANTS EMITTED

Known or Suspected - Use emission rates after control equipment.

Pollutant (use CAS for HAPs)	Amount		Basis of Estimate (AP-42, testing, engineering estimate, etc)
	Pounds/Hr	Tons/Yr	
PM	0.05	0.24	AP-42
PM10	0.05	0.24	AP-42
PM2.5	0.05	0.24	AP-42

SECTION J1 – AIR POLLUTION CONTROL EQUIPMENT

Type: ☐ Cyclone ☐ Multiclone ☐ Baghouse ☐ Electrostatic Precipitator

☐ Wet Scrubber ☐ Spray Dryer ☒ None

☐ Other – Specify: _____

Name of Manufacturer	Model Number	Date to Be Installed

Application: ☐ Boiler ☐ Kiln ☐ Engine

☐ Other – Specify: _____

Pollutants Removed				
Design Efficiency (%)				

Operating Efficiency (%)				
Describe method used to determine operating efficiency:				

SECTION J2 – GAS CONDITIONS

Gas Conditions	Inlet		Outlet	
Gas Volume (SCFM; 68°F; 14.7 psia)				
Gas Temperature (°F)				
Gas Pressure (in. H_2O)				
Gas Velocity (ft/sec)				
Pollutant Concentration (Specify pollutant and unit of concentration)	Pollutant	Unit of Concentration	Inlet	Outlet
Pressure drop through gas cleaning device (in. H_2O)				

EMISSION UNIT FOR TITLE V PERMIT TO OPERATE

NORTH DAKOTA DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF AIR QUALITY
SFN 61006 (3-2019)

SECTION A – EQUIPMENT INFORMATION

Type of Unit or Process (rotary dryer, cupola furnace, crusher, pelletizer, engine, etc.)	Emission Unit Number:	Emission Point Number:
Protein Cooling Baghouse	159	25
Make	Model	Installation or manufacture date: 03/04/2024
Capacity (manufacturer's or designer's guaranteed maximum)	Operating Capacity (specific units)	
Brief description of operation of unit or process: Protein solids which have been separated in the MSC Process are sent to the protein ring dryer. Protein is dried and process gases are sent to the existing RTO (EP17). Startup gases for the dryer are vented out of a new stack (EP3).		
Brief description of alternative operating scenario (see Section M1 & M2 to elaborate):	Alternative Emission Point:	

SECTION B –OPERATING SCHEDULE

Are you agreeing to a limit on the operating schedule for this unit? ☐Yes ■No

Hours Per Day	Days Per Week	Weeks Per Year	Peak Production Season (if any)	Dates of Annual Shutdown

SECTION C – PRODUCTION RATES (THROUGHPUT LIMITS)

Are you agreeing to a limit on the production for this unit? ☐Yes ■No (If No, show normal operating schedule.)

Material	Process Time Frame			Specify Units (tons, Btu, Gal., etc)
	Hour	Week	Year	

SECTION D1 – APPLICABLE REQUIREMENTS

Generally describe all applicable requirements.

Regulations (i.e. SIP, NESHAP, PSD, NSPS, etc)	Monitoring Requirements	Recordkeeping Requirements	Reporting Requirements	Testing Requirements	Applicable Emission Standards (include units)
ACP-18156 v1.0					12.11 lb/hr SO2
ACP-18156 v1.0					20% Opacity

SECTION D2 – IDENTIFICATION OF AIR CONTAMINANTS

Has emission unit testing been done at the facility? ☐ Yes ■ No

Emission Unit ID	Last Date when a Testing Program was Completed	If Program is Continuous, Give Approximate Testing Frequency	Regulation requiring frequency (NSPS, MACT, Permit Requirement-list permit number)

Add additional pages if necessary

SECTION E – PRODUCTS OF UNIT OR PROCESS

Include all, even those not usable because they do not meet specifications

Material	Hourly Process Weight (Pounds Per Hour)			Average Annual (Specify Units)	Intermittent Operation Only (Average Hours Per Week)
	Average	Maximum	Minimum		
Protein	22,566.2			98,840 tons/yr	

SECTION F – FUELS USED

Coal (Tons/Yr)	% Sulfur	% Ash	Oil (Gal/Yr)	% Sulfur	Grade No.
Natural Gas (Thousand CF/Yr)		LP Gas (Gal/Yr)		Other (Specify)	

SECTION G – STACK PARAMETERS

List each pollutant separately.

Pollutant (use CAS for HAPs)	Stack Height (ft)	Stack Diameter (ft at top)	Gas Volume (ACFM)	Exit Temp (°F)	Gas Velocity (fps)
NOx	130	10	150,000	320	
VOC	130	10	150,000	320	
CO	130	10	150,000	320	
SO2	130	10	150,000	320	
PM/PM10/PM2.5	130	10	150,000	320	
HAPS	130	10	150,000	320	

Stack Base UTM Coordinate X:	Stack Base UTM Coordinate Y:

SECTION H – ALTERNATIVE STACK PARAMETERS

List each pollutant separately.

Pollutant (use CAS for HAPs)	Stack Height (ft)	Stack Diameter (ft at top)	Gas Volume (ACFM)	Exit Temp (°F)	Gas Velocity (fps)
N/A					

Stack Base UTM Coordinate X:	Stack Base UTM Coordinate Y:

SECTION I – AIR CONTAMINANTS EMITTED

Known or Suspected - Use emission rates after control equipment.

Pollutant (use CAS for HAPs)	Amount		Basis of Estimate (AP-42, testing, engineering estimate, etc)
	Pounds/Hr	Tons/Yr	
PM	1.261		
PM10	1.261		
PM2.5	1.261		
VOC	2.50		

SECTION J1 – AIR POLLUTION CONTROL EQUIPMENT

Type: ☐ Cyclone ☐ Multiclone ■ Baghouse ☐ Electrostatic Precipitator

☐ Wet Scrubber ☐ Spray Dryer ☐ None

☐ Other – Specify: _____

Name of Manufacturer	Model Number	Date to Be Installed

Application: ☐ Boiler ☐ Kiln ☐ Engine

■ Other – Specify: Baghouse

Pollutants Removed				
Design Efficiency (%)				

Operating Efficiency (%)				
Describe method used to determine operating efficiency:				

SECTION J2 – GAS CONDITIONS

Gas Conditions	Inlet		Outlet	
Gas Volume (SCFM; 68°F; 14.7 psia)			31,379 scfm	
Gas Temperature (°F)			120	
Gas Pressure (in. H_2O)				
Gas Velocity (ft/sec)				
Pollutant Concentration (Specify pollutant and unit of concentration)	Pollutant	Unit of Concentration	Inlet	Outlet
	see attachment			
Pressure drop through gas cleaning device (in. H_2O) N/A				

EMISSION UNIT FOR TITLE V PERMIT TO OPERATE

NORTH DAKOTA DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF AIR QUALITY
SFN 61006 (3-2019)

SECTION A – EQUIPMENT INFORMATION

Type of Unit or Process (rotary dryer, cupola furnace, crusher, pelletizer, engine, etc.)	Emission Unit Number:	Emission Point Number:
Protein Rail and Truck Loadout	157, 158	32
Make	Model	Installation or manufacture date: 03/04/2024
Capacity (manufacturer's or designer's guaranteed maximum)	Operating Capacity (specific units)	
Brief description of operation of unit or process: Protein is transferred to loadout into truck and railcars which are controlled by the protein loadout dust collector (EP32).		
Brief description of alternative operating scenario (see Section M1 & M2 to elaborate):	Alternative Emission Point:	

SECTION B –OPERATING SCHEDULE

Are you agreeing to a limit on the operating schedule for this unit? ☐Yes ■No

Hours Per Day	Days Per Week	Weeks Per Year	Peak Production Season (if any)	Dates of Annual Shutdown
24	7	52	N/A	varied

SECTION C – PRODUCTION RATES (THROUGHPUT LIMITS)

Are you agreeing to a limit on the production for this unit? ☐Yes ■No (If No, show normal operating schedule.)

Material	Process Time Frame			Specify Units (tons, Btu, Gal., etc)
	Hour	Week	Year	
Protein				98,840 tpy

SECTION D1 – APPLICABLE REQUIREMENTS

Generally describe all applicable requirements.

Regulations (i.e. SIP, NESHAP, PSD, NSPS, etc)	Monitoring Requirements	Recordkeeping Requirements	Reporting Requirements	Testing Requirements	Applicable Emission Standards (include units)
ACP-18156 v1.0					20% Opacity

SECTION D2 – IDENTIFICATION OF AIR CONTAMINANTS

Has emission unit testing been done at the facility? ☐ Yes ■ No			
Emission Unit ID	Last Date when a Testing Program was Completed	If Program is Continuous, Give Approximate Testing Frequency	Regulation requiring frequency (NSPS, MACT, Permit Requirement-list permit number)

Add additional pages if necessary

SECTION E – PRODUCTS OF UNIT OR PROCESS

Include all, even those not usable because they do not meet specifications					
	Hourly Process Weight (Pounds Per Hour)				
Material	Average	Maximum	Minimum	Average Annual (Specify Units)	Intermittent Operation Only (Average Hours Per Week)
Protein				98,840 tpy	

SECTION F – FUELS USED

Coal (Tons/Yr)	% Sulfur	% Ash	Oil (Gal/Yr)	% Sulfur	Grade No.
Natural Gas (Thousand CF/Yr)		LP Gas (Gal/Yr)		Other (Specify)	

SECTION G – STACK PARAMETERS

List each pollutant separately.					
Pollutant (use CAS for HAPs)	Stack Height (ft)	Stack Diameter (ft at top)	Gas Volume (ACFM)	Exit Temp (°F)	Gas Velocity (fps)
PM	13	1.34	20,000	100	
PM10	13	1.34	20,000	100	
PM2.5	13	1.34	20,000	100	
Stack Base UTM Coordinate X:			Stack Base UTM Coordinate Y:		

SECTION H – ALTERNATIVE STACK PARAMETERS

List each pollutant separately.

Pollutant (use CAS for HAPs)	Stack Height (ft)	Stack Diameter (ft at top)	Gas Volume (ACFM)	Exit Temp (°F)	Gas Velocity (fps)
N/A					

Stack Base UTM Coordinate X:	Stack Base UTM Coordinate Y:

SECTION I – AIR CONTAMINANTS EMITTED

Known or Suspected - Use emission rates after control equipment.

Pollutant (use CAS for HAPs)	Amount		Basis of Estimate (AP-42, testing, engineering estimate, etc)
	Pounds/Hr	Tons/Yr	
PM	0.8	3.49	Engineering Estimates
PM10	0.8	3.49	Engineering Estimates
PM2.5	0.8	3.49	Engineering Estimates

SECTION J1 – AIR POLLUTION CONTROL EQUIPMENT

Type: ☐ Cyclone ☐ Multiclone ☐ Baghouse ☐ Electrostatic Precipitator

☐ Wet Scrubber ☐ Spray Dryer ☐ None

☒ Other – Specify: Dust Collector

Name of Manufacturer	Model Number	Date to Be Installed

Application: ☐ Boiler ☐ Kiln ☐ Engine

☐ Other – Specify: Dust Collector

Pollutants Removed				
Design Efficiency (%)	95			

Operating Efficiency (%)	95			

Describe method used to determine operating efficiency:

Manufacturer specifications for operating efficiency.

SECTION J2 – GAS CONDITIONS

Gas Conditions	Inlet		Outlet	
Gas Volume (SCFM; 68°F; 14.7 psia)			20,000	
Gas Temperature (°F)			100	
Gas Pressure (in. H_2O)				
Gas Velocity (ft/sec)				
Pollutant Concentration (Specify pollutant and unit of concentration)	Pollutant	Unit of Concentration	Inlet	Outlet
	PM/PM10/PM2.5			0.80 lb/hr

Pressure drop through gas cleaning device (in. H_2O)

N/A

EMISSION UNIT FOR TITLE V PERMIT TO OPERATE

NORTH DAKOTA DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF AIR QUALITY
SFN 61006 (3-2019)

SECTION A – EQUIPMENT INFORMATION

Type of Unit or Process (rotary dryer, cupola furnace, crusher, pelletizer, engine, etc.)	Emission Unit Number:	Emission Point Number:
Protein Storage Silo	153b, 154b, 155b	27
Make	Model	Installation or manufacture date: 03/04/2024
Capacity (manufacturer's or designer's guaranteed maximum)	Operating Capacity (specific units)	
Brief description of operation of unit or process: After the proteins have been processed they are sent to one of three protein storage silos (153b, 154b, 155b) which are controlled by a dust collector (EP27). The protein is stored here until it is transferred for loadout by truck or rail.		
Brief description of alternative operating scenario (see Section M1 & M2 to elaborate):	Alternative Emission Point:	

SECTION B –OPERATING SCHEDULE

Are you agreeing to a limit on the operating schedule for this unit? ☐Yes ■No

Hours Per Day	Days Per Week	Weeks Per Year	Peak Production Season (if any)	Dates of Annual Shutdown
24	7	52	N/A	varied

SECTION C – PRODUCTION RATES (THROUGHPUT LIMITS)

Are you agreeing to a limit on the production for this unit? ☐Yes ■No (If No, show normal operating schedule.)

Material	Process Time Frame			Specify Units (tons, Btu, Gal., etc)
	Hour	Week	Year	
Protein				98,840 tpy

SECTION D1 – APPLICABLE REQUIREMENTS

Generally describe all applicable requirements.

Regulations (i.e. SIP, NESHAP, PSD, NSPS, etc)	Monitoring Requirements	Recordkeeping Requirements	Reporting Requirements	Testing Requirements	Applicable Emission Standards (include units)
ACP-18156 v1.0					20% Opacity

SECTION D2 – IDENTIFICATION OF AIR CONTAMINANTS

Has emission unit testing been done at the facility? ☐ Yes ■ No			
Emission Unit ID	Last Date when a Testing Program was Completed	If Program is Continuous, Give Approximate Testing Frequency	Regulation requiring frequency (NSPS, MACT, Permit Requirement-list permit number)

Add additional pages if necessary

SECTION E – PRODUCTS OF UNIT OR PROCESS

Include all, even those not usable because they do not meet specifications					
	Hourly Process Weight (Pounds Per Hour)				
Material	Average	Maximum	Minimum	Average Annual (Specify Units)	Intermittent Operation Only (Average Hours Per Week)
Protein				98,840 tpy	

SECTION F – FUELS USED

Coal (Tons/Yr)	% Sulfur	% Ash	Oil (Gal/Yr)	% Sulfur	Grade No.
Natural Gas (Thousand CF/Yr)		LP Gas (Gal/Yr)		Other (Specify)	

SECTION G – STACK PARAMETERS

List each pollutant separately.					
Pollutant (use CAS for HAPs)	Stack Height (ft)	Stack Diameter (ft at top)	Gas Volume (ACFM)	Exit Temp (°F)	Gas Velocity (fps)
PM	10	1.34	13,000	100	
PM10	10	1.34	13,000	100	
PM2.5	10	1.34	13,000	100	
Stack Base UTM Coordinate X:			Stack Base UTM Coordinate Y:		

SECTION H – ALTERNATIVE STACK PARAMETERS

List each pollutant separately.

Pollutant (use CAS for HAPs)	Stack Height (ft)	Stack Diameter (ft at top)	Gas Volume (ACFM)	Exit Temp (°F)	Gas Velocity (fps)
N/A					

Stack Base UTM Coordinate X:	Stack Base UTM Coordinate Y:

SECTION I – AIR CONTAMINANTS EMITTED

Known or Suspected - Use emission rates after control equipment.

Pollutant (use CAS for HAPs)	Amount		Basis of Estimate (AP-42, testing, engineering estimate, etc)
	Pounds/Hr	Tons/Yr	
PM	0.52	2.27	Engineering Estimates
PM10	0.52	2.27	Engineering Estimates
PM2.5	0.52	2.27	Engineering Estimates

SECTION J1 – AIR POLLUTION CONTROL EQUIPMENT

Type: ☐ Cyclone ☐ Multiclone ☐ Baghouse ☐ Electrostatic Precipitator

☐ Wet Scrubber ☐ Spray Dryer ☐ None

☒ Other – Specify: Dust Collector

Name of Manufacturer	Model Number	Date to Be Installed

Application: ☐ Boiler ☐ Kiln ☐ Engine

☐ Other – Specify: Dust Collector

Pollutants Removed				
Design Efficiency (%)				

Operating Efficiency (%)				
Describe method used to determine operating efficiency:				

SECTION J2 – GAS CONDITIONS

Gas Conditions	Inlet		Outlet	
Gas Volume (SCFM; 68°F; 14.7 psia)			13,000	
Gas Temperature (°F)			100	
Gas Pressure (in. H_2O)				
Gas Velocity (ft/sec)				
Pollutant Concentration (Specify pollutant and unit of concentration)	Pollutant	Unit of Concentration	Inlet	Outlet
	PM/PM10/PM2.5			0.52 lb/hr
Pressure drop through gas cleaning device (in. H_2O) N/A				

EMISSION UNIT FOR TITLE V PERMIT TO OPERATE

NORTH DAKOTA DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF AIR QUALITY
SFN 61006 (3-2019)

SECTION A – EQUIPMENT INFORMATION

Type of Unit or Process (rotary dryer, cupola furnace, crusher, pelletizer, engine, etc.)	Emission Unit Number:	Emission Point Number:
Protein Ring Dryer	86	17, 3A
Make	**Model**	**Installation or manufacture date**
Fluid Quip		03/04/2024
Capacity (manufacturer's or designer's guaranteed maximum) 70 MMBtu/hr	**Operating Capacity (specific units)** 70 MMBtu/hr	
Brief description of operation of unit or process: Protein solids which have been separated in the MSC Process are sent to the protein ring dryer. Protein is dried and process gases are sent to the existing RTO (EP17). Startup gases for the dryer are vented out of a new stack (EP3).		
Brief description of alternative operating scenario (see Section M1 & M2 to elaborate):	Alternative Emission Point:	

SECTION B –OPERATING SCHEDULE

Are you agreeing to a limit on the operating schedule for this unit? ☐Yes ■No

Hours Per Day	Days Per Week	Weeks Per Year	Peak Production Season (if any)	Dates of Annual Shutdown

SECTION C – PRODUCTION RATES (THROUGHPUT LIMITS)

Are you agreeing to a limit on the production for this unit? ☐Yes ■No (If No, show normal operating schedule.)

Material	Process Time Frame			Specify Units (tons, Btu, Gal., etc)
	Hour	Week	Year	

SECTION D1 – APPLICABLE REQUIREMENTS

Generally describe all applicable requirements.

Regulations (i.e. SIP, NESHAP, PSD, NSPS, etc)	Monitoring Requirements	Recordkeeping Requirements	Reporting Requirements	Testing Requirements	Applicable Emission Standards (include units)
ACP-18156 v1.0					12.11 lb/hr SO2
ACP-18156 v1.0					20% Opacity

SECTION D2 – IDENTIFICATION OF AIR CONTAMINANTS

Has emission unit testing been done at the facility? ☐ Yes ■ No

Emission Unit ID	Last Date when a Testing Program was Completed	If Program is Continuous, Give Approximate Testing Frequency	Regulation requiring frequency (NSPS, MACT, Permit Requirement-list permit number)

Add additional pages if necessary

SECTION E – PRODUCTS OF UNIT OR PROCESS

Include all, even those not usable because they do not meet specifications

Material	Hourly Process Weight (Pounds Per Hour)			Average Annual (Specify Units)	Intermittent Operation Only (Average Hours Per Week)
	Average	Maximum	Minimum		
Protein	22,566.2			98,840 tons/yr	

SECTION F – FUELS USED

Coal (Tons/Yr)	% Sulfur	% Ash	Oil (Gal/Yr)	% Sulfur	Grade No.
Natural Gas (Thousand CF/Yr)		LP Gas (Gal/Yr)		Other (Specify)	

SECTION G – STACK PARAMETERS

List each pollutant separately.

Pollutant (use CAS for HAPs)	Stack Height (ft)	Stack Diameter (ft at top)	Gas Volume (ACFM)	Exit Temp (°F)	Gas Velocity (fps)
NOx	130	10	150,000	320	
VOC	130	10	150,000	320	
CO	130	10	150,000	320	
SO2	130	10	150,000	320	
PM/PM10/PM2.5	130	10	150,000	320	
HAPS	130	10	150,000	320	

Stack Base UTM Coordinate X:	Stack Base UTM Coordinate Y:

SECTION H – ALTERNATIVE STACK PARAMETERS

List each pollutant separately.

Pollutant (use CAS for HAPs)	Stack Height (ft)	Stack Diameter (ft at top)	Gas Volume (ACFM)	Exit Temp (°F)	Gas Velocity (fps)
N/A					

Stack Base UTM Coordinate X:	Stack Base UTM Coordinate Y:

SECTION I – AIR CONTAMINANTS EMITTED

Known or Suspected - Use emission rates after control equipment.

Pollutant (use CAS for HAPs)	Amount		Basis of Estimate (AP-42, testing, engineering estimate, etc)
	Pounds/Hr	Tons/Yr	
See Attachment			

SECTION J1 – AIR POLLUTION CONTROL EQUIPMENT

Type: ☐ Cyclone ☐ Multiclone ☐ Baghouse ☐ Electrostatic Precipitator

☐ Wet Scrubber ☐ Spray Dryer ☐ None

☒ Other – Specify: Regenerative Thermal Oxidizer

Name of Manufacturer	Model Number	Date to Be Installed
Eisenmann		

Application: ☐ Boiler ☐ Kiln ☐ Engine

☒ Other – Specify: RTO(2), Protein Dryer (1) and DDGS Dryers (4)

Pollutants Removed	All criteria and HAPS	excluding S02		
Design Efficiency (%)	90-98%			

Operating Efficiency (%)				

Describe method used to determine operating efficiency:

see attachment

SECTION J2 – GAS CONDITIONS

Gas Conditions	Inlet		Outlet	
Gas Volume (SCFM; 68°F; 14.7 psia)			150,000	
Gas Temperature (°F)			320	
Gas Pressure (in. H_2O)				
Gas Velocity (ft/sec)				
Pollutant Concentration (Specify pollutant and unit of concentration)	Pollutant	Unit of Concentration	Inlet	Outlet
	see attachment			

Pressure drop through gas cleaning device (in. H_2O)

N/A

EMISSION UNIT FOR TITLE V PERMIT TO OPERATE

NORTH DAKOTA DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF AIR QUALITY
SFN 61006 (3-2019)

SECTION A – EQUIPMENT INFORMATION

Type of Unit or Process (rotary dryer, cupola furnace, crusher, pelletizer, engine, etc.)	Emission Unit Number:	Emission Point Number:
Hammermill #5	84	2
Make	Model	Installation or manufacture date: 03/04/2024
Capacity (manufacturer's or designer's guaranteed maximum)	Operating Capacity (specific units)	
Brief description of operation of unit or process: After the protein has been dried it is sent to hammermill #5 (EU84) for further processing, this is controlled by the hammermill baghouse (EP2)		
Brief description of alternative operating scenario (see Section M1 & M2 to elaborate):	Alternative Emission Point:	

SECTION B –OPERATING SCHEDULE

Are you agreeing to a limit on the operating schedule for this unit? ☐Yes ■No

Hours Per Day	Days Per Week	Weeks Per Year	Peak Production Season (if any)	Dates of Annual Shutdown
24	7	52	N/A	varied

SECTION C – PRODUCTION RATES (THROUGHPUT LIMITS)

Are you agreeing to a limit on the production for this unit? ☐Yes ■No (If No, show normal operating schedule.)

Material	Process Time Frame			Specify Units (tons, Btu, Gal., etc)
	Hour	Week	Year	
Protein				98,840 tpy

SECTION D1 – APPLICABLE REQUIREMENTS

Generally describe all applicable requirements.

Regulations (i.e. SIP, NESHAP, PSD, NSPS, etc)	Monitoring Requirements	Recordkeeping Requirements	Reporting Requirements	Testing Requirements	Applicable Emission Standards (include units)
ACP-18156 v1.0					20% Opacity

SECTION D2 – IDENTIFICATION OF AIR CONTAMINANTS

Has emission unit testing been done at the facility? ☐ Yes ■ No			
Emission Unit ID	Last Date when a Testing Program was Completed	If Program is Continuous, Give Approximate Testing Frequency	Regulation requiring frequency (NSPS, MACT, Permit Requirement-list permit number)

Add additional pages if necessary

SECTION E – PRODUCTS OF UNIT OR PROCESS

Include all, even those not usable because they do not meet specifications					
	Hourly Process Weight (Pounds Per Hour)				
Material	Average	Maximum	Minimum	Average Annual (Specify Units)	Intermittent Operation Only (Average Hours Per Week)
Protein				98,840 tpy	

SECTION F – FUELS USED

Coal (Tons/Yr)	% Sulfur	% Ash	Oil (Gal/Yr)	% Sulfur	Grade No.
Natural Gas (Thousand CF/Yr)		LP Gas (Gal/Yr)		Other (Specify)	

SECTION G – STACK PARAMETERS

List each pollutant separately.					
Pollutant (use CAS for HAPs)	Stack Height (ft)	Stack Diameter (ft at top)	Gas Volume (ACFM)	Exit Temp (°F)	Gas Velocity (fps)
PM	13	1.34	20,000	100	
PM10	13	1.34	20,000	100	
PM2.5	13	1.34	20,000	100	
Stack Base UTM Coordinate X:			Stack Base UTM Coordinate Y:		

SECTION H – ALTERNATIVE STACK PARAMETERS

List each pollutant separately.

Pollutant (use CAS for HAPs)	Stack Height (ft)	Stack Diameter (ft at top)	Gas Volume (ACFM)	Exit Temp (°F)	Gas Velocity (fps)
N/A					

Stack Base UTM Coordinate X:	Stack Base UTM Coordinate Y:

SECTION I – AIR CONTAMINANTS EMITTED

Known or Suspected - Use emission rates after control equipment.

Pollutant (use CAS for HAPs)	Amount		Basis of Estimate (AP-42, testing, engineering estimate, etc)
	Pounds/Hr	Tons/Yr	
PM	0.96		Engineering Estimates
PM10	0.96		Engineering Estimates
PM2.5	0.96		Engineering Estimates

SECTION J1 – AIR POLLUTION CONTROL EQUIPMENT

Type: ☐ Cyclone ☐ Multiclone ■ Baghouse ☐ Electrostatic Precipitator

☐ Wet Scrubber ☐ Spray Dryer ☐ None

☐ Other – Specify: _____

Name of Manufacturer	Model Number	Date to Be Installed

Application: ☐ Boiler ☐ Kiln ☐ Engine

■ Other – Specify: Baghouse

Pollutants Removed				
Design Efficiency (%)	99			

Operating Efficiency (%)	99			

Describe method used to determine operating efficiency:

Manufacturer specifications for operating efficiency.

SECTION J2 – GAS CONDITIONS

Gas Conditions	Inlet		Outlet	
Gas Volume (SCFM; 68°F; 14.7 psia)			28,000	
Gas Temperature (°F)			Ambient	
Gas Pressure (in. H_2O)				
Gas Velocity (ft/sec)			37.14	
Pollutant Concentration (Specify pollutant and unit of concentration)	Pollutant	Unit of Concentration	Inlet	Outlet
	PM/PM10/PM2.5			0.96 lb/hr

Pressure drop through gas cleaning device (in. H_2O)

1-6

EMISSION UNIT FOR TITLE V PERMIT TO OPERATE

NORTH DAKOTA DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF AIR QUALITY
SFN 61006 (3-2019)

SECTION A – EQUIPMENT INFORMATION

Type of Unit or Process (rotary dryer, cupola furnace, crusher, pelletizer, engine, etc.)	Emission Unit Number:	Emission Point Number:
MSC Centrate	N/A	24
Make	Model	Installation or manufacture date: 03/04/2024
Capacity (manufacturer's or designer's guaranteed maximum)	Operating Capacity (specific units)	
Brief description of operation of unit or process: A portion of the plants whole stillage is sent to MSC process. Here corn protein is mechanically separated from the corn solids from fermentation.		
Brief description of alternative operating scenario (see Section M1 & M2 to elaborate):	Alternative Emission Point:	

SECTION B –OPERATING SCHEDULE

Are you agreeing to a limit on the operating schedule for this unit? ☐Yes ■No

Hours Per Day	Days Per Week	Weeks Per Year	Peak Production Season (if any)	Dates of Annual Shutdown
24	7	52	N/A	varied

SECTION C – PRODUCTION RATES (THROUGHPUT LIMITS)

Are you agreeing to a limit on the production for this unit? ☐Yes ■No (If No, show normal operating schedule.)

Material	Process Time Frame			Specify Units (tons, Btu, Gal., etc)
	Hour	Week	Year	

SECTION D1 – APPLICABLE REQUIREMENTS

Generally describe all applicable requirements.

Regulations (i.e. SIP, NESHAP, PSD, NSPS, etc)	Monitoring Requirements	Recordkeeping Requirements	Reporting Requirements	Testing Requirements	Applicable Emission Standards (include units)

SECTION D2 – IDENTIFICATION OF AIR CONTAMINANTS

Has emission unit testing been done at the facility? ☐ Yes ■ No			
Emission Unit ID	Last Date when a Testing Program was Completed	If Program is Continuous, Give Approximate Testing Frequency	Regulation requiring frequency (NSPS, MACT, Permit Requirement-list permit number)

Add additional pages if necessary

SECTION E – PRODUCTS OF UNIT OR PROCESS

Include all, even those not usable because they do not meet specifications					
Material	Hourly Process Weight (Pounds Per Hour)			Average Annual (Specify Units)	Intermittent Operation Only (Average Hours Per Week)
	Average	Maximum	Minimum		

SECTION F – FUELS USED

Coal (Tons/Yr)	% Sulfur	% Ash	Oil (Gal/Yr)	% Sulfur	Grade No.
Natural Gas (Thousand CF/Yr)		LP Gas (Gal/Yr)		Other (Specify)	

SECTION G – STACK PARAMETERS

List each pollutant separately.					
Pollutant (use CAS for HAPs)	Stack Height (ft)	Stack Diameter (ft at top)	Gas Volume (ACFM)	Exit Temp (°F)	Gas Velocity (fps)
VOC	60	1.17	6,772	185	
HAPS	60	1.17	6,772	185	
Stack Base UTM Coordinate X:			Stack Base UTM Coordinate Y:		

SECTION H – ALTERNATIVE STACK PARAMETERS

List each pollutant separately.

Pollutant (use CAS for HAPs)	Stack Height (ft)	Stack Diameter (ft at top)	Gas Volume (ACFM)	Exit Temp (°F)	Gas Velocity (fps)
N/A					

Stack Base UTM Coordinate X:	Stack Base UTM Coordinate Y:

SECTION I – AIR CONTAMINANTS EMITTED

Known or Suspected - Use emission rates after control equipment.

Pollutant (use CAS for HAPs)	Amount		Basis of Estimate (AP-42, testing, engineering estimate, etc)
	Pounds/Hr	Tons/Yr	
VOC	0.826	3.62	Engineering Estimates
HAPS	0.085	0.37	Engineering Estimates

SECTION J1 – AIR POLLUTION CONTROL EQUIPMENT

Type: ☐ Cyclone ☐ Multiclone ☐ Baghouse ☐ Electrostatic Precipitator

☐ Wet Scrubber ☐ Spray Dryer ■ None

☐ Other – Specify: _____

Name of Manufacturer	Model Number	Date to Be Installed

Application: ☐ Boiler ☐ Kiln ☐ Engine

☐ Other – Specify: _____

Pollutants Removed				
Design Efficiency (%)				

Operating Efficiency (%)				
Describe method used to determine operating efficiency:				

SECTION J2 – GAS CONDITIONS

Gas Conditions	Inlet		Outlet	
Gas Volume (SCFM; 68°F; 14.7 psia)			6,772	
Gas Temperature (°F)			185	
Gas Pressure (in. H_2O)				
Gas Velocity (ft/sec)				
Pollutant Concentration (Specify pollutant and unit of concentration)	Pollutant	Unit of Concentration	Inlet	Outlet
	VOC			0.826 lb/hr
	HAPS			0.085 lb/hr
Pressure drop through gas cleaning device (in. H_2O)				

PERMIT APPLICATION FOR TITLE V PERMIT TO OPERATE

NORTH DAKOTA DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF AIR QUALITY
SFN 52858 (9-2021)

SECTION A - FACILITY INFORMATION

Name of Firm or Organization Tharaldson Ethanol Plant I, LLC		
Responsible Person Corey Aanenson		
Title EHS Manager	Telephone Number (701) 347-3319	E-mail Address caanenson@tharaldsonethanol.com
Mailing Address (Street & Number) 3549 - 153rd Ave SE		
City Casselton	State ND	ZIP Code 58012
Contact Person for Air Pollution Matters Corey Aanenson		
Title EH&S Manager	Telephone Number (701) 347-3319	E-mail Address caanenson@tharaldsonethanol.com
Mailing Address (Street & Number) 3549 - 153rd Ave SE		
City Casselton	State ND	ZIP Code 58012
Facility Name Tharaldson Ethanol Plant I LLC		
Facility Address (Street & Number) 3549 - 153rd Ave SE		
City Casselton	State ND	ZIP Code 58012

County	Latitude (decimal degrees)	Longitude (decimal degrees)

Legal Description of Facility Site

Quarter	Quarter	Section	Township	Range

Land Area at Facility Site _____ Acres (or) _____ Sq. Ft.	MSL Elevation at Facility

SECTION B – GENERAL NATURE OF BUSINESS

Describe Nature of Business	North American Industry Classification System Code (NAICS)	Standard Industrial Classification Code (SIC)
Ethanol Production	325193	2869-08

SECTION C – GENERAL PERMIT INFORMATION

Type of Permit to Operate? ☒ Initial ☒ Minor Modification ☒ Significant Modification

If application is for renewal or revision of an existing Title V permit, please provide the following data:

Current Permit to Operate Number: 25 Renewal: X Revision: _____	Current Permit to Operate Expiration Date: 02/14/2026

SECTION D – MINOR PERMIT MODIFICATION

Affected Emission Unit(s):	Description of Proposed Change:
Attached in summary	Attached in summary
Applicable Requirements (NSPS, PSD, etc.): Attached in summary	Net Effect on Source Emissions Emission Unit(s): See Attached permit Facility: See Attached permit
Are you requesting that minor permit modification procedures be used in accordance with NDAC 33.1-15-14-06.e(1)(a)? ☐ Yes ■ No	

SECTION E – SOURCE IDENTIFICATION AND CATEGORY OF EACH SOURCE INCLUDED ON THIS PERMIT APPLICATION

Your Emission Unit Number	Emission Unit Description	New Emission Unit? (check if yes)	PTC Number/ ACP Number	Initial Application	Minor Modification	Significant Modification	Other	Explain if Other
86	Protein ring dryer	✔	ACP-18156 v1.0	☐	☐	☐	✔	Administrative permit amendment
159	Protein cyclone	✔	ACP-18156 v1.0	☐	☐	☐	✔	Administrative permit amendment
153b	Protein storage silo	✔	ACP-18156 v1.0	☐	☐	☐	✔	Administrative permit amendment
154b	Protein storage silo	✔	ACP-18156 v1.0	☐	☐	☐	✔	Administrative permit amendment
157	Protein rail loadout	✔	ACP-18156 v1.0	☐	☐	☐	✔	Administrative permit amendment
158	Protein truck loadout	✔	ACP-18156 v1.0	☐	☐	☐	✔	Administrative permit amendment
N/A	MSC centrate building	✔	ACP-18156 v1.0	☐	☐	☐	✔	Administrative permit amendment
		☐		☐	☐	☐	☐	
		☐		☐	☐	☐	☐	
		☐		☐	☐	☐	☐	
		☐		☐	☐	☐	☐	
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		☐		☐	☐	☐	☐	
		☐		☐	☐	☐	☐	

Add additional pages if necessary

SECTION F1 – IDENTIFICATION OF AIR CONTAMINANTS

Check all which are emitted in measurable quantities into the atmosphere from any operation at facility

☐ Arsenic	☐ Chlorine Compounds	☐ Sulfur Compounds	☐ Radioisotopes
☐ Asbestos	☐ Chromium Compounds	☐ Hydrogen Sulfide	☐ Visible Emissions
☐ Beryllium	☐ Fluoride Compounds	☐ Odors	■ Particulates (specify)
☐ Cadmium	■ Volatile Organic Compounds	■ Carbon Monoxide	☐ Dust
☐ Lead	☐ Other Organic Compounds	■ Nitrogen Compounds	☐ Silica
☐ Mercury	☐ Greenhouse Gases (CO_2e)	☐ Pesticides	☐ Other (specify)

List Specific Compounds:

See attached attached construction permit ACP-18156 v1.0

SECTION F2 – IDENTIFICATION OF AIR CONTAMINANTS

Has emission unit testing been done at the facility? ■ Yes ☐ No

Emission Unit No.	Last Date when a Testing Program was Completed	If Program is Continuous, Give Approximate Testing Frequency	Regulation requiring frequency (NSPS, MACT, Permit Requirement-list permit number)
EP17	10/15/2024		ACO-18156 v1.0
EP25	10/24/2024		ACO-18156 v1.0
EP32	10/16/2024		ACO-18156 v1.0
EP8	10/15/2024		AOP-28451 v3.0
EP15	10/15/2024		AOP-28451 v3.0
EP22	10/16/2024		AOP-28451 v3.0

Add additional pages if necessary

SECTION G1 – ADDITIONAL FORMS

Indicate which of the following forms are attached and made part of the application	
☐ Emission Unit Information (SFN 61006)	☐ Flexible Permits (SFN 61007)
☐ Compliance Schedule and Plan (SFN 61008)	☐ Potential To Emit Table

SECTION G2 – OTHER ATTACHMENTS INCLUDED AS PART OF THIS APPLICATION

1.		4.	
2.		5.	
3.		6.	

I, the undersigned applicant, am fully aware that statements made in this application and the attached exhibits and statements constitute the application for Permit to Operate Air Contaminant sources from the North Dakota Department of Environmental Quality and certify that the information in this application is true, correct and complete to the best of my knowledge and belief. Further, I agree to comply with the provisions of Chapter 23.1-06 of the North Dakota Century Code and all rules and regulations of the Department, or revisions thereof. I also understand the permit is nontransferable and, if granted a permit, I will promptly notify the Department upon sale or legal transfer of this permitted establishment.

Signature of Applicant	Date
	02/28/2025

INSTRUCTIONS

These instructions are intended to assist permit applicants in the completion of the enclosed forms with the degree of accuracy and detail necessary to allow the determination of whether to grant or deny a permit to operate an air contaminant source or modification.

All information included in the application, including maximum estimated emission rates, will be used to make the above determination. The information that is supplied in the application may be used to establish permit conditions. The emission rates provided should be based on the most credible data available. Although AP-42 provides general information, it should not be solely relied on to develop emission rates. Other sources of information that accurately represent the actual conditions that the emission unit will be operated under, such as actual test data or manufacturer's data, may be preferable.

For any air contaminant source or modification described in SFN 52858, SFN 61006 must also be must be completed and attached for each emission unit. For the facility's compliance schedule, SFN 61008 must be completed and submitted. If the facility requests a flexible permit SFN 61007, must be completed and submitted.

Those existing sources of air contaminants which are proven by the applicant to be designed or controlled so as to operate without emitting air contaminants in violation of air pollution rules and regulations will be granted a permit to operate.

Certain sizes and types of existing or new sources are exempted from the requirement to obtain a permit to continue operating or to construct. These sizes are specified in the instruction sheets for the relevant permit application forms or can be obtained by contacting the Department.

Any information included on the forms, other than emission data, that would divulge production or sales figures or methods, processes or production unique to such person or would otherwise tend to affect adversely the competitive position of such person by revealing trade secrets should be noted by inserting the word "confidential" in the margin next to the appropriate item. Any information, other than production figures, that is requested to be kept in confidence must be justified by a written statement setting forth the reasons for the request. All information not marked confidential will be available for public inspection.

These forms are intended to inform permit applicants of the type of information required in order that a permit to operate or construct be granted. It is not possible to design forms which are ideally suited to every conceivable operation. Permit applicants are encouraged to submit additional supplementary material when it is felt that the completion of these forms does not provide an adequate explanation of the operation.

It will be necessary to refer to the North Dakota Air Pollution Control Rules (Article 33.1-15 NDAC; online at www.legis.nd.gov/information/acdata/html/33.1-15.html), especially those parts which deal with the permit system and those chapters which specify emission limitations for each air contaminant, in order to satisfactorily complete a permit application. Electronic copies of air pollution control permit application forms are available online at www.deq.nd.gov/AQ/forms.aspx. Paper copies of all forms, as well as the rules, are available on request. To cover the costs of printing and postage, the charge for a copy of the North Dakota Air Pollution Control Rules is $15.00.

Applicants should contact the Department prior to preparation and submittal of an application to determine what additional information will be required for a particular source or modification and the method to be used in performing the analyses.

SEND COMPLETED APPLICATION AND ALL ATTACHMENTS TO:

North Dakota Department of Environmental Quality
Division of Air Quality
4201 Normandy Street, 2nd Floor
Bismarck, ND 58503-1324
(701) 328-5188